

An Investigation into Perceived Barriers to the Use of Internet Resources in Lesson Preparations in Selected Universities in Tanzania

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Abstract

This study is about the perceived barriers of using internet resources in lesson preparations from four public universities in Tanzania namely: University of Dar-es-Salaam, Sokoine, Mzumbe and Ardhi Universities. The study used a sample of 100 respondents randomly selected from the four public universities. A combination of qualitative and quantitative approaches was used in studying a phenomenon. Data was collected using documentary review, interview guides, observation and questionnaires. Quantitative data from the questionnaires were analysed by using Statistical Package for Social Sciences (SPSS), while qualitative data from interview guides and observation were analysed descriptively using content analysis procedure. It was found that the most common barriers of internet resources in lesson preparations are related to poor internet connectivity, poor bandwidth, inadequate ICT facilities, outdated computer hardware and software, meager budget allocations, inadequate library user education and bad experience in using internet resources. It is therefore, recommended that the management of the four surveyed universities to address the said barriers so as to improve the usage of e-resources in lesson preparations. This may be done by providing and improving ICT facilities, allocating adequate budget for e-resources, and conducting staff and user training.

Keywords: *Internet, lesson preparations, e- resources, user education, training programmes, ICT, Tanzania.*

1. Introduction

The Internet is defined by Forouzan (2003) as "... a worldwide collection of computer networks, cooperating with each other to exchange data using a common software standard." According to Derfler (2000), the term Internet is taken as "... a compound word describing an immense number of agreements, arrangements and connections." Mathew (1997) argued that:

... it is through telephone wires and satellite links that Internet users can share information in a variety of forms, size and scope. The design of the Internet also allows users to connect easily through ordinary personal computers and local phone numbers, exchange electronic mail (E-mail) with friends and colleagues with accounts on the internet, post information to others to access and update it frequently, access multimedia

information that includes sound, photographic images and even video, and to access diverse perspectives from around the world.

An Internet resource is, therefore, a source of information retrieved through the Internet (the computer connected to the Internet). Among ICTs, the Internet has been the single most important force of change in universities. Since the beginning of the 1990s, it has gradually become the main vehicle of scholarly communication. However, the intensity of internet use varies from one country to another, university to university and individual to individual.

According to Becker (1999), the use of the Internet to support teaching is growing exponentially as more and more educational institutions are recognizing the potential that it offers. Internet resources can be used to provide campus-based students with more

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flexible access to learning resources, including lecture notes, supplementary materials and communication tools (Hedtlike, Kahler & Schwier, 2001). The Internet enables scholars located all over the world to communicate and share teaching resources.

Manda (2006) stated that the use of the Internet by the academicians in African countries is low because of the lack of facilities. For example, Ani et al. (2005) found in a study that only 4 university libraries out of the 29 covered provided internet services. Ojedokun and Owolabi (2003) investigated the impact of competence on the use of the Internet by the faculty in Botswana. They found that the respondents were more skilled in the use of the Internet for research purposes and less competent in its use for teaching. In spite of claims about the impact of technology on university teaching and the apparent indicators of massive change in teaching and learning approaches, the real changes being experienced by lecturers within Tanzanian universities are far less than expected (Nyika, 2004).

In Kenya, for example, most librarians still use conventional methods of service provision (Odero-Mukasali, 2007). This suggests that public universities are not ready to integrate new information technology in their daily operations (Odero-Mukasali, 2007). The impact of this behaviour is directly related to the extent of the use of the Internet in teaching in universities. For the majority of university lecturers, it seems that there are still many barriers and some personal misgivings about moving away from a sole reliance on traditional teaching approaches and moving towards integrating various technologies into their teaching.

The Development Vision 2025 (URT, 1999), Tanzania Assistance Strategy, and the Poverty Reduction Strategy highlight the promotion of science and technology and ICTs as key strategies to realise competence and

competitiveness in the business environment. According to Maliyamkono and Masson (2006:372), "... the vision 2025 has singled out ICT as a key driver for transformation." Transformation can be in any sector of the economy, for example, in agriculture, small and medium enterprises (SMEs), education, etc.

Maliyamkono and Masson (ibid.) have given the situation of teaching in universities that teaching methods do not go beyond the expository method of school teaching and thus making students less creative and that programmes are too specialised due to the increasing trend towards market demand for enterprising, flexible and accommodating. The programmes have so many courses thus exerting pressure to both teachers and students. The use of Internet can help in rectifying this situation as lecturers can use it as a resource for preparation before embarking on teaching specialized courses, some of which have few materials that are available as hard copies in libraries. Nyika (2004) identifies the lack of current materials in university libraries and research institutions in developing countries as a major problem that hinders teaching and research.

One of the areas of emphasis of the national ICT policy of Tanzania is "... the use of ICT to improve the quality of delivery of education and training in all areas including distance learning" (URT, 2002:65). The policy also states that it will create enabling environment to facilitate deployment, utilisation and exploitation of ICT within all sectors of the economy, including education.

Being part of ICT facilities, the Internet opens possibilities to renew established ideas and approaches on teaching and learning environments. Through both personal and professional exposure to new ways of learning, lecturers get familiar with acquiring other quality teaching material (e.g., from the Internet) to improve existing or compile new

teaching material. According to Hinson (2005), the Internet improves the output of new teaching material, and thus improves the output and efficiencies of university academicians.

Existing telecommunication policies and the state telecommunication monopoly are undermining the development of the Internet in Tanzania (Mafu, 2004; Nnafie, 2002). Tanzania lacks a policy backed by an appropriate legal and regulatory environment to stimulate investment in ICT development. These obstacles obstruct Tanzanians from fostering regional co-operation to harmonize regulation, increase competition, and rationalize usage of scarce bandwidth for the better good. Also, the lack of reliable power and technologies make the costs of opening cyber cafes very high, thus hampering the development of ICTs.

