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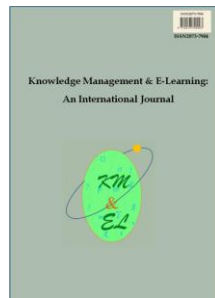
The prospects of Web 2.0 technologies in teaching and learning in higher learning institutes: The case study of the Sokoine University of Agriculture in Tanzania

Wulystan Pius Mtega
Ronald Benard
Matulanya Dettu
Sokoine University of Agriculture, Tanzania

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Wulystan Pius Mtega*

Sokoine University of Agriculture, Tanzania
E-mail: wmtega@gmail.com

Ronald Benard

Sokoine University of Agriculture, Tanzania
E-mail: ronagi@yahoo.com

Matulanya Dettu

Sokoine University of Agriculture, Tanzania
E-mail: matulanya2015@gmail.com

*Corresponding author

Abstract: The study investigated the perceptions of students and lecturers on Web 2.0 as learning and teaching tools. It identified the commonly used web 2.0 tools; determined how the tools facilitate teaching and learning; assessed the appropriateness of features of the commonly used web 2.0 tools in teaching and learning and; determined the challenges associated with the usage of the tools in teaching and learning in higher education environments. The study was conducted at the Sokoine University of Agriculture (SUA) in Tanzania; it employed combined research designs where both qualitative and quantitative designs were used. Stratified sampling techniques were employed to select respondents from the different strata namely students (undergraduate and postgraduate) and teaching staff. Structured questionnaires were distributed to 120 students and 50 teaching staff who were randomly selected from each stratum. Findings show that blogs, Facebook, Wikis, Google drive and YouTube were used for teaching and learning at SUA. However, the level of usage of Web 2.0 tools for non academic activities was higher than for academic purposes. It is concluded that that not all tools and applications were suitable for teaching and learning. It is recommended that students and staff should be trained on how to use Web 2.0 tools in teaching and learning. Institutes should promote the usage of such tools because some of them have suitable applications for teaching and learning. Developers of Web 2.o tools should incorporate more applications that may help teaching staff to supervise and assist students in the learning process.

Keywords: Web 2.0 tools; e-Learning; Teaching and learning; Tanzania; Sokoine University of Agriculture

Biographical notes: Wulystan Pius Mtega is Lecturer at the Sokoine University of Agriculture and a Librarian at the Sokoine National Agricultural Library in Tanzania. His research interests include knowledge management, and information and communication technology for development.

Ronald Benard is an Assistant Lecturer at the Sokoine University of Agriculture and an Assistant Librarian at the Sokoine National Agricultural Library in Tanzania. His research areas include Information management, Information Management Systems, Agricultural Information and communication, Communication technology for development and Record Management.

Matulanya Dettu is a former student of Sokoine University of Agriculture. He is currently working as an information scientist.

1. Introduction

Advancements in Information and Communication Technologies (ICTs) particularly Web technologies have brought about new approaches for teaching and learning. The web has the so called Web-Based Learning Tools (WBLTs) which facilitate the teaching and learning process. WBLTs are the interactive web-based tools that support learning by enhancing, amplifying, and guiding the cognitive processes of learners (Kay, 2010).

Web based learning includes online courses conducted through the web. Web based learning provides a flexible learning options for students; moreover it has potentials of being used by both on campus and off campus students (Preston et al., 2010). This type of learning takes place through discussion forums via email, videoconferencing, and live lectures (video streaming) (McKimm, Jollie, & Cantillon, 2003). According to Aggarwal (2000), the web supports information storage, dissemination and information retrieval. It supports both synchronous and asynchronous teaching and learning because web resources can be accessed at any given time. This is what makes the web appropriate for teaching and learning. The web supports interactions through chat rooms, e-mails, discussion forums, and video and web conferencing. These applications facilitate teaching and learning. Moreover, the web supports course development; Hazari (1998) mentions that text, graphic, audio and video web applications support the development of web based courses. Web course management systems including the blackboard facilitate course delivery (Tiedemann, 2002).

The Web is known to exist in generations; currently the first web generation (the Web 1.0) and the second (Web 2.0) are known. According to Cormode and Krishnamurthy (2008); the web's ability to form connections between users and post contents in many forms (photos, videos, texts) form the major difference between Web 1.0 and Web 2.0. The main feature of Web 1.0 is its static nature as it allows limited interaction (Giustini, 2006). Web 1.0 is made up of pages grouped into websites where contents can only be accessed through search tools but users can not edit pages.

