

Challenges of Using E-learning Management Systems faced by the Academic Staff in Distance Based Institutions from Developing Countries: A Case Study of the Open University of Tanzania

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***Abstract:** A study was carried out at selected centres of The Open University of Tanzania (OUT) to find out how lecturers use the E-learning Management System (ELMS) and the problems that they encounter when using the ELMS. Based on the general hypothesis of the use of Information Systems, different methodologies were used to find out the factors that lead to the inefficient use of the ELMS at OUT. Results were analyzed and evaluated and challenges of the usage of the ELMS at OUT established. The paper concludes by giving general recommendations and future work which need to be done to make sure that the academic staff utilize the ELMS effectively.*

INTRODUCTION

Distance education refers to the education with a separation in time or space or both between the instructor and the student (Moore & Kearsley, 1996). According to Bisanda (2009), Open and Distance Learning (ODL) is easier and cheaper to run. It does not necessitate the migration of the students into a location to attend lectures and does not specify the time and place for studies. Therefore it is through ODL developing countries including those in sub-Saharan Africa that mass education at higher levels can be attained (Bisanda, 2009). Learning at a distance does not come easily especially when the learners come from a dominantly teacher-centred learning environment (Dzakiria, 2004). Technology is needed to assist learner to combat the challenges of distance learning. Technology is incorporated into learning through e-learning.

E-learning can be referred to as the design, development and delivery of instructional materials by electronic devices, such as computers, mobile, CDs and DVDs (Mackintosh & Daniel, 2009). E-learning supports both the traditional and the open and distance higher education delivery mode (C. Mnyanyi, Bakari, & Mbwette, 2010). E-learning allows distance education to be conducted smoothly via many of its features including internet and other associated tools. The most prominent type of e-learning used in distance education is online learning. Online learning is made possible by the internet through Web based learning. Web based learning can make it possible for the learners to interact with the educators in real time through chatting, social media while at the same time allowing them to access various learning materials from the internet for their use. The learners can store and continue using these learning materials offline at their own time. In order to use e-learning well it is better to control how the learners interact with the materials and

the educators through the computer. This is made possible by using special type of information systems called E-learning Management Systems (ELMS) (Sife, Lwoga, & Sanga, 2007)

The ELMS have been built in order to organize the course in online environment. E-learning Management Systems (ELMS) play a central role in the Web-based e-learning scenario (Kalinga, 2010). The ELMS is a software application or Web based technology used to plan, implement and access specific learning process. It manages users, learning materials [(in the form of objects in Content Management System (CMS)] and learning events and connects learning contents and learners together in a standardized manner(Kalinga, 2010). It also provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. Altogether it is a software system designed to facilitate learning, administrative tasks as well as student participation in e-learning.

There exist many types of ELMS. Some of these are proprietary in nature and others are open source. One of the most popular and established ELMS today is Moodle, the modular object-oriented distributed learning environment (Rößling & Kothe, 2009). Moodle is an open source ELMS widely used in many learning institutions(Moreno, 2008). Moodle is noted for its usability and intuitive interface, and it supports various automated personalised services that are easy for faculty and students to access, create, deliver and present (Whelan & Bhartu, 2008). Moodle is a preferred ELMS by many institutions due to availability of more technical support (as many other institutions are using the same system), its user friendliness, its easy adoption, and together with the fact that it can be integrated with other University information systems.

The importance of the academic staff cannot be ignored in a distance based institutions. As in any educational situation, the distance lecturers set the tone for learning in the educational environment (Dzakiria, 2004). They play a central role to make sure that the learners continue swiftly through their course of studies. The distance lecturers must do all they can to overcome the limits of distance learning and involve the learners in an environment of interaction, which can work to create the feeling of a true class (Hiltz & Wellman, 1997). It is important for the distance education lecturers to develop a sense of community, achieve maximum participation, and get the distance learners to be engaged and get involved in the process (Dzakiria, 2004). The ELMS provide a good platform for the lecturers to make sure that the students continue with their learning wherever they are. The lecturers hope to be on the frontline of using the ELMS. They have to upload and control the flow of the learning contents so that the learners can be able to progress in distance learning.

For the past half a decade now The Open University of Tanzania has done several efforts to prioritize ELMS including the formulation of comprehensive institutional frameworks such as ICT Policy, ICT Master Plan and E-learning Implementation Strategy (Nihuka, 2011). Periodically academic staff are trained in new developments of ICT usage and on how to use Moodle (C. Mnyanyi et al., 2010). The ICT policy of OUT points out that OUT academic staff will gain a point for

promotion once they upload a course in the ELMS. All this is to make sure that academic staff get to use ELMS. But even with all these initiatives in place still the use of ELMS has been slow to be picked up by the lecturers.

A lot can be speculated as either the technical know how, the psychological or social factors that affect the way the academic staff ignore the ELMS. In his paper about the challenges of ICT on distance learning, (Mahenge, 2001) suggested that “much of initial work is needed first in changing the attitude of all staff to shift from traditional approaches of distance teaching methods to the modern instructions”. This could very well be a reason for the academic staff not to pay so much attention to using Moodle. Babyegeya combines quality assurance with distance learning (Babyegeya, 2006). According to Babyegeya, it is advisable to bring in use the principles outlined by the quality of assurance procedures such as the use of different strategies like ELMS to maintain high standard of service to be provided in distance learning (Babyegeya, 2006). In the study of implementing e-learning done by (C. Mnyanyi et al., 2010) poor ICT infrastructures, unskilled human resources, attitudinal factors and the low budget have been found to be barriers to implementing e-learning at OUT. The study suggested that what is now important is to address such challenges stage by stage and forge collaboration with other partners (C. Mnyanyi et al., 2010).