The focus of this study is on the perceived barriers of using Internet resources in preparing lessons among academicians in four public universities in Tanzania, namely: University of Dar es Salaam (UDSM), Ardhi University (ARU), Sokoine University of Agriculture (SUA), and Mzumbe University (MUO).

Literature Review

Nyika (2004) shows that the use of electronic resources by university staff and students at two Tanzanian universities (UDSM and SUA) was very low; and that the Internet was mostly used by undergraduate and graduate students. The same study found that the Faculty of Law of the UDSM preferred to use printed publications than electronic resources (ibid.).

A recent study at Kuwait University by Al Ansari (2006) identified that the Internet facility was mainly used for e-mail. This is also supported by a study by Marxen et al. (1999) who found that the primary reason for students connecting to the Internet is to access e-mail.

The literature on the Internet resources for teaching reports the following user-centred barriers to the Internet resources use: lack of skills in how to use information resources, lack of appropriate reward for electronic scholarly communication; lack of consistent technical support and provision; and lack of time for searching for information (Tompsett & Alsop, 1997; Ray & Day, 1998).

Most of the literature indicates lack of time for both formal training and self-directed exploration (Fabry & Higgs, 1997), and for preparing ICT resources for lessons (Preston et al., 2000), and lack of self-confidence in using ICT (Pelgrum, 2001). Snoeyink and Ertmer (2001) noted that negative experiences with ICT in the past as one of the barriers. Van Fossen (1999) suggest that lack of knowledge necessary to enable teachers to resolve technical problems, when they occur, appear to be a major barrier to most lecturers in using the Internet. Yuen and Ma (2002) indicated that most of the interviewed teachers in their study had the perception that technology does not enhance learning. Cox et al. (1999) also noted that the perception of computers as complicated and difficult to use was a barrier to effective use of the Internet resources.

There are many potential benefits in using Internet resource in the teaching environment. These include enhancing limited library resources (Garfoot, 1998). A study by Gibbon (1987) shows that exposure to Internet teaching resources causes a paradigm shift in teachers, i.e., they are no longer bound to textbooks, and no longer do they have to distribute information to their students in the previous standard formats (paper and worksheets). Instead they can open up a world of electronic learning opportunities for their students, and prepare them for learning in information rich contexts.

Karayan and Crowe (1998), and Murphy, Drabier and Epps (1998) identified several

benefits that can be accrued when the Internet is used to deliver instruction, and/or facilitate communication and collaboration among students. These are the abilities to facilitate equal access for interaction, promote collaboration, promote learner reflection, support learner interaction, expand courses to those in remote distant areas, provide opportunities for collaboration at times and places more convenient to students, and expand students' educational experiences beyond the classroom.

According to Furuholt and Kristiansen (2007):

... the penetration of the Internet in Africa differs from one country to another, depending on each country's government policy, legal and regulatory frameworks, competition among Internet service providers (ISPs), and pricing of telecommunications services.

Matula, 2003 (cited in Furuholt & Kristiansen, 2007: 14), observed that Internet connectivity in each of the world's continents far exceeds that of Africa.

While there are a number of studies on perceived barriers to the use of the Internet resources in lesson preparations in universities worldwide, none have specifically concentrated on universities in Tanzania, especially UDSM, SUA, and MU University. This is the gap that this study intends to fill.

Methodology

A survey research design was adopted for this study. The target population was sampled using the probability sampling technique. A questionnaire instrument was designed based on the Questionnaire for User Interface Satisfaction (QUIS), along with Likert's five-point scale. The snowballing technique (Craig & Douglass, 1999) was also used where one respondent was requested to identify the other. Purposive sampling was also used to select university faculties from which the respondents were selected. This technique was used to select one university ICT director from

each of the four universities. Since the study used probability sampling techniques, it was possible to generalize from this study.

The total sample size was 104 respondents drawn from the four universities as follows: 40 lecturers, 40 students, 20 librarians and 3 members from university ICT section/directorates. That means 10 lecturers, 10 students, 5 librarians and 1 member from ICT sections were drawn from each university.

Qualitative data was collected using unstructured interview guide, which was administered to ICT directors. The interview was oriented to lesson preparation and the use of the Internet facilities, which is a focus of the study. Quantitative data was collected by using questionnaires, which were sent to lecturers, students and librarians. Secondary data was collected from the four universities' ICT policies, strategic plans, Internet user statistics, books, journals (both published and unpublished) research reports, conference proceedings, theses and dissertations.

The Statistical Package for Social Sciences (SPSS) was used to process and analyse the collected data. Data was analysed, organised, coded, tallied, summarized and interpreted in relation to the study objectives and research questions. They were also presented in tables using descriptive statistics with frequencies and percentages.

Findings and Discussion of Results

The findings, as Table 1 shows, revealed that 4(23.5%) from UDSM, 5(29.4%) from SUA, 5(29.4%) from MU, and 3 (17.6%) from ARU used the Internet frequently in lesson preparation. Only 2(66.7%) respondents from MU and 1(33.3%) from ARU reported that they had never used the Internet resources in their lesson preparation processes. Despite these findings, it is also true that even among lecturers with home and office Internet access, most lecturers reported only 'occasional' use of the Internet for lesson preparation.