The other Web generation the Web 2.0 is more interactive. Darwish and Lakhtaria (2011) defines Web 2.0 as second generation World Wide Web applications (such as wikis and blogs etc.) that allow internet users to create, edit and save contents. Web 2.0 is social software; according to Dalsgaard (2008), social is often described as communication, construction and collaboration. For this reason, Web 2.0 must have applications which support communication, collaboration and sharing. According to scholars (Livingstone & Brake, 2010; Dwyer, Hiltz, & Passerini, 2007); people use these sites for communication and maintaining relationships. The technologies allow users to collaborate on developing web contents. Web 2.0 represents a shift of Web from being a medium in which information is transmitted and consumed into a being platform in

which contents are created, shared, edited, and managed (Downes, 2005). Web 2.0 pages are read, write and save web pages, they enhance sharing of contents and that they are collaborative and open (Graham, 2005).

The current study investigates the perceptions of students and lectures on Web 2.0 as learning and teaching tools. Specifically the study identifies the commonly used web 2.0 tools; determines how the tools facilitate teaching and learning; assesses the appropriateness of features of the commonly used web 2.0 tools in teaching and learning and; determines the challenges associated with the usage of the tools in teaching and learning in higher education environments.

1.1. Conceptual framework

This study was guided by the Quadratic Usage Framework (QUF) in investigating how Web 2.0 can support the teaching and learning processes. According to Mardis, Hoffman, and Marshall (2008); QUF can assists to explain the factors that influenced the acceptance, intention to use and usage of technologies in particular environments. The framework seeks to explain the dynamics of the technology usage while incorporating the personal characteristics and environmental factors. The framework (see Fig. 1) is explained as follows: (i) technology, refers to factors based on access to or functionality of the system itself; (ii) competence, consists of factors that affect the individual's skills, education, knowledge, and experience which impact whether they know how to use the technology. These will vary from user to user; (iii) culture-related values as reflected in policy structures. This includes impinging factors from the external environment encompassing historic practices, organizational settings, institutional policies, as well as cultural norms and values; and (iv) personal values: preferences, beliefs, traditions, and trust that are linked to the individual user's motivation and choice.
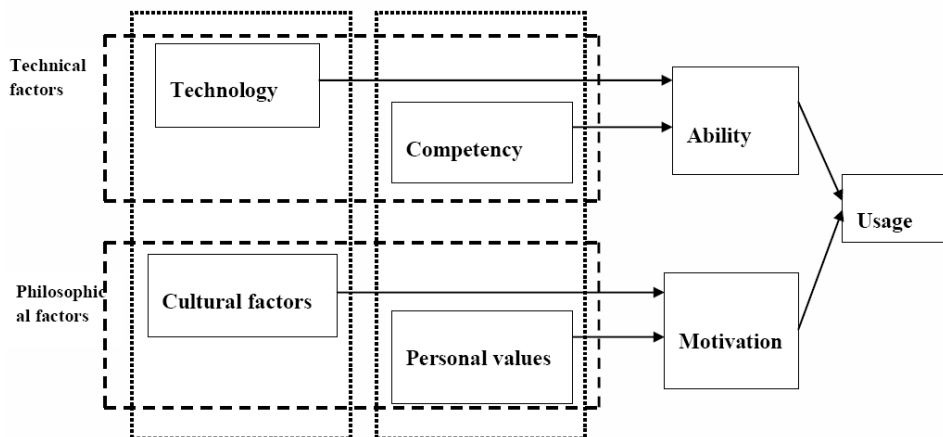
Fig. 1. Quadratic usage framework (QUF)

In the context of this study, technology would mean the Web 2.0; competence would mean the ability to use the tools; cultural-related and personal values would influence the usage of the tools either positively or negatively as they can have impacts on one's ability to use the tools. Motivation is either intrinsic to extrinsic but can always influence the individual to use the technology in performing a task.

2. Literature review

2.1. Commonly Web 2.0 tools used for teaching and learning

Among the learning technologies, web 2.0 tools and services are known to support much flexibility in the learning processes and enhance easy sharing, creation, and re-use of study contents that are managed by the instructors and students (Anderson, 2007). Web 2.0 enhances learners not to only download pre-packaged content but also empowering them to become active contributors and publishers. Web 2.0 affordances such as the ability to network, communicate, collaborate, co-create and aggregate knowledge offer significant opportunities for learning and teaching in higher learning institution (Narayan & Baglow, 2010). There are various web 2.0 tools used for teaching and learning in higher education. Scholars (Salehe, 2008; Anderson, 2007; Grosseck, 2009) indicate that tools such as blogs, Google groups, Wikis, YouTube, Google docs, RSS and Podcasting are more popular in teaching and learning. Furthermore, Yoo and Huang (2011) describe the instant messenger, online communities, video sharing tools and web conferencing tools as the main common tools used for teaching and learning while mash-ups, video podcasting, tagging and audio podcasting are among the Web 2.0 applications used in learning and teaching (Flanagan & Calandra, 2005, Anderson, 2007; Salehe, 2008).