Some studies have been done to establish the challenges of e-learning as a whole in Tanzania (Ndume, Tilya, & Twaakyondo, 2008; Sife et al., 2007) while others have established challenges of ICT in Namibia (Wambui & Black, 2009), Sub-Saharan Africa (Wolff, 2002) and other parts of the world including Ireland (O’Keefe & O’Riordan, 2011), Czech Republic (Kareal & Klema, 2006) and Asia (Kinley, 2010). The challenges established in these studies are general and some do not fall in the scope of distance education. Therefore the challenges established in those studies cannot be generalized to a distance institution like OUT. There have been a number of published material on e-learning and challenges on the implementation and usage of ICT in distance education in developing countries (Bakari, Mbvette, & Shemwetta, 2008; C. Mnyanyi et al., 2010; Ndume et al., 2008; Wambui & Black, 2009), but there is no evidence that there is a study that has been specifically concentrated on the way the academicians from distance education are using ELMS in these countries. There is, therefore, a need to study how academic staff from a distance based institution that has valid ELMS such as OUT and learn the challenges that they face in order to establish why the ELMS are not being fully utilized.

The Open University of Tanzania (OUT) was established in order to offer higher education by distance. OUT is a distance learning institution offering certificates, diplomas, degrees and postgraduate courses. The Open University of Tanzania conducts its operations through regional centres and study centres. As of 2009 there were 26 Regional Centres and 69 Study Centres. The population of registered students is over 35,000 (Mbvette, 2009). Educational delivery is attained through various means of communication such as, Information and Communication Technologies (ICT), correspondence, enhanced face to face, seminars, contact programmes or the combination of any two or more of such means. OUT is aware

of the need to expand access to quality education in Tanzania and has sought for media and modes that would facilitate expanded access (Mbwette, 2009). Ever since the adoption of ICT at OUT the institution has seen an improvement in quality in all its educational activities all over Tanzania (Bakari et al., 2008).

The Open University of Tanzania has been involved in the development of e-learning over the past seven years. E-learning adoption at OUT started way back in 2006/2007 when the customization and initial use of the E-learning Management System(ELMS) started; in this case the system was called A-tutor which was developed and maintained by a consultant from outside the University. A year later, the University stopped using A-tutor and started using Moodle ELMS which was customized and maintained by internal staff.

A few successes have been realized since customization of Moodle compared to the use of A-tutor but this has not made Moodle flourish at OUT. This is despite the fact that training of academic staff was done on the use of the system as well as the orientation of some instructors on how to redesign and review their traditional courses for E-learning delivery(C. Mnyanyi et al., 2010). Although Moodle was improved and adopted as the sole ELMS to be used at OUT, little is known as to how frequently and how efficiently academic staff utilize Moodle EMLS.

The purpose of the study was to establish the reasons as to why ELMS are not being used by many academic staff at OUT and identify challenges that the academic staff meet when they use the ELMS so that if these challenges can be addressed the problems in the use of the ELMS can be alleviated and thus improve distance education.

METHODOLOGY

The Study Area and Population

The research was carried out in 2011 at the period when The Open University of Tanzania was installing internet facilities at its centres. Participants were drawn from only six centres of the OUT out of 25 with a high number of students, high internet connectivity and a high number of Internet service provision in their areas. These included the Headquarter, Ilala, Ubungo, Temeke, Mwanza and Iringa. For the purpose of quantifying the results, the centres were grouped into three, those at the Headquarters, Dar es Salaam, outside the Headquarters but within Dar es salaam and those outside Dar es Salaam. The participants were also distributed according to gender, academic rank and age. Table 1 up to 5 summarizes the distribution of participants in the study.

Data Collection Methods

Questionnaires were distributed to participants. The participants filled the questionnaire under the supervision of the researchers. One hundred fifty questionnaires were distributed to participants and 120 questionnaires were returned to the researchers. Out of 120 only 90 were properly filled and they are the ones that were considered in the analysis of the results. Additional data was collected from the Moodle system administrator to establish the exact number of academic staff registered in the system. Secondary data was collected from the OUT ICT Policy

document, OUT Rolling Strategic Plan and other publications and journals from OUT library and the Internet.

Table 1: Gender			
		Frequency	Percent
Valid	Male	63	70.0
	Female	27	30.0
	Total	90	100.0

Table 2: Age			
		Frequency	Percent
Valid	22-35	28	31.1
	36-45	31	34.4
	46-55	14	15.6
	56-65	14	15.6
	over 65	3	3.3
	Total	90	100.0

Table 3: Academic rank			
		Frequency	Percent
Valid	tutorial assistant	22	24.4
	assistant lecturer	42	46.7
	lecturer	20	22.2
	Senior lecturer	3	3.3
	professor	3	3.3
	Total	90	100.0

Table 4: Where are you based?			
		Frequency	Percent
Valid	Head quarters	67	74.4
	regional centre (in Dar es salaam)	9	10.0
	regional centre(out of Dar es salaam)	14	15.6
	Total	90	100.0

		Frequency	Percent
Valid	FASS	15	16.7
	FBM	17	18.9
	FED	22	24.4
	FSTES	22	24.4
	ICE	6	6.7
	IET	2	2.2
	LAW	6	6.7
	Total	90	100.0

FINDINGS

The study focused on a number of issues that are critical to the use of ELMS at OUT. The aspect of gender, rank and position was taken into account in order to establish the correlation between the nature of the personnel involved and their use of the Moodle ELMS. The key aspects that were taken into account were to see if the academic staff knew about the Moodle ELMS and if they used it in their daily life. The results from the data analysed from the participants gave a clear picture as to how the academic community at OUT perceived Moodle ELMS.

Knowledge and Perception of Academic Staff on Moodle ELMS

The academic staff were asked if they were aware of what Moodle ELMS was. This aimed at establishing as to whether they knew the importance of the Moodle system. If at all an academic staff was not aware of what the system was it was most probable that he/she was not using the system to interact with the students. It was surprising to see that some academic staff did not know what Moodle was. About 28.9 % of the respondents said that they did not know what Moodle ELMS was. This meant that the efficiency of those academic staff in communicating the learning resources to students would be limited as Moodle is increasingly becoming the repository of all the learning materials of the University.