Table 1: Using Internet Resources in Lesson Preparation (N = 40)

Frequency	Name of Institutions				Total	
	UDSM	SUA	MU	ARU	F	%
	F	%	F	%	F	%
Never	-	-	2	66.7	1	33.3
Once a week	1	20	2	40	5	100
Twice a week	-	-	2	100	2	100
More than twice	1	25	1	25	1	25
Frequently	4	23.5	5	29.4	5	29.4
Every day	3	60	-	-	2	40
No Response	1	20	-	-	3	17.6

Notes: F= Frequencies; %= Percentages

Source: Field Data, 2009

The Value of Internet Resources in Preparing Lessons

Online Databases

According to Fig. 1, most of the lecturers valued the importance of online databases in preparing lessons. Forty percent (40%) of the respondents indicated these sources as good; while 25(31.3%) indicated that these sources are good. The survey also showed that 10 (12.5%) of the respondents viewed the sources as fair, 8(10%) indicated that these databases were excellent, while only 5(6.3%) reported that the sources are not good. In view of these results, the majority of the respondents (40%) agreed that online databases were good sources in preparing teaching lessons.

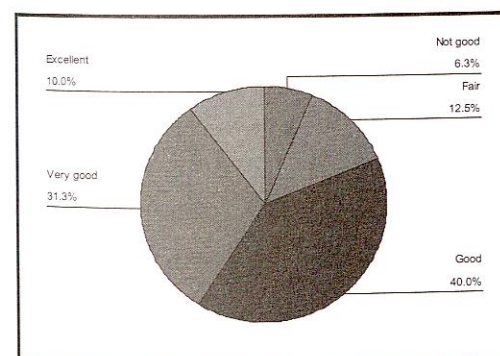


Figure 1: Use of Online Databases for Lesson Preparation

Source: Field Data, 2009.

Findings also indicated that there is need for the universities to widen access to online databases for their patrons by increasing subscription to online journals. However, some respondents, who rated that online resources were not good, argued that online resources were not easily accessible because the majority are protected by passwords.

Respondents were asked to rank the value of electronic journal articles in preparing teaching lessons. It is evident from Table 2 that the majority of the respondents from UDSM (12 (57.1%)), SUA (8(40%)), MU (7(33.3%)) ARU (8(11.3%)) indicated that these sources were good, while 4(19.3%) from UDSM, 4(20%) from SUA, 6(28.6%) from MU and 4(20%) from ARU indicated that the sources were very good. Of the respondents, only 1(4.8%) from UDSM and 1 (4.8%) from MU indicated that electronic journals were fair. There was no response for this item from SUA and ARU. Only 1 (4.8%) from UDSM commented that they were not good sources in preparing lessons for teaching. In general, most of the respondents agreed with the statement that electronic journal articles were good sources for lesson preparation, as well as for students in their studying.

As shown in Table 3, the majority of the respondents from the surveyed institutions (6 (28.6%) UDSM; 9(45%) SUA; 10(47.6%) MU; and 10(55%) from ARU felt that electronic

Table 2: Use of Electronic Journal Articles in Preparing Lessons for Teaching (N = 80)

Institution	Ranking Electronic Journal Articles in Lessons Preparation										Total	
	Not Good		Fair		Good		Very Good		Excellent			
	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%
UDSM	1	4.8	1	4.8	12	57.1	4	19.3	3	14	21	100
SUA	-	-	3	15	8	40	4	20	5	25	20	100
MU	1	4.8	4	19	7	33.3	6	28.6	3	14.3	21	100
ARU	-	-	3	15	8	11.3	4	20	3	15	18	100

Notes: F= Frequencies; %= Percentages

Source: Field Data, 2009

Table 3: Value of Electronic Books in Preparing Lessons for Teaching (N = 80)

Institutions	Ranking E-Books Value in Lesson Preparation										Total	
	Not Good		Fair		Good		Very Good		Excellent			
	F	%	F	%	F	%	F	%	F	%	F	%
UDSM	3	14.3	3	14.3	6	28.6	6	28.6	3	14.3	21	100
SUA	2	10	5	25	9	45	4	20	-	-	20	100
MU	2	9.5	4	19	10	47.6	4	19	1	4.8	21	100
ARU	1	5.6	-	-	10	55.6	3	16.7	4	22.2	18	100

Notes: F= Frequencies; %= Percentages

Source: Field Data, 2009

books were good sources for lesson preparation. On the contrary, 3(14%) from UDSM, 5(25%) from SUA, and 4(19%) from MU indicated that these sources were just fair. The following respondents indicated that electronic books were not good: 3(14.3%) from UDSM, 2(10%) from SUA, 2(9.5%) from MU, and 1(5.6%) from ARU. In one in-depth interview, a lecturer/respondent commented that:

Internet and electronic resources cannot replace print resources because it is sometimes difficult to get the relevant information on the Internet. It should be noted that Internet and electronic resources cannot replace the physical resources (print resources), but only supplements the print resources.

Writing about electronic resources, Gibbon (1989: 20) commented that:

... the exposure to the Internet as a teaching resource causes a paradigm shift in lecturers as they are no longer bound to textbooks, nor do they have to distribute information to their students in their previously standard formats (paper and worksheet), instead, they use the Internet.

Online Catalogue

Table 4 depicts the value of online catalogues in lesson preparation. The majority of the respondents agreed that online catalogue were very useful in lesson preparation. This was indicated by 4(19%) from UDSM, 9(45%) from SUA, 4(19%) from MU, and 7(38.9%) from ARU who also evaluated these sources to be good. On the other hand, only 4(19%) from UDSM, 5(25%) from SUA, 8(38.1%) from MU, and 2(11.1%) from ARU reported that these sources were fair. The following respondents commented that online catalogues were not good: 4(19%) UDSM; 2(10%) SUA; 2(9.5%) MU; and 2(11.1%) ARU. In an interview, one of the respondents commented that:

"... online catalogues were good because they provide us with bibliographical description of materials we refer to when we prepare lessons."