Through Web 2.0 tools people can create virtual communities, according to Selwyn (2007), people use virtual communities in teaching and learning as Web 2.0 tools facilitate uploading personal opinions, participating in team work, and sharing knowledge. For example, students and instructors in the University of London have been using Facebook for exchanging information on location of lectures, timetable, seminars and assignments and examination results (Selwyn, 2009). In Romania, students and instructors use blogs in updating new information such as assignments and homework, exploring collaborative writing, project management and developing their knowledge (Grosseck, 2009). Podcasting has been used in Duke University primarily for disseminating recorded lectures and discussions (Flanagan & Calandra, 2005). Video podcast can also be used when teaching a topic that involves psychomotor skills or many visuals (Moore, 2006).

2.2. Factors influencing the adoption and usage of Web 2.0 tools in teaching and learning

Despite the massive advantages that Web 2.0 tools have in teaching and learning process, there are factors that influence the adoption and usage of Web 2.0 tools in teaching and learning. According to Orehovacki, Bubas, and Konecki (2009), perceptions on Web 2.0 and organizational culture may influence the adoption and usage of Web 2.0 tools in education. Other factors including culture and individual competencies including technology experience may affect the level of adoption and usage of these tools in teaching and learning (Yoo & Huang, 2011). For instance, Armstrong and Franklin (2008) state that not all institutions allow Web 2.0 tools to work on their network systems. This is mainly due to limited knowledge on the roles which can be performed by these technologies.

According to Echeng, Usoro, and Majewski (2013), when there is an academic service and student support system towards using Web 2.0 tools and environment that promotes cooperative learning it is easily for the tools to facilitate effective teaching and learning process. Thus, the institutions and individuals must get involved in enhancing

the adoption and usage of the tools in teaching and learning. Lack of institutional support leaves instructors with the responsibility of taking the risks in using Web 2.0 tools for their teaching (Armstrong & Frankilin, 2008), this limits the level of usage of Web 2.0 tools in the institution. Institutions should create important infrastructures and environments needed for usage of the Web 2.0 tools for supporting teaching and learning; this may include subscribing to adequate internet bandwidth and having regulations which recognize the roles played by Web 2.0 tools in teaching and learning. According to Schlenkrich and Sewry (2012), fast internet links should be used to access Web 2.0 tools and facilitate large volumes of information transfer. Poor infrastructure including low Internet bandwidth, lack of technical support and high cost of internet connectivity are the major barriers to using Web 2.0 tools in learning and teaching (Lwoga, 2012).

For Web 2.0 tools to be useful in supporting teaching and learning, it is important to select simple and easy to use tools. The usefulness and ease of use are significant factors for predicting users' intentions to adopt Web 2.0 applications, which ultimately influences the actual usage of such technologies (Dwivedi, Williams, Ramdani, Niranjan, & Weerakkody, 2011). Moreover, Web 2.0 tools should provide users with a wide-range of features and functionalities (Schlenkrich & Sewry, 2012), this may make the tools more successful in supporting teaching and learning processes.

Other factors influencing the usage of the tools may include the hardware and software incompatibility and inadequate knowledge amongst both staff and students. Moreover, these technologies cannot facilitate learning to some people; Redecker, Ala-mutka, Bacigalupo, Ferrari, and Punie (2009) reveals that learning through Web 2.0 tools can create and increase difficulties for students with physical or cognitive disabilities, or special learning needs. For example, text-based collaboration and knowledge construction activities with wikis and blogs can disadvantage dyslectic students.

Generally, it is important to consider the various factors influencing the usage of Web 2.0 tools in teaching and learning before adopting and using them. Institutions and individuals (tutors and learners) should play their roles effectively if they really want to benefit from these technologies.

3. Research methodology

The study was conducted at the Sokoine University of Agriculture (SUA) in Tanzania. The university is the only agricultural university in the country. The University has 10,000 students and 400 teaching staff. The current study employed combined research designs where both qualitative and quantitative designs were used. It involved six departments and one institute which were randomly selected from the 25 departments and 3 institutes/centres hosting academic programmes at the university respectively. A survey was used in collecting data from respondents. The study population was students and lecturers; Stratified sampling techniques were employed to select respondents from the different strata namely students (undergraduate and postgraduate) and teaching staff. Structured questionnaires were distributed to 120 students and 50 teaching staff who were randomly selected from each stratum. At the end of the survey 90 (75%) questionnaires were returned by students and 30 (60%) by the teaching staff. This formed a total sample size of 120 respondents. As pointed out by Kothari (2009), in sample sizes of more than 30 the t distribution is so close to the normal distribution that one can use to approximate the t-distribution. Collected data was analyzed by the Statistical Package for Social Sciences (SPSS) version 18. Correlations, associations and descriptive statistics were used to show the relationship existing between variables.