		Frequency	Percent	Valid Percent
Valid	Yes	59	65.6	69.4
	No	26	28.9	30.6
	Total	85	94.4	100.0
Missing	System	5	5.6	
Total		90	100.0	

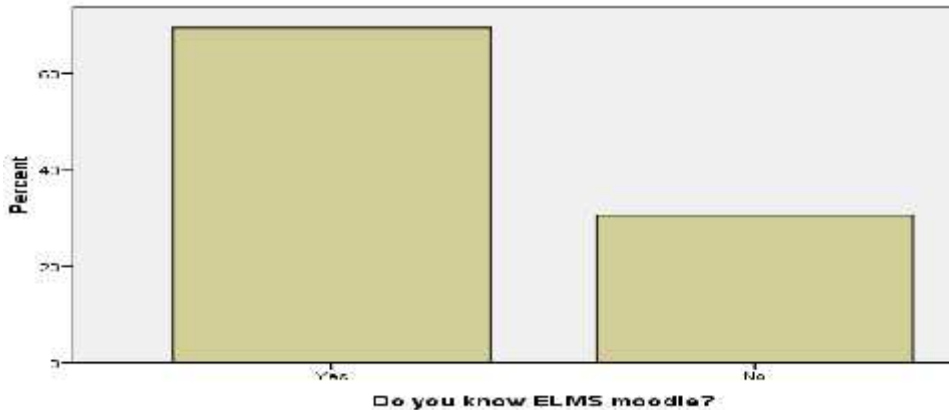


Figure 1: Knowledge and Perception of Moodle

Pursuant to the above, the participants were asked to state if they had been introduced and trained to use the Moodle ELMS. It was apparent that most of the respondents who said that they did not know about Moodle ELMS had not been trained in the use of Moodle. Only 40.2 % of the academic staff that were involved in the study had been trained in use of Moodle.

		Frequency	Percent	Valid Percent
Valid	Yes	35	38.9	40.2
	No	52	57.8	59.8
	Total	87	96.7	100.0
Missing	System	3	3.3	
Total		90	100.0	

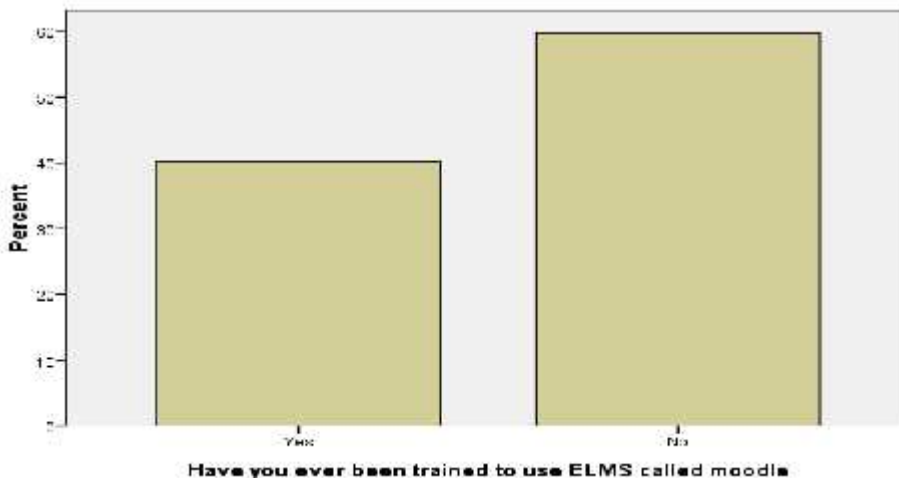


Figure 2: Moodle Training

A good number of academic staff was not aware of any initiatives that were being implemented by OUT to increase the use of Moodle in the University. Up to 55.8 % of people reported that they were not familiar with any support given on the use of Moodle.

		Frequency	Percent	Valid Percent
Valid	Yes	38	42.2	44.2
	No	48	53.3	55.8
	Total	86	95.6	100.0
Missing	System	4	4.4	
Total		90	100.0	

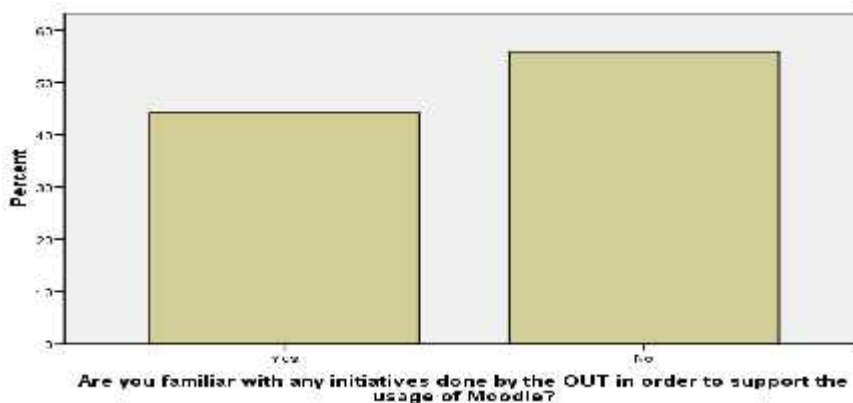


Figure 3: Moodle Initiatives

In addition to that not all academic staff knew of the existence of the ICT policy at The Open University of Tanzania and that only 52% knew of the existence of the ICT policy. This meant that most people were not aware of what guided the use of Moodle ELMS at OUT.