Table 4: Use of Online Catalogue in Preparing Lessons for Teaching (N = 80)

Institutions	Ranking Online Catalogue Value in Lesson Preparation										Total	
	<i>Not Good</i>		<i>Fair</i>		<i>Good</i>		<i>Very Good</i>		<i>Excellent</i>			
	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>
UDSM	4	19	4	19	4	19.0	9	42.9	4	19	21	100.
SUA	2	10	5	25	9	45	3	15	1	5	20	100
MU	2	9.5	8	38.1	4	19	6	28.6	1	4.8	21	100
ARU	2	11.1	2	11.1	7	38.9	5	27.8	2	11.1	18	100

Notes: F= Frequencies; %= Percentages

Source: Field Data, 2009

Table 5: Value of Online Reference Sources in Preparing Lessons for Teaching (N = 80)

Institutions	Ranking Online Catalogue Value in Lesson Preparation										Total	
	<i>Not Good</i>		<i>Fair</i>		<i>Good</i>		<i>Very Good</i>		<i>Excellent</i>			
	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>
UDSM	-	-	2	9.5	8	38.1	6	28.6	5	23.8	21	100
SUA	2	10	2	10	8	40	7	35	1	5	20	100
MU	4	19	4	19	4	19	6	28.6	3	14.3	21	100
ARU	1	15.6	1	15.6	9	50	3	16.7	4	22.2	18	100

Notes: F= Frequencies; %= Percentages

Source: Field Data, 2009

Online References

The majority of respondents (7(33.3% UDSM, 6(30%) SUA, 8(38.1%) MU, and 2(11.1%) ARU) viewed online references as good, while 9(42.9%) in UDSM, 6(30%) in SUA, 4(19%) in MU, and 9(50%) in ARU indicated that the sources were very good and valuable resources for lesson preparations, and for student studying. Specifically, 2(10%) in SUA, 4(19%) in MU, and 1(15.6%) in ARU reported that these sources were not good, while 2(9.5%) in UDSM, 2(10%) in SUA, 4(19%) in MU, and 1 (15%) ARU indicated that they were just fair.

Although this source was evaluated by the majority as a good source, one interview with one lecturer indicated that one has to be very careful in using these sources "... they are good but great care should be taken when using them because one has to evaluate the sources before using them."

Internet Websites

As shown in Table 6, respondents were asked to rank the value of the Internet websites in lesson preparation and studying. Results show that 7(33.3%) from UDSM, 6(30%) from SUA, 8(38.1%) from MU, and 2(11.1%) from ARU indicated that the sources were good; while 9(42.9%) from UDSM, 6(30%) from SUA, 4(19%) from MU, and 9(50%) from ARU found the Internet websites to be very good sources for both lesson preparation and for obtaining study materials. Also, 4(20%) from SUA, 1(4.8%) from MU, and 1(5.6%) from ARU indicated that websites were fair; and only 2 (9.8%) of the respondents from MU stated that these sources were not good. In an in-depth interview, one of the lecturers revealed that:

Websites usually provide ready-made materials and always save time of both lecturers and students, but it encourages plagiarism, and therefore I don't encourage my students to use them.

Table 6: Values of Internet Websites in Preparation of Lessons for Teaching (N = 80)

Institutions	Ranking Internet Website Value in Lesson Preparation										Total	
	Not Good		Fair		Good		Very Good		Excellent			
	F	%	F	%	F	%	F	%	F	%	F	%
UDSM	-	-	-	-	7	33.3	9	42.9	5	23.8	21	100
SUA	-	-	4	20	6	30	6	30	4	20	20	100
MU	2	9.8	1	4.8	8	38.1	4	19	6	28.6	21	100
ARU	-	-	1	5.6	2	11.1	9	50	6	33.3	18	100

Source: Field Data, 2009

One of the students interviewed argued by stating that "I prefer using website materials in doing my assignment but our lecturers tend to discourage us." Both the lecturer and the student are right. What is required here is training on how to evaluate online resources before using them for academic purposes. Similarly, lecturers of this calibre need to change their mind set by allowing students to use the wealth of resources available online.

Respondents were asked to rank the value of electronic mails in preparing lessons for teaching and studying. The results, as Table 7 summarises, reveal that 1(5%) of the respondents from SUA, 2(9.5%) from MU, and 1(5.6%) from ARU indicated that e-mails were not good, while there was no response on this item from UDSM. Furthermore, 6(30%) from SUA, and 1(5.6%) from MU showed that e-mails were fair sources. Also, 11(52.4%) of respondents from UDSM, 5(25%) from SUA, 8(38.1%) from MU, and 4(22.2%) from ARU agreed that e-mails were very good; while

5(23.8%) of respondents from UDSM, 4(20%) from SUA, 3(14.3%) from MU, and 8(44.4%) from ARU indicated that e-mails are excellent sources that can be used in lesson preparation and in studying.

The findings also revealed that the e-mail facility was not used for studying or communicating academic issues, rather it was used for chatting and writing to friends. It was also observed that as soon as libraries open, students rush to computers, and the first search engines to be accessed was Yahoo Mail, Hot Mail, and Michuzi or Jamii blogs. These findings correspond to those of Marxen et al. (1999) and Al-Anasari (2006), who reported that Internet facilities in universities surveyed were mostly used for e-mails. The researcher recommends that e-mail could be used for sharing and communicating academic issues as they are cheaper and fast means of sharing electronic resources.