4. Findings and discussion

4.1. Demographic characteristics of the respondents

The study involved students and teaching staff from the Department of Animal Science and Production (DASP), Agricultural Engineering and Land Planning (AE), Crop Science (CS), Food Science and Technology (FST) and the Department of Informatics (INF). The study involved the Computer Centre (CC) and the Sokoine National Agricultural Library (SNAL). Respondents involved were males and females within 20 to 61 and above age ranges. Students involved in the study were either undergraduate or postgraduate students while staff were tutorial assistants, assistant lecturers, lecturers, senior lecturers, professors or technicians (See Table 1 for details).

Table 1
Demographic characteristics of respondents

Number of respondents involved in the study by department								Total
Department/centre/institute	DASP	AE	CS	FST	SNAL	CC	INF	
Undergraduate students	13	5	5	5	5	5	5	76 (63.5%)
Postgraduate students	3	4	5	2	0	0	0	14 (11.7%)
Staff	4	8	4	4	9	0	1	30 (25%)
Respondents' age distribution								
Category of respondents			Age group					
	21 – 30		31 – 40		41 - 50		51 - 61+	
Undergraduate students	76		0		0		0	
Postgraduate students	7		7		0		0	
Staff	3		12		9		6	
Total	86		19		9		6	
	(71.7%)		(15.8%)		(07.5%)		(05%)	
Frequency distribution by sex of respondents								
Category of respondents	Male				Female			
Undergraduate students	44				32			
Postgraduate students	10				4			
Staff	21				9			
Total	75 (62.5%)				45 (37.5%)			
Positions held by staff: a frequency distribution								
Category of respondents			Position held					
Tutorial assistant			1 (03.3%)					
Assistant Lecturer			8 (26.7%)					
Lecturer			5(16.6%)					
Senior Lecturer			7 (23.3%)					
Professor			5 (16.7%)					
Technicians			4 (13.3%)					

4.2. Usage of Web 2.0 tools among students and teaching staff at SUA

Findings show that respondents used different types of Web 2.0 tools for various reasons. It was found that there was a difference between staff and students in-terms of preference to Web 2.0 tools (see Table 2 and 3 for details). Findings show that more staff (76.7%) used LinkedIn to other tools while more students (73.3%) preferred to use Facebook.

Likely, 68.9% of students used Wikis particularly the Wikipedia while only 26.7% of teaching staff mentioned to use Wikis (See Table 2 and 3 for details). The preference of some Web 2.0 tools among some users was much influenced by the perceived usefulness of the tool for the intended purpose. LinkedIn is a professional network, it was for this reason more staff used it. Wikipedia on the other hand was preferred more by students because most students believe that it gives scholarly resources in a simplified and easy to understand manner.

Table 2
Preferred Web 2.0 tools among respondents

Web 2.0 tool used	Staff	Student
Blog	15 (50%)	25 (27.8%)
Facebook	18 (60%)	66 (73.3%)
Podcasting	02 (06.7%)	03 (03.3%)
Wikis/Wikipedia	08 (26.7%)	62 (68.9%)
LinkedIn	23 (76.7%)	10 (33.3%)
Google drive	09 (30%)	45 (50%)
Twitter	08 (26.7%)	00 (00%)
Skype	12 (40%)	08 (08.9%)
YouTube	11 (36.7%)	40 (44.4%)

Web 2.0 tools were used for accessing information, communicating and socializing with colleagues, sharing contents, and for entertainment. As shown in Table 3, most of the tools used by the respondents facilitated information accessibility. Among them Facebook, Wikis, Google-drive and YouTube were preferred by more for information sharing and enhancing information accessibility Findings show that Facebook was the most preferred tool for the socialization purposes particularly among students (see Table 3 for details). Facebook has more features which support socialization; it enhances members to form social networks. Facebook has features which facilitate sharing information resources, uploading contents, notifications, messages, timeline, like, friend invitation feature, wall, pages, groups and networks. These special features facilitate socialization. Findings show further that Wikis particularly the Wikipedia was used more by students (see Table 2 and 3 for details). The tool was preferred by most respondents as a source of information. Students used Wikipedia more because they believed to have some simplified and easy to understand reading information resources. Google-drive was known to be used mostly for professional knowledge sharing. More staff mentioned to use the tool for sharing resources and collaborative knowledge creation. Google-drive has features which support collaborative knowledge creation. The other tool the YouTube was mentioned to be used for downloading video.