		Frequency	Percent	Valid Percent
Valid	Yes	46	51.1	52.9
	No	41	45.6	47.1
	Total	87	96.7	100.0
Missing	System	3	3.3	
Total		90	100.0	

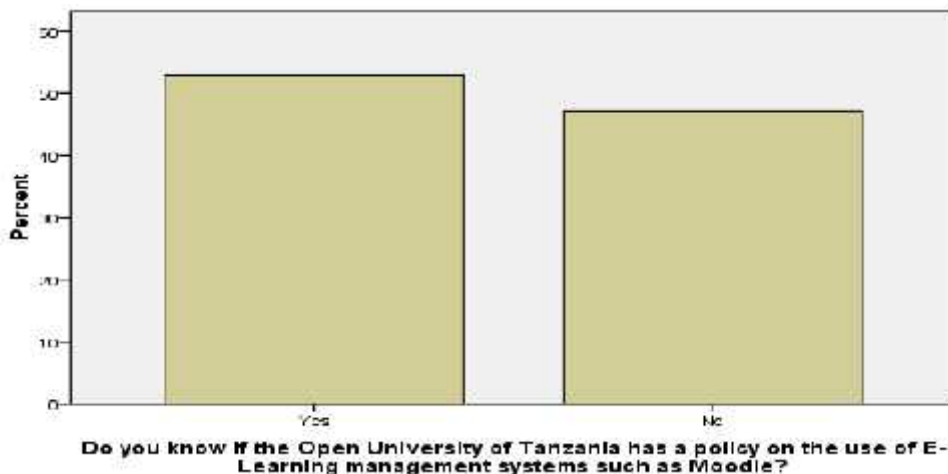


Figure 4: E-Learning Policy

Use of Moodle ELMS

Most of the academic staff reported that they had not used the Moodle to interact with the students. Only 8% of the staff reported to have used Moodle to communicate with the students.

		Frequency	Percent	Valid Percent
Valid	Yes	8	8.9	9.3
	No	78	86.7	90.7
	Total	86	95.6	100.0
Missing	System	4	4.4	
Total		90	100.0	

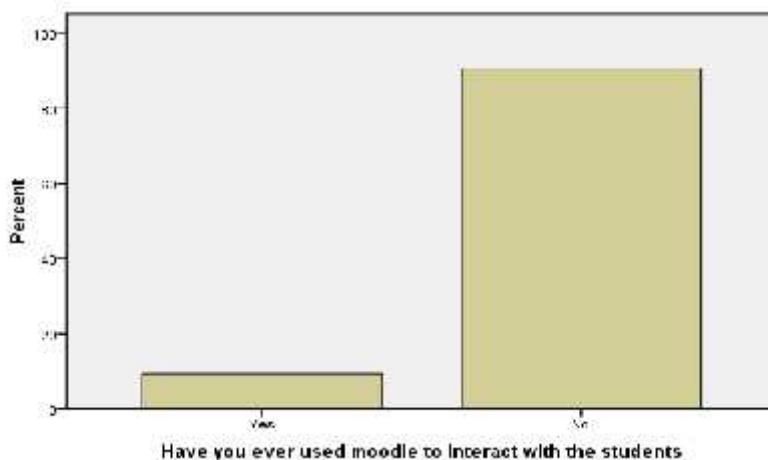


Figure 5: Use of Moodle

Only 28.9% of the respondents had ever used Moodle to upload the contents. This showed how little the content was in the Moodle system and how that could be a cause as to why the system is not being used for interacting with students.

		Frequency	Percent	Valid Percent
Valid	Yes	26	28.9	28.9
	No	64	71.1	71.1
	Total	90	100.0	100.0

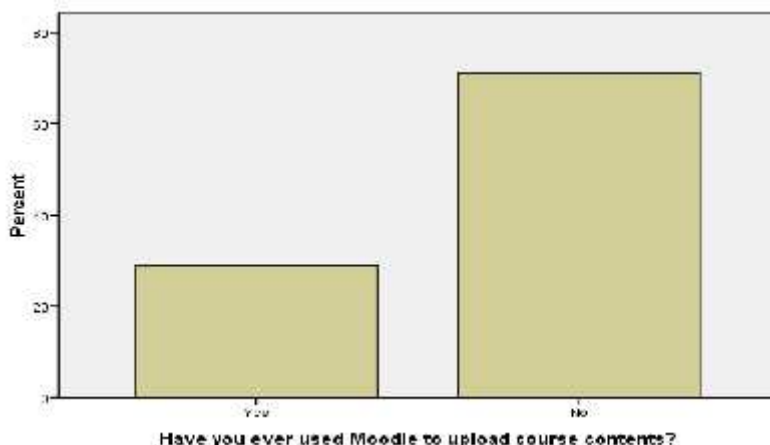


Figure 6: Uploading Contents into Moodle

Moodle Usability

The academic staff who had used Moodle indicated that the Moodle was user friendly. Only 1% said that Moodle was difficult to use. This meant that when the academic staff are trained well they can use Moodle well to communicate with students.

		Frequency	Percent	Valid Percent
Valid	very easy	2	2.2	28.6
	easy	1	1.1	14.3
	average	2	2.2	28.6
	difficult	1	1.1	14.3
	N/A	1	1.1	14.3
	Total	7	7.8	100.0
Missing	System	83	92.2	
Total		90	100.0	

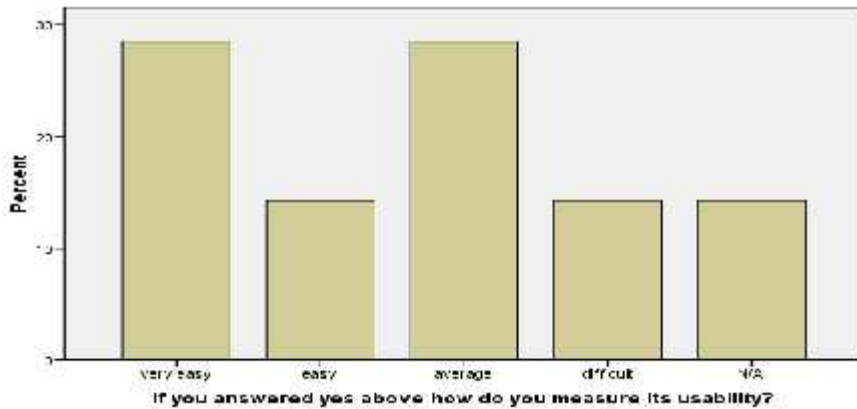


Figure 7: Moodle Usability

The way to upload the content was rated to be very difficult. Most of the respondents cited that they had trouble uploading the contents into the Moodle system. Only 34.2% found the system to be easy or very easy to upload the contents while most of the people (54%) indicated that it was difficult to upload the contents.