Table 7: Electronic Mails Use (N = 80)

Institution	Ranking Electronic Mail use in Lessons Preparation										Total	
	Not Good		Fair		Good		Very Good		Excellent			
	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>	<i>F</i>	<i>%</i>
UDSM	-	-	2	9.5	3	14.3	11	52.4	5	23.8	21	100
SUA	1	5	6	30	4	20	5	25	4	20	20	100
MU	2	9.5	1	5.6	7	33.3	8	38.1	3	14.3	21	100
ARU	1	5.6	1	5.6	4	22.2	4	22.2	8	44.4	18	100

Source: Field Data, 2009

Provision of ICT Facilities to the Lecturers

The survey results in Table 8 reveal that about 4(19%) of the respondents from UDSM, 3(15%) from SUA, 3(14.3%) from MU, and 1(5.6%) from ARU reported that they were provided with personal computers (PCs) in their offices; while 4(19%) from UDSM, 1(5%) from SUA, and 1(4.8%) from MU were provided with both PCs and printers (there was no lecturer at ARU who was provided with both). Also, 1(4.8%) of the respondents from UDSM, 2(10%) from SUA, 2(9.5%) from MU, and 5(27.8%) from ARU were provided with printers, PC and laptops. Observations and interviews in the surveyed universities indicated that there were some lecturers who were not provided with any of the ICT facilities.

ICT Facilities Provision Constraints

Results summarised in Table 9 indicate that about 4(19%) of the respondents from UDSM, 2(10%) from SUA, 4(19%) from MU and 1(5.6%) from ARU did not respond to this questionnaire item, claiming that the university did not have such a policy. Also, 1(5%) from SUA and 2(9.5%) from MU pointed out budget constraint as a reason for the lack ICT facilities. Also, while 1(5.6%) of the respondents from ARU indicated that their university did not provide such facilities to every lecturer, another 1 (4.8%) respondents from UDSM pointed out that their university is too large (in terms of manpower) to provide ICT facilities to every lecturer (instructor). One of the reasons given by some respondents through oral interview is that "... it is not easy

Table 8: Facilities Provided to the Lecturers by the University (N = 80)

Institution	Facilities Provided												Total			
	Personal Computer		Printer		Laptop		None of the above		PCs & Printer		All Above				No response	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
UDSM	4	19	-	-	-	-	-	-	4	19	1	4.8	12	57.1	21	100
SUA	3	15	1	5	-	-	3	15	1	5	2	10	10	50	20	100
MU	3	14.3	-	-	1	4.8	3	14.3	1	4.8	2	9.5	11	52.4	21	100
ARU	1	5.6	-	-	-	-	1	5.6	-	-	5	27.8	11	61.1	18	100

Source: Field Data, 2009

In one of the surveyed university, tutorial assistants complained that they did not even have even offices, and therefore none of these facilities were provided to them. Others pointed out that "... only Deans of Faculties, Directors and some Heads of Departments are provided with such facilities." One of the top leaders at SUA commented:

Before September 2008 all lecturers had PCs connected to the Internet. These amounted to approximately 300 PCs which formed a ratio of one lecturer one computer. Currently the university has recruited about 100 Tutorial Assistants and Assistant Lecturers and therefore this dynamic created a shortage of PCs. This affects the use of Internet resources in lesson preparations and for studying to the students.

to provide such facilities in the ratio of one to one." The ICT personnel from MU who was interviewed commented that:

... the budget allocated for ICT facilities is always insufficient; some computers in lecturers' offices and laboratories are always subjected to damage caused by electric shorts, viruses and users who are computer illiterates.

The lack of funds and budget constraints were the reasons given by the surveyed universities for not being able to provide adequate ICT facilities to their academic staff.

Table 9: ICT Facilities Provision Constraints

Reasons for Not Provided with ICTs Facilities	Name of the Institutions							
	UDSM		SUA		MU		ARU	
	F	%	F	%	F	%	F	%
Total Sample N= 40								
University does not provide ICT facilities	-	-	-	-	-	-	1	5.6
Lack of Resources	-	-	1	5	2	9.5	-	-
Lack of understanding, commitment, funds & priority	-	-	-	-	-	-	1	5.6
May be they do not provide ICT facilities	-	-	-	-	-	-	1	5.6
No funds available	-	-	-	-	-	-	1	5.6
No response	4	19	2	10	4	19	1	5.6
Not applicable	15	71.4	17	85	14	66.7	11	61.1
Printer is a shared resource,	-	-	-	-	1	4.8	-	-
We are provided with all facilities	1	4.8	-	-	-	-	-	-
University is too large to provide all ICT facilities to every body	1	4.8	-	-	-	-	-	-
University does not provide ICT facilities	-	-	-	-	-	-	1	5.6
University has not started providing such facilities	-	-	-	-	-	-	1	5.6

Source: Field Data, 2009

Perceived Barriers to the Use of Internet Resources in Preparation of Lessons in Teaching in the Selected Universities

The following were the perceived barriers which were mentioned by respondents on the use of Internet resources in preparation of lessons in teaching in the selected universities:

1. Lack of up-to-date Computer Software: In an in-depth interview conducted by the researcher with one of the librarians with regard to statement that computer software was not up to date, it was revealed that: 'our library was using very old antivirus software which expired two years ago. The respondent continued to state that most of the computers were old and therefore, making downloading of the Internet resources to be very slow, thus discouraging library patrons.'
2. Computer Viruses and the Use of Internet Resources: Through interviews and observations it was revealed that most of the institutions use open sources or free antivirus in solving this problem. ICT personnel who were interviewed reported that they were always given a very meagre budget which cannot enable them to acquire commercial antivirus software.