As shown in Table 3, few respondents used the tools for communication purposes. Findings show that Wikis was mentioned by more respondents (50%) as a communication tool of choice. None reported to have uploaded video clips through YouTube and all those who used the tools mentioned to have no account and used the tool as anonymous. Only Facebook was preferred by the majority (70%) for socialization. As shown in Table 2, there as a difference in preference of using Facebook between students and staff. This is explained by age difference and nature of activities the two groups involved themselves in. Findings show further that few respondents used the tools for entertainment. Facebook and Wikis were used at least by 25% of respondents. This can explained by the fact that university computer laboratories' regulations do not allow users to download or access entertainment resources.

Table 3
Usage of Web 2.0 tools among students

Usage purpose	Preferred Web 2.0 tool					
	Blogs	**Facebook**	**Wikis**	**LinkedIn**	**Google drive**	**Youtube**
Accessing information	52 (43.3%)	114 (95%)	117 (97.5%)	29 (24.2%)	89 (74.2%)	90 (75%)
Communication	20 (16.7%)	45 (37.5%)	50 (41.7%)	9 (07.5%)	35 (29.2%)	39 (32.5%)
Socialization	23 (19.2%)	84 (70.0%)	9 (07.5%)	6 (05.0%)	0 (0.0%)	1 (0.8%)
Entertainment	11 (09.2%)	30 (25.0%)	30 (25.0%)	0 (0.0%)	2 (01.7%)	18 (15.0%)

Generally, most Web 2.0 tools were used to support more than one role at a time (see Table 3 for details), it is for this reason respondents used the same tool for various purposes. This is supported Murugesan (2007) who describes Web 2.0 tools to have applications which support multifunction due to their collaborative and interactive nature. It was for this reason four of the six Web 2.0 tools used by respondents were used to support multiple functions.

4.3. Academic usage of Web 2.0 tools among respondents

Findings show that both students and teachers used Web 2.0 tools for academic purposes (see Table 4 for details). The Pearson correlation shows that the degree of adoption of most of the mentioned Web 2.0 tools in teaching and learning was positive. However, with an exception of the Wikis other tools were not adopted for collaborative research. This is much explained by limited skills on how to use the tools and perceived inappropriateness of features for particular activities.

Table 4
Web 2.0 tools and respective academic usage among students

Usage purpose	Pearson correlation for Web 2.0 and type of academic usage				
	Blogs	**Facebook**	**Wikis**	**Google drive**	**YouTube**
Academic communication	P = 0.066	P = 0.111	P = 0.186	P = 0.267	P = 0.017
Sharing academic resources	P = 0.142	P = 0.059	P = 0.023	P = 0.0220	P = 0.067
Accessing academic resources	P = 0.218	P = 0.0	P = 0.027	P = 0.273	P = 0.223
Collaborative research	P = 0.00	P = 0.00	P = 0.025	P = 0.00	P = 0.00

Teaching staff like students used the tools to support teaching and learning. As shown in Table 5 below, the Pearson correlation shows that the degree of adoption for the four main used tools in teaching and learning was positive. There was a positive relationship between the usage of the Web 2.0 tools and accessing academic information as both It can be found that all of the tools were used for accessing academic information resources as both tools. Users used the tools for accessing information. It was found that there was a no relationship between some Web 2.0 tools and their usage for academic communication. Facebook and Wikis were not used at all by staff. Wikis was not used by

teaching staff for academic sharing and enhancing collaborative research, Facebook was also was not also used for academic communication.

Table 5
Academic usage of Web 2.0 tools among teaching staff

Usage purpose	Pearson correlation for Web 2.0 and type of academic usage			
	Facebook	**Wikis**	**Google drive**	**YouTube**
Academic communication	P = 0.00	P = 0.306	P = 0.279	P = 0.306
Sharing academic resources	P = 0.043	P = 0.161	P = 0.00	P = 0.161
Accessing academic resources	P = 0.102	P = 0.134	P = 0.145	P = 0.106
Collaborative research	P = 0.136	P = 0.00	P = 0.073	P = 0.136

Generally the level of adoption of Web 2.0 tools in teaching and learning at Sokoine University of Agriculture was low. Lack of skills and awareness on Web 2.0 tools, some of the tools not being supported by mobile phones, and inappropriate teaching and learning features in some of the tools resulted into low level of adoption of the tools in teaching and learning. Moreover, poor bandwidth and some ICT regulations at the university equally had a negative impact on adoption and usage of the tools for teaching and learning.