Table 13: If you answered Yes above how do you measure its usability?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very easy	5	5.6	13.2	13.2
	easy	8	8.9	21.1	34.2
	average	5	5.6	13.2	47.4
	difficult	16	17.8	42.1	89.5
	very difficult	4	4.4	10.5	100.0
	Total	38	42.2	100.0	
Missing	System	52	57.8		
Total		90	100.0		

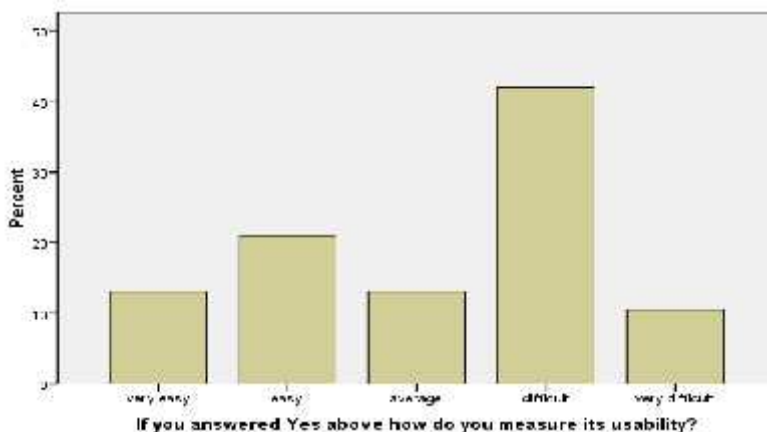


Figure 8: Uploading Contents Usability

Barriers Academic Staff Face When Using Moodle ELMS

Most of the academic staff said that the reason for them not to use Moodle was the lack of the knowledge that the system existed. 50% of the respondents cited lack of training as the reason for not using Moodle and 27% cited lack of awareness about Moodle. Other barriers include slow internet infrastructure (13%) and lack of support (8.65).

		Frequency	Percent	Valid Percent
Valid	lack of awareness	16	17.8	27.6
	lack of training	29	32.2	50.0
	slow network infrastructure	8	8.9	13.8
	not feel support on using moodle	5	5.6	8.6
	Total	58	64.4	100.0
Missing	System	32	35.6	
Total		90	100.0	

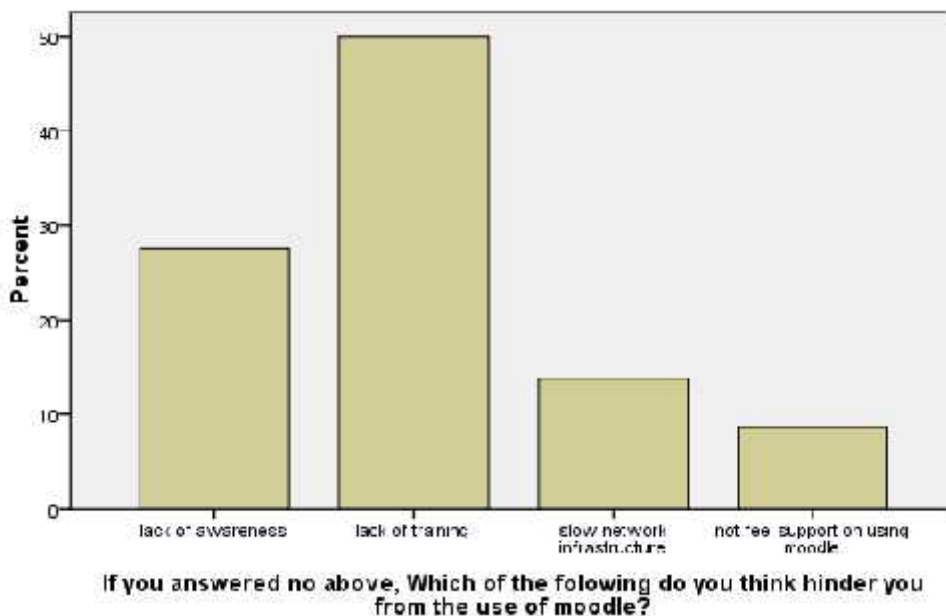


Figure 9: Barriers of using Moodle

One of the major objectives of the study was to show which challenge mostly affected the use of Moodle by the academic staff of The Open University of Tanzania. Many academic staff responded that lack of training as the major obstacle (35.6%) in the use of Moodle at OUT. The other challenge was lack of awareness (14.4%).

1.1.1 Access of the Moodle ELMS Outside

There have been a studies that have indicated that access to networked resources was difficult outside the network of OUT. The study therefore undertook to determine how far that affected the use of Moodle ELMS from outside OUT campus. Only a few number of people used Moodle ELMS outside the OUT campus. Close to 15.5% used OUT library and 46.5 used OUT office internet services. The respondents stated that they do not use Moodle outside OUT campus because they claimed the system was either slow (43.4%) or not accessible at all (23.3 %).