3. Funds allocated for ICT were inadequate: The interview administered to the ICT personnel in the universities surveyed indicates that they have never received sufficient funds to meet their annual plans. Those who indicated that ICT facilities in their universities are fair argued that: 'the Internet connectivity was a problem, computer laboratories were not technically maintained, there were very few computers compared to the number of library users, and expressed the problem of power failure. On the other hand, one of the Senior Librarians interviewed argued that 'there are plenty of ICT equipment though not used exhaustively due to power cut off and viruses.'
4. User Education including Computer Training: In an in-depth interview with one of the respondents, (student), indicated that training on the use of the Internet resources is not accorded enough weight as other academic courses. The student commented that 'In most cases library user education is regarded as an option to the students who wish to participate. Similarly, because this is not examined at the end of the semester we have a tendency of not participating.'

Recommendations:

Based on the study findings and conclusions, the following recommendations were suggested:

1. There is an urgent need of improving the Internet resources in public universities in Tanzania. In order to be successful, the Internet and associated technologies should be integrated into the universities' curriculum. In addition, there should be a complete campus-wide networking with the Internet browsing facility connecting the lecturers living on campus houses as well as students hostels. This will enable lesson preparations and studying by using the Internet resources to be carried out by lecturers and students respectively at their own time.
2. Public university libraries in Tanzania should subscribe to more e-journals and e-databases to reduce the cost of ordering print copies as well as space for housing such hard copies.
3. Information literacy training programmes should be organised by the University Libraries on a continuous basis in order to improve lecturers' competencies or proficiency in the use of the Internet Resources for academic purposes.
4. On the other hand, qualified IT staff should be recruited/employed by the libraries to provide the expert guidance to users about e-resources and Internet resources.
5. Library staff, ICT staff, lecturers and students must be thoroughly trained in information literacy. It should be noted that the integration of ICT in teaching and learning does not only deal with introduction of new hardware and software, but both trainers and the students have to adopt new roles, change their ICT behaviours and ways of teaching and learning. For example, Bates (1997)

recommended that 'faculty staff requires training not just in the choice and use of appropriate technologies, but more fundamentally, in how people learn and use instructional design.' Pelgrum (1999) recommended staff training to be a continuous process for regular updates with the development of ICTs.

6. Universities in Tanzania must have an official plan in conducting on-the job training programmes in Information Literacy to all academic staff since they are involved in teaching. The aim is to make them more competent in searching for the Internet resources which are valuable and relevant in their academic disciplines. The university can draw resource persons from the University Library, Computing Centres and the School of Informatics and Communication Technologies, in the case of the University of Dar es Salaam.

Other recommendations include:

(i) University Management Support

University management support is critical to the successful integration of ICTs into teaching and learning processes since it can provide the conditions that are needed, such as ICT policy incentives and resources. The commitment and the interest of the top university management and leaders at every level is the most critical factor for successful implementation of ICTs in universities because as suggested by Dwyer et al (1997:14) the effectiveness and sustainability of integration of ICTs depends on the administrators' competence in the use of the technology, and a broad understanding of technical, pedagogical, administrative, financial and social dimensions of ICTs in education.

(ii) Purchasing Consortia:

There is a need for Tanzanian Universities to form 'Library Electronic Purchasing Consortia' which will enable them to obtain much lower

prices for e-resources than individual libraries and to rip the benefit of wider access to electronic resources at affordable cost and at the best terms of licenses.

(iii) Budget Increase:

Financial resources form a key factor to the successful implementation and integration of ICTs in teaching and learning. It is obvious that a university with higher financial resource base stands a good chance than one with limited resources in reaping benefits offered by ICTs. In addressing the problem of limited funds and sustaining donor-funded projects, Universities can continuously press for more funds from their governments and diversify sources of funds to have a wide financial base.

Information literacy training programme should be integrated into the university curriculum. Librarians must also organise seminars, conferences and training workshops to make University lecturers and students aware of the existing the Internet resources. Lecturers must be encouraged to use the Internet resources in preparing their lectures. On the other hand, students must also be encouraged to use the e-resources in their take home assignments, class projects, theses and dissertations.