4.3.1. The influence of age on usage of Web 2.0 in teaching and learning

Students involved in the study fell under the 21 to 40 age group. The usage of Web 2.0 tools for learning was found to decrease with age of the student. Findings on Table 6 show that more students in 21 to 30 age group used the tools more for various academic purposes than those in the 31 to 40 age group. Regardless of the age, more than 60% of students used the tools for accessing academic information. It was found that 50% of students within 21 to 30 age group used the tools for sharing academic resources while only eight percent of students under 31 to 40 age group used the tools for sharing academic resources. Findings also show that few students in both groups used the tools for collaborative research; this is because most students particularly undergraduates do not involve themselves in research activities.

Table 6
Usage of Web 2.0 tools in learning by age of student

Web 2.0 tool usage	Age group	
	21 – 30	**31 – 40**
Accessing academic information	53 (60.2%)	23 (68.9%)
Sharing academic resources	44 (50%)	03 (08.3%)
Collaborative research	9 (10.2%)	01(02.8%)

The adoption of the Web 2.0 tools among teaching staff was direct influenced by age. Findings on Table 7 show that younger teaching staff adopted and used Web 2.0 tools in academic activities than older ones. Age of staff in most cases tells whether one is a junior or senior staff, for this case more junior teaching staff have adopted and have been using the tools for teaching and learning than it is for senior staff. This indicates that the potential of these tools in the future teaching and learning activities is very high.

Table 7
Usage of Web 2.0 among teaching staff by their age

Web 2.0 usage	Age group				
	21 – 30	**31 – 40**	**41 - 50**	**51 – 60**	**61+**
Communicating academic information	2 (66.7%)	6 (50.0%)	5 (55.6%)	1 (33.3%)	1 (33.3%)
Accessing academic information	3 (100%)	8 66.7%	8 (88.9%)	1 (33.3%)	1 (33.3%)
Sharing academic information	3 (100%)	8 66.7%	6 (66.7%)	2 (66.7%)	1 (33.3%)
Collaborative research	2 (66.7%)	7 58.3%	4 44.4%	2 (66.7%)	2 (66.7%)

Generally, Web 2.0 tools were used by both teaching staff and students for academic purposes, tools used by students were more like the same to those used by teaching staff. Moreover, the purposes of using the tools were more or less the same. The main difference was that teaching staff used the tools for conducting more academic related activities than it was for students.

4.4. Appropriateness of the most preferred Web 2.0 tools in teaching and learning

There are various features considered to be important for any online learning platforms. Guenaneche and Radigales (2007) mention that online learning platforms should facilitate the generation of contents; should enable users to view contents; should enhance collaborations; enhance feedback and monitoring what takes place in the platform. Through online learning platforms should allow learners to link up, create, consume, and share independently produced information (Greenhow, Robelia, & Hughes, 2009). Learning platforms should have features which encourage interconnections among learners, allow them to develop their networks and increase the number and range of people to consult for feedback or support (Greenhow, Robelia, & Hughes, 2009).

Findings show that blogs, Facebook, Wikis, Google drive and YouTube were mentioned to be preferred more at SUA. Facebook allows high levels of surveillance, as users can view on others posts, profiles data and other personal information (Bosch, 2009). Facebook users may have an individual web space, may comment on posts, start discussions and share information. According to Wang, Woo, Quek, Yang, and Liu (2012), Facebook can be used as a Learning Management System because it is suitable for putting announcements, sharing resources, organizing tutorials and conducting weekly tutorials. Despite being appropriate for academic activities Facebook does not some file formats, it lacks privacy, discussion held in Facebook is not organized and when meant for the public others post unrelated materials on the wall. Moreover, Facebook seems to be very suitable for social interactions as it was primarily meant for that.

The other adopted and used tool was Wikis; Wikis are characterized by simplicity, accessibility, and interoperability (Chu & Kennedy, 2011). Wikis have features that enable administrators to add users, upload files of any format, conduct discussions and archive resources. Academic resources in Wikis can be organized in folders and learners/tutors can easily download and upload resources (see Fig. 2). One of the Wikis the PbWorks can either be accessible to the public or to invited individuals. Despite such