Table 15: Where do you use to access Moodle?				
		Frequency	Percent	Valid Percent
Valid	internet cafe	13	14.4	18.3
	OUT library	11	12.2	15.5
	home	14	15.6	19.7
	office	33	36.7	46.5
	Total	71	78.9	100.0
Missing	System	19	21.1	
Total		90	100.0	

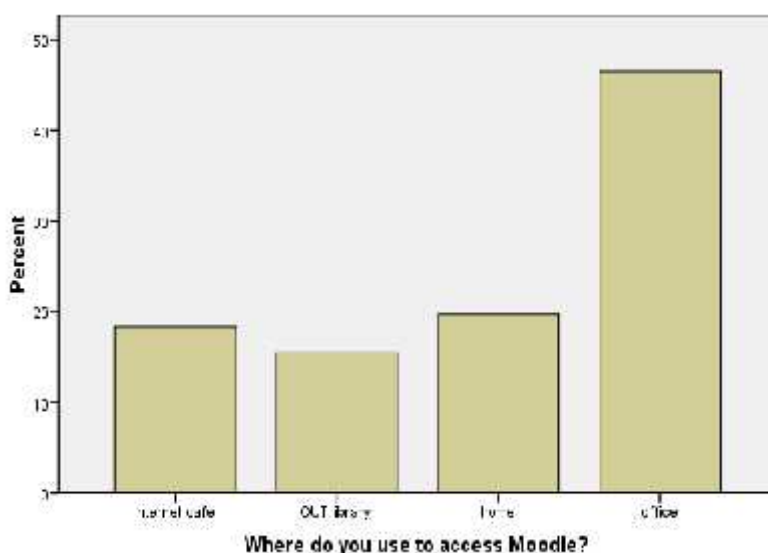


Figure 10: Where Moodle is accessed

		Frequency	Percent	Valid Percent
Valid	fast	3	3.3	10.0
	normal	5	5.6	16.7
	slow	11	12.2	36.7
	very slow	2	2.2	6.7
	not opening	7	7.8	23.3
	N/A	2	2.2	6.7
	Total	30	33.3	100.0
Missing	System	60	66.7	
Total		90	100.0	

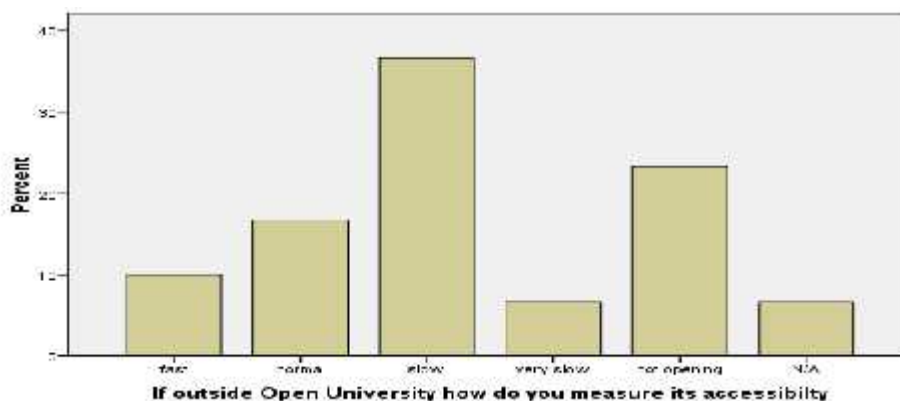


Figure 11: Measure of Accessibility

Surprisingly about 84% of the academic staff said that they communicated with their students by using Mobile phones and only 13% used the internet and computers. This meant that if Moodle could be used on mobile phones then possibly the number of users of Moodle would increase.

		Frequency	Percent	Valid Percent
Valid	mobile	67	74.4	84.8
	computer/e mail	11	12.2	13.9
	not communicate	1	1.1	1.3
	Total	79	87.8	100.0
Missing	System	11	12.2	
Total		90	100.0	

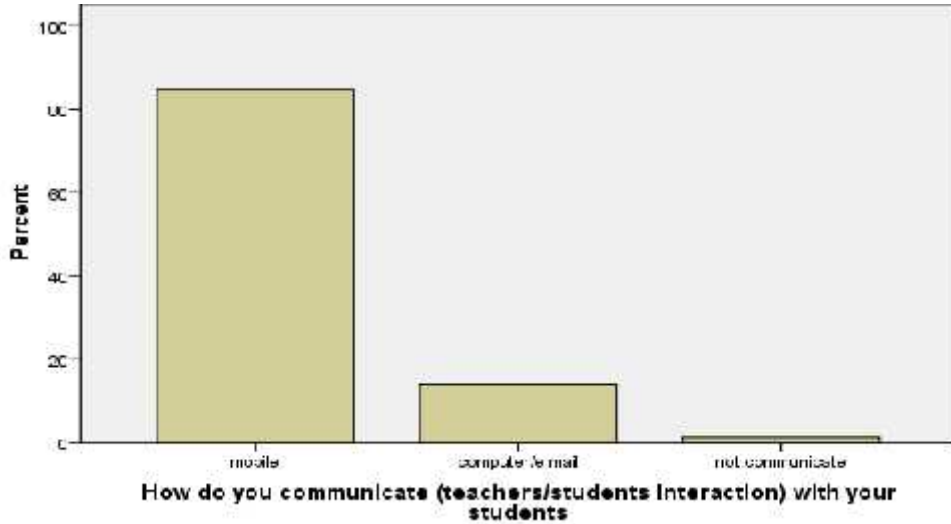


Figure 12: How Academic Staff Communicate

Most of the academic staff (97.8%) agreed to the suggestion that the University should increase the resources reserved for the use of Moodle ELMS at OUT.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	87	96.7	97.8	97.8
	No	2	2.2	2.2	100.0
	Total	89	98.9	100.0	
Missing	System	1	1.1		
Total		90	100.0		