References

- Adika, G., (2003), "Internet Use among Faculty Members of Universities in Ghana," *Library Review*, 53(1): 29-37. www.emeraldinsight.com/0024-2535.htm, retrieved on Saturday, 28th June 2008.
- Allehaibi, M.M., (2001), "Faculty Adoption of Internet in Saudi Arabian Universities," PhD Dissertation, the Florida State University, Tallahassee.
- Al-Ansari, H., (2006), "Internet Use by the Faculty Members of Kuwait University," *The Electronic Library*, 24(6): 791-803. www.emeraldinsight.com/0024.2535.htm, retrieved on Saturday, 28th June 2008.
- Ani, O.E., J.E. Esin & N. Edem, (2005), "Adoption of Information and Communication Technology (ICT) in Academic Libraries: A Strategy for Library Networking in Nigeria," *The Electronic Library*, 23(6): 701-8. www.emeraldinsight.com/0024.2535.htm, retrieved on Monday, 23rd June 2008.
- Babbie, E., (1995), *The Practice of Social Research*, California: Wadsworth.
- Bates, A. W., (1997), *Technology Open Learning and Distance Education*. London: Routledge.
- Becker, H.J., (1999), Internet Use by Teachers: Conditions of Professional Use and Teacher Directed Student Use, <http://www.crito.uci.edu/TLC/findings/Internet-Use/startpage.htm>, retrieved on Sunday, 3rd August, 2008.
- Bryman, A. & E. Bell, (2007), *Business Research Methods*, 2nd ed., Oxford: Oxford University Press.
- Borgman, C. L., S. G. Hirsh & J. Hiller, (1996), "Rethinking Online Monitoring Methods for Information Retrieval Systems: from Search Product to Search Process," *Journal of the American Society for Information Science*, 47(7): 568-83, www.emeraldinsight.com/0024.2535.htm, retrieved on Saturday, 28th June 2008.
- Bryman, A. & M. Bell, (2007), *Business Research Methods*, 2nd ed., Oxford: Oxford University Press.
- Butler, D. L. & M. Sellbom, (2002), "Barriers to Adopting Technology for Teaching and Learning," *Educause Quarterly Journal*, 2: 1-28. www.educause.edu/ir/library/pdf/eqm0222a.pdf, retrieved on Sunday, 3rd July 2008.
- Cox, M., Preston, C. & K. Cox, (1999), 'What Factors Support or Prevent Teachers from Using ICT in their Classrooms?' Paper Presented at the British Educational Research Association Annual Conference, University of Sussex at Brighton, September 2-5.1999, www.leeds.ac.uk/educol/documents/00001304.htm, retrieved on Monday, 22nd July, 2008.
- Cuban, L., (2001), "High Access and Low Use of Technology in High School Classrooms: Explaining an Apparent Paradox," *American Educational Research Journal*, 38(4), pp.813-834, www.becta.org.uk/research, retrieved on Sunday, 15th June 2008.
- Czaja, S.J. & C. C. Lee, (2007), "The Impact of Aging on Access to Technology," *Universal Access to Information in the Information Society Journal*, 5(4): 341-349.
- Dickinson A. & P. Gregory, (2005), Cognitive Difficulties and Access to Information Systems an Interaction Design Perspective, http://www.sigaccess.org/newsletter/sep05_10.pdf, retrieved on Sunday 29th June, 2008.
- Dong, X., (2003), "Searching Information and Evaluation of Internet: A Chinese Academic User Survey," *International Information & Library Review*, 35(2-4): 163-87, www.emeraldinsight.com/0090-7324.htm, retrieved on Sunday, 29th June 2008.
- Dulle, F. W. & M.J .F., Lwehabura, (2004), "User information Literacy: Challenges of Facing University Libraries Towards Effective Implementation," *Paper Presented at the 6th Standing Conference of African National and University Libraries*. 30th June, 2004 - 3rd July 2004, Kampala, Uganda.
- Dwyer, D.C., C. Ringstaff & J. H. Sandholtz, (1997), Teacher Beliefs and Practices Part II: Support for Change: the Evaluation of Teachers' Instructional Beliefs and Practices in High Access to Technology Classrooms, First - Fourth Year Findings, Cupertino, CA: Apple Computer.
- Fabry, D. & J. Higgs, (1997). "Barriers to the Effective Use of Technology in Education," *Journal of Educational Computing*, 17(4): 385-395, www.becta.org.uk/research, retrieved on Sunday, 15th June 2008.
- Fayter, D., (1998), "Issues in Training Lecturers to Exploit the Internet as a Teaching Resource," *Education + Training*, 40 (8) pp. 334-339, www.emeraldinsight.com/Insight/html, retrieved on Monday, 22nd July 2008.
- Forouzan, B. A., (2003), *Local Area Networks*, 1st ed. Boston: McGraw Hill.
- Furuholt, B. and S. Kristiansen, (2007), "A Rural-Urban Digital Divide?: Regional Aspects of Internet use in Tanzania" *The Electronic Journal of Information Systems in Developing Countries*, 31.
- Garfoot, A., (1998), "The Global Classroom," *IT Training*(3): 18-23, www.emeraldinsight.com/Insight/html, retrieved on Monday, 22nd July 2008.
- Gibbon, S., (1987). Learning and Instruction in the Information Age in White, M.A. (Ed.), What Curriculum in the Information Age. New Jersey: Lawrence Elbaum Associates, <http://www.uvm.edu/~hag/naweb96/zkumari.html>, retrieved on Wednesday, 18th June 2008.
- Greenberg, L. J., (2009). Strategy: Embrace Telecommunications Technology in Instructors and Preparation for Instruction. <http://earthrenew.org/Use20%in%20th%classroom>, retrieved on Saturday 31st January 2009.
- Guha, S., (2000), "Are we all Technically Prepared? Teachers' Perspective on the Causes of Comfort or Discomfort in Using Computers at Elementary Grade Teaching," a paper presented at the Annual Meeting of the National Association for the Education of Young Children, Atlanta, GA, November 8-11. <http://eric.ed.gov/ERICWebPortal/custom/portlets/record>, retrieved on Wednesday, 18th June 2008.
- Hinson, R., (2005). "The Internet for Academics: Towards a Holistic Adoption Model," *Online Information Review*, 30(5): 542-554, www.emeraldinsight.com/1468-4527.htm, retrieved on Sunday, 13th July 2008.
- Jones, K., (2003), "Using the Internet in Teaching and Learning of Mathematics: A Research Bibliography," *Mircomath Research Bibliographies*, 19(1): 43-45, <http://www.soton.ac.uk-crime/tooltech/index.html>, retrieved on Monday, 30th June 2008.
- Johnson, A. M., (2002), "Library Instruction and Information Literacy-2001," *Reference Review Services*, 30(4): 359-389, www.emeraldinsight.com/0090-7324.htm, retrieved on Saturday, 28th June 2008.
- Johnson, S. and C. McCormack., (1996). "Integrating Information Technology into