empirically identified appropriateness Wikis particularly the PbWorks has some limitation in supporting teaching and learning. One of the major limitations is that usually the participation of most students is low and often the same students participate in discussions. This is supported by Judd, Kennedy, and Cropper (2010) who mention that when using Wikis in teaching and learning a relatively small proportion of students did the bulk of the work and many students' contributions were superficial. Empirical evidence from one lecturer at SUA who used PBWorks as a Learning Management System shows that despite it being closed privacy among invited users was not there that shy students hardly made comments for fear of making mistakes which could be observed by the fellow students. Moreover, since messages sent through the PbWorks are accessed through e-mail addresses of the entire team, it is obvious if the group is very active there will be bulk mails in the inbox. Due to bulkiness of messages possibilities of neglecting some of the communication taking place will be great. The other limitation of the tool is that Wikis particularly the PbWorks and Wikispaces can only be accessed online, when there is no internet connectivity users can not have access to these platforms.
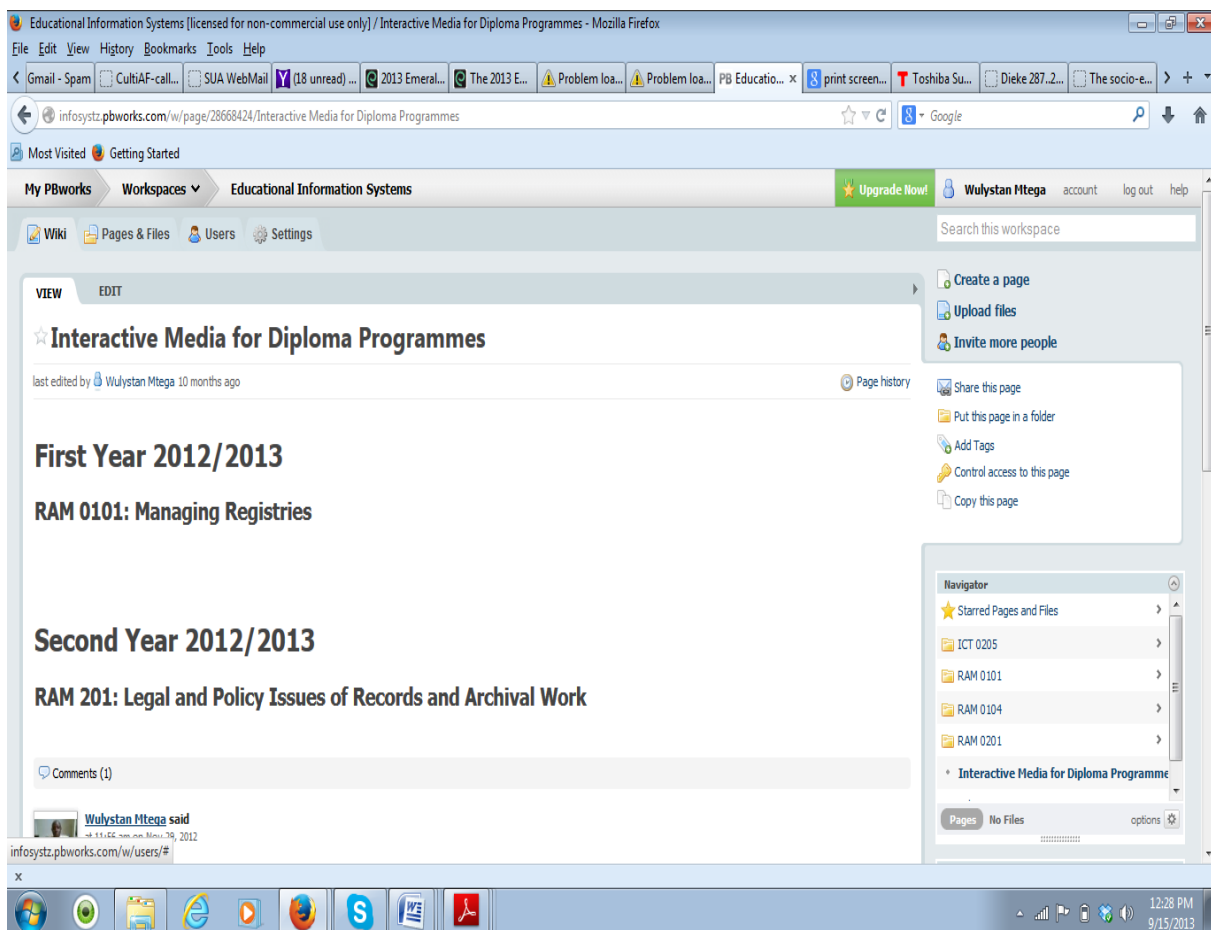