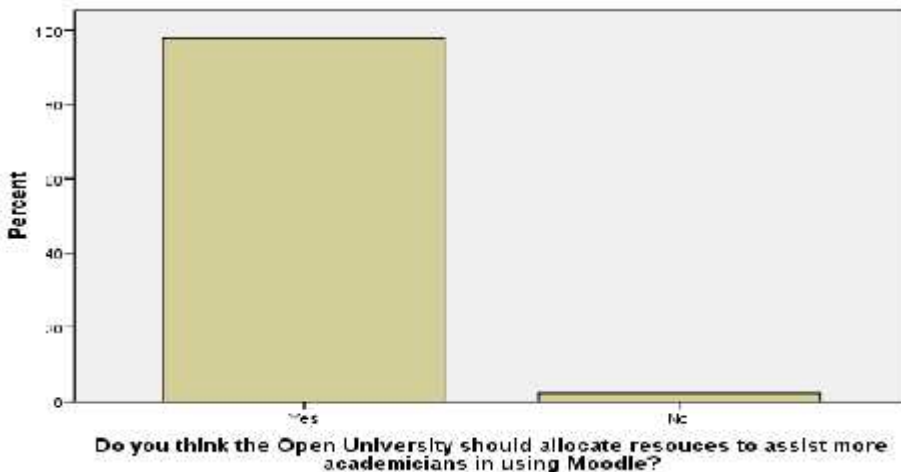


Figure 13: Allocate resources for staff to use Moodle

DISCUSSION

The data showed that training of Moodle had been increasing since 2008 to 2010 and then decreased from the year 2011 when the research was conducted. Since OUT is recruiting more academic staff every year it means that most of the new academic staff would need Moodle Training or else would need to learn on their own. If OUT fails to cope with the increasing number of staff it means that new academic staff will not be aware of what Moodle ELMS was and its benefits.

It has been shown that gender was not a major factor in the usage of Moodle since Moodle usage was similar between males and females. Table 19 below shows the percentage of male and female not using Moodle to interact with students was 89.8% and 92.6% respectively while only 10.2% of male and 7.4% of women used Moodle.

% within Gender		Gender		
		Male	female	Total
Have you ever used moodle to interact with the students	Yes	10.2%	7.4%	9.3%
	No	89.8%	92.6%	90.7%
Total		100.0%	100.0%	100.0%

On the other hand the study showed that the senior academic staff, that is Senior Lecturers and above did not use Moodle as a means to communicate with the students. Our study indicated that there was fair distribution of users between tutorial assistants and assistant lecturers but the number of users decreased for lecturers and was 0% for senior lecturers and professors.

		Academic rank					Total
		tutorial assistant	assistant lecturer	lecturer	senior lecturer	professor	
Have you ever used moodle to interact with the students	Yes	13.6%	10.0%	5.6%			9.3%
	No	86.4%	90.0%	94.4%	100.0%	100.0%	90.7%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Different age groups used moodle differently. The old generation stood out in the usage of moodle with the academic staff aged 56 years and above citing that they do not use Moodle to interact with the students (0%) as shown in the distribution Table 21.

Table 21: Have you ever used moodle to interact with the students * Age Crosstabulation							
		Age					Total
		22-35	36-45	46-55	56-65	over 65	
Have you ever used moodle to interact with the students	Yes	10.7%	6.9%	25.0%			9.3%
	No	89.3%	93.1%	75.0%	100.0%	100.0%	90.7%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

It appears that the majority of staff who used Moodle at OUT had received training in the use of Moodle (75%). However there was a group of people who had used Moodle for uploading contents (26.9%) and interaction with students (25%) without even being trained. This showed that there was an enthusiasm of using Moodle across the University and therefore the use of Moodle.

Table 22: Have you ever been trained to use ELMS called moodle * Have you ever used moodle to interact with the students Crosstabulation				
% within Have you ever used moodle to interact with the students				
		Have you ever used moodle to interact with the students		Total
		Yes	No	
Have you ever been trained to use ELMS called moodle	Yes	75.0%	38.7%	42.2%
	No	25.0%	61.3%	57.8%
Total		100.0%	100.0%	100.0%

Table 23 : Have you ever been trained to use ELMS called moodle * Have you ever used Moodle to upload course contents? Crosstabulation				
% within Have you ever used Moodle to upload course contents?				
		Have you ever used Moodle to upload course contents?		Total
		Yes	No	
Have you ever been trained to use ELMS called moodle	Yes	73.1%	26.2%	40.2%
	No	26.9%	73.8%	59.8%
Total		100.0%	100.0%	100.0%

Lastly, the data provided by the Moodle System Administrator shows that Faculty of science, Technology and Environmental Studies (FSTES) leads the way for course uploading (60 courses) while FBM and LAW are the last with only 7 courses each.

MOODLE CHALLENGES AT OUT

Unreliable Internet Connectivity

The study deduced that internet connectivity is one of the major challenges facing the usage of Moodle by academic staff (Table 14). Most of the academic staff only used the Moodle ELMS when they were within OUT campus. Unreliable internet connectivity has also been cited by the work carried by (Kinley, 2010) when discussing the Awareness and Challenges of E-learning at Paro College of Education of Royal University of Bhutan in South Asia and another study by Ndume and others (2008) on the challenges of adoption of e-learning in Tanzania. Since Moodle ELMS could not be accessed outside the University campus then students and tutors knew that its efficiency was not high. That meant that the academic staff did not use the ELMS because they assumed that whatever contents or activities they put in the Moodle it would not be accessed by the learners.

Awareness of Moodle

As shown above in the Table 6, 28.9% of the academic staff did not know what Moodle ELMS was. It was also raised (Table 14) that not knowing what Moodle is, was one of the barriers that hindered academic staff from using the system. This concurred with the results from study by Wambui and Black (2009) when investigating factors impeding adoption of ICT in Namibia (Wambui & Black, 2009). This is especially the case for the recently recruited academic staff that had not undergone the Moodle training. This meant that those academic staff would not be able to use the ELMS until the point when they were made aware of the existence of the system and its benefits.