- University Teaching: Identifying the Needs and Providing Support," *International Journal of Educational Management*, 10(5): 36 – 42. <http://www.uvm.edu/~hag/naweb96/zkumari.html>, retrieved on Wednesday, 18th June 2008.
- Karayan, S. & J. A. Crowe, (1997), "Student Perceptions of Electronic Discussion Groups," *T.H.E. Journal*, Vol.4, pp.69–71, http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=EJ543201&ERICExtSearch_SearchType_0=no&accno=EJ543201, retrieved on Wednesday, 04th February 2009.
- Kothari, C. R., (1992), *Research Methodology and Techniques*, New Delhi: Wiley.
- Kristiansen, S., (2007), A Rural-Urban Digital Divide? Regional Aspects of Internet Use in Tanzania: Proceedings of the 9th Conference on Social Implications of Computers in Developing Countries, Sao Paulo, Brazil, May 2007. <http://www.uvm.edu/~hag/naweb96/zkumari.html>, retrieved on Wednesday, 18th June 2008.
- Luambano, I. & J. Nawe, (2004), Internet Use by Students of the University of Dar es Salaam," *Library Hi Tech News* (10): 13–17, www.emeraldinsight.com/0090-7324.htm, retrieved on Wednesday, 18th June 2008.
- Macias-Chapula, C., (1995), "Development of a Soft Systems Model to Identify Information Values: Impact and Barriers in a Health Care Information System," *Journal of Information Science*, 21(4): 283–88.
- Mafu, S., (2004), "From the Oral Tradition to the Information Era: The Case of Tanzania," *International Journal on Multicultural Societies*, 6(1):53–78, www.unesco.org/shs/ijms, retrieved on Wednesday, 18th June 2008.
- Malekani, A., (2007), "Users Experiences and Perceptions of Online Information Resources in Libraries: A Case of Sokoine National Agricultural Library (SNAL), Tanzania," *University of Dar es Salaam Library Journal*, 9(2): 56–71.
- Maliyamkono, T. L. & H. Mason, (2006), *The Promise*, Dar-es-Salaam: TEMA Publishers.
- Manda, P.A., (2006), The State of Access to Electronic Resources in Academic and Research Institutions in Tanzania, a Research Report Submitted to the UDSM, January 2006.
- Mathews, P. L., (1997), An Investigation into Internet Training for Academic Library Staff," *New Library World*, 98(1134): 84–97 <http://www.hw.ac.uk/libWWW/irn/.html>, retrieved on Sunday, July 13th 2008.
- Mead, S.E., R.A. Sit & B.A. Jamieson, (2000), "Influences of General Computer Experience and Age on Library Database Search Performance," *Behaviour Information Technology*, 19: 107–112.
- Mzumbe University Prospectus., (2008a), *Prospectus 2008–2009*, Mzumbe: Mzumbe Book Project.
- Mzumbe University Strategic Plan, (2008), *The Second Five-Year Strategic Corporate Plan 2007/2008–2011/2012*, Mzumbe: Mzumbe University.
- Nnafie, I., (2002), "Internet Cafés in Dar es Salaam: Problems and Opportunities," *Recommendations for e Think Tank Tanzania*, <http://www.ourtanzania.com/cafes.pdf>, retrieved on Wednesday, 18th March 2009.
- Nyika, E.A., (2004). Enhancing Access to Electronic Publication in Tanzanian Universities: 135–138, <http://darchive.mblwhoilib.org:8080/dspace/bitstream/1912/2019/1/proc03135.pdf>, retrieved on Thursday, 17th July 2008.
- Odero-Musakali, D., (2007), "Internet Adoption and Assimilation in Kenyan University Libraries," *Library Review*, 56(6): 464–475. Available at: www.emeraldinsight.com/0024-2535.htm, retrieved on Monday, 15th June 2008.
- Pelgrum, W., (2001). "Obstacles to the Integration of ICT in Education: Results from a Worldwide Educational Assessment," *Computers and Education*, 37: 163–178.
- Powel, R.R., (1991). *Basic Research Methods for Librarians*, 2nd ed., New Jersey: Ablex Publishing.
- Preston, C., M. Cox & K. Cox, (2000). *Teachers as Innovators in Learning: What Motivates Teachers to Use ICT*, New York: Miranda Net.

- Ray, K. & J. Day., (1998), "Student Attitudes Towards Electronic Information Resources," *Information Research*, Vol.4(2), <http://informationr.net/ir/4-2/paper54.html>, retrieved on Saturday, 14th June 2008.
- Tompsett, C. & G. Alsop., (1997), "A Study of Human Communication Issues in Interactive Scholarly Electronic Journals: Final report," <http://www.ukoln.ac.uk/services/elib/papers/tavistock/kingston/kingston.html>, retrieved on Friday, 13 June 2008.
- Uddin, M. N., (2003), "Internet Use by University Academics: a Bipartite Study of Information and Communication Needs," *Online Information Review*, 27(4): 225–237, <http://www.emeraldinsight.com/1468-4527.htm>, retrieved on Monday, 10th September 2008.
- UDSM, (2007), Institutional Self-Assessment of the University's Mission in Relation to the Civic Role in and Social Responsibility to Society, with a Special Focus on Two Self-Initiated Global Projects: An Institutional Assessment Report Prepared for The Talloires Network, Dar es Salaam: UDSM. <http://www.tufts.edu/talloiresnetwork/downloads/UniversityofDaresalaam> retrieved on Friday, 19th Thursday 2009.
- UDSM Library, [n.d.], The Outline of Information Literacy for University Students (unpublished guideline for University Students).
- URT, (2002), *National ICT Policy of Tanzania, Dar es Salaam*, The United Republic of Tanzania, Ministry of Communications and Transport.
- URT, (1999), *The Tanzania Development Vision 2025*, Dept. Poverty Eradication, Vice President's Office, <http://tanzania.fes.international.de/doc/bot-tz-develoment-vision.pdf>, retrieved on 17th Tuesday, March 2009.
- Van Dalen, D.B. & W.J. Meyer, (1966), *Understanding Educational Research*. New York: McGraw-Hill.
- Van Fossen