Fig. 2. PbWorks used for teaching some undergraduate courses at SUA

The other Web 2.0 tool adopted by some at SUA was Google drive. The tool allows users to create and to share online documents, spreadsheets, presentations, and forms (Chu & Kennedy, 2011). Google drive can be downloaded and installed in the

computer thus providing options for online and offline accessibility. However, to be able to use it, users must have a Google accounts. This limits some from using the tool because some people do not like to have so many e-mail accounts for fear of forgetting some. Just like Wikis any communication made through Google Drive is sent through an email address thus increasing the bulkiness of mails in the inbox particularly when dealing with very cooperative classes. In most cases this may reduce the response rate and lower the participation of students. YouTube is meant for sharing video contents, the tool has features which supports video clip uploads and downloads. As mentioned by Virkus (2008), YouTube allows members to upload and download contents. YouTube users can subscribe to channels they prefer and participate in discussions. Users may search for video content through a search interface the tool has. However, having a YouTube account is important for one to access more services. Despite such features, YouTube is limited to video content only; when using it for learning it is possible for learners to be tempted to watch other materials not related to learning thus reducing its appropriateness in teaching and learning. Moreover, uploading and downloading video clips requires adequate bandwidth which always lacks in most developing countries.

Blog contains a series of chronological, updateable entries or posts on various topics. Blogging software is based on the edit, write and save processes. Readers can comment on posts and post their own contents. Basically it is a tool used for sharing information, and it supports different file formats. It makes use of the hypertextual facilities of online communication: linking internally between posts, providing links to other web content, and/or linking to other users' blogs (Farmer, Yue, & Brooks, 2008). Virkus (2008) describes blogs to support group discussions, extend the boundaries of the classroom and encourage students in looking for information. Blogs can be restricted to a group of people or open to the public, users can access them through mobile phones and computers. The administrator can add other administrators and blog authors for the case of restricted access; this can enhance users to make contributions to blog contents. Despite these potentials blogs are only accessible when there is internet connectivity, when the connection is not there accessing, posting, editing or reading blog contents is not possible.

Using Web 2.0 tools in teaching and learning is influenced much by the perceptions of tutors, learners and institutes. It was found that there was poor perception on some Web 2.0 tools among some staff and university institutes. Some of the computer laboratories did not allow students to use some of the Web 2.0 tools. Facebook, YouTube and blogs were among the tools which were not allowed because the tools were perceived as more social than academic. This was partly caused by users themselves who when in computer laboratories used the tools for purposes other than academic. Moreover, due to limited bandwidth the usage of Web 2.0 tools was prohibited is some computer laboratories.

Teaching staff reported that Web 2.0 tools were hardly successful in teaching and learning because they required a lot of supervision and monitoring particularly when dealing with less self motivated students. Lazy students could hardly participate in online discussions unless the tutor uses extra efforts to enhance that. Moreover, if not well monitored some students may abuse the platforms because they are used to use the tools for socialization rather than for academic purposes. Moreover, most of these tools are more suitable for theoretical courses, those which do not require a physical presence and for assignments submissions. Teaching staff also reported that not all of the Web 2.0 tools were freely used. It was found that the best PbWorks plan with lots of teaching and learning applications was accessed at a cost which limited it adoption and usage in teaching and learning.

It was mentioned by some respondents that they had limited computers to access Web 2.0 services. Few students with access to computers and internet connectivity had opportunities to use the tools. This problem was higher among undergraduate students whose level of laptop computer ownership was very low. However, those who did not own computers mentioned to access their mobile phones for accessing Web 2.0 services; however, not all Web 2.0 tools can be accessed through mobile phones.

Generally, no single Web 2.0 tool has all the qualities for a good learning management system. To be effective in teaching and learning it is important to incorporate applications that facilitate course registration, monitoring learners' involvement, evaluating performance and tracking what goes on in the platform. The tools should have applications which support multimedia contents, enough storage space for course materials and organized archiving of uploaded contents. Otherwise most of the preferred Web 2.0 tools were mentioned to be more suitable for socialization rather than facilitating teaching and learning. Moreover, developers of these tools which try to incorporate some natural classroom environment when they develop the tools. This may increase the appropriateness of the tools in teaching and learning.

5.   Conclusion and recommendations

This study intended to investigate the level of usage of Web 2.0 tools in learning and teaching at SUA. Findings show that blogs, Facebook, Wikis, Google drive and YouTube were used by some few in teaching and learning. However, the level of usage of Web 2.0 tools for non academic activities was higher than for academic purposes. For effective academic activities the tools required a lot of supervision and monitoring particularly when dealing with less self motivated students.

It is recommended that students and staff should be trained on how to use Web 2.0 tools in teaching and learning. Institutes should promote the usage of such tools because some of them have suitable applications for academic purposes. Developers of Web 2.0 tools should incorporate more applications for proper teaching and learning.

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