Lack of Training

Acquiring technological skills is not easy, and many instructors get discouraged by the effort to produce online courses when they lack technical knowledge. Lack of training was the major barrier to using the Moodle ELMS as indicated by the Academic staff in Table 14. With the increase in number of academic staff who are located all over the country it becomes hard for the University to train all these academic to use Moodle ELMS and hence failure of those staff to use the systems and interact with students. This challenge has also been observed by (Nihuka, 2011) in his study of trying to use the Moodle ELMS to make the educators at OUT develop course curriculum collectively. The same was observed at Griffith College in Dublin that it was one of the barriers to engaging with Moodle (O'Keefe & O'Riordan, 2011)

Follow Up Moodle Activities

Although OUT undertook a number of training sessions, but tracer studies were not made to prove whether the trainings were successful and whether all the academic staff could use the system well after the training or not. More follow-up training sessions are needed to make sure that the academic staff were conversant with the Moodle ELMS. In addition to that, Moodle is regularly updated and the academic staff need to be instructed on how to use features that might have been modified or introduced in the new moodle version.

Lack of Learning Materials in Moodle

Moodle ELMS is not thoroughly being used by the academic staff to communicate with the students because there are no adequate effective learning contents. If Moodle has enough learning contents then the academic staff could always be using Moodle as the first place to retrieve the contents for their students and in that way they would always be directing the users to obtain the learning materials from the Moodle ELMS. Lack of effective multimedia material is identified as one of the instructional barriers in adopting the CMS such as Moodle by (Kareal & Klema, 2006).

Availability of Academic Staff

At OUT, most of the academic staff have other responsibilities that they have to attend to on a daily basis and therefore it becomes very hard for them to concentrate on using the ELMS to interact with students even after they have been trained to use the ELMS. The challenge of academic staff being engaged with other demanding responsibilities is not a new theme. In the study done at University of the South Pacific, it is also mentioned that academic staff were reluctant in using Moodle to deliver or even support their courses simply because they thought that it took up too much of their time and their current workloads were too overwhelming to allow them to engage in Moodle (Narayan, Panda, & Seth, 2010). The question of developing the content becomes even harder for the academic staff. They have to set aside time to develop the electronic learning content and upload it in the ELMS. Time Management for academic staff in the developing countries has also been raised by (C. B. F. Mnyanyi & Mbwette, 2009) in their study of ODL in developing countries.

High Cost and Lack of Funding

The cost of implementing ICT infrastructure for e-learning and train academic staff on E-learning is very high. With the lecturers residing in centres located all over the country, it would mean training staff over the internet or organizing the ELMS training from the centres while most of the ELMS experts are found at the Headquarters. The cost of increasing the network speed in order for the ELMS to be accessed faster outside the University poses a great challenge financially to OUT management (C. Mnyanyi et al., 2010). This has also been stressed by AVU report on Sub-Saharan African(SSA) universities study that management is difficult in SSA region because of no commencement of funding to the university to mainstream its activities (Wolff, 2002). Since the cost to implement ELMS is high and the universities lack enough funds it becomes very difficult to implement ELMS.

Traditional Paperwork Culture

The culture of using the ICT to deliver learning contents is new to academic staff at OUT. Most of the staff still are of the opinion that learning must be done on paper and very few accept the use of ICT in developing their courses. Although OUT is now realizing the potential of ICT in conducting its daily activities, there are still many academic staff members who are not familiar with the use of ICT. It is only until when everyone in the organization attain the culture of using the ICT in developing learning contents then we will see the full impact of Moodle ELMS.

These results have also been found by (Ndume *et al.*, 2008) that the learning culture is one of the obstacles in adapting eLearning.

Interfaculty Associations

From the report by the Moodle System Administrator it was shown that some faculties have progressed considerably well compared to others. FSTES had the highest number of staff using Moodle ELMS compared to other faculties. This shows that the faculties do not work uniformly towards the use of ELMS. If all the faculties share the same type of internet connectivity, systems, and top level management it is important that they all try to function in the same level. Having one faculty with good implementation of ELMS while another one lacks behind indicates that they all work independently and not collaboratively.

Conclusion and Way Forward

Moodle is implemented widely from traditional conventional education system to distance based system. If Moodle is used well at OUT, it will not only allow academic staff to simplify their academic activities and increase the quality of distance education at OUT but will also allow collaboration with other academic staff elsewhere.

The Institutional Management has a very big role to play in making sure that the academic staff use Moodle ELMS. They have to increase awareness of the system among the academic staff, and they also have to train and familiarize academic staff with the e-learning policy so that they can all use the ELMS. In addition to that the academic staff will be motivated to use ELMS by the Management providing incentives for various e-learning activities including developing e-learning contents.

The faculties should emphasize on team formulation in order for the academic staff to assist one another and share learning resources. Working collaboratively can help academic staff share e-learning contents within and among different faculties. With the concepts of Reusable Learning Objects being emphasized in the use of ELMS the faculties will be able to share the learning objects of the courses which have similar scopes or objectives. The faculties should thus ensure that academic staff cooperate, develop and share learning contents in order to make sure that the ELMS has enough learning materials.

It has been shown that challenges faced by academic staff are not only technical but also pedagogical, economical and social (Ndume *et al.*, 2008). By knowing all the challenges the academic staff face, the institutions will be in a better positions to improve the use of the Moodle ELMS. Once all the academic staff use the ELMS then enough learning materials will be made available and the learners will eventually be motivated to use the systems efficiently which will in turn result in efficient use of ELMS. Future work will involve the building of tools that can assist academic staff to easily develop learning materials for Moodle ELMS.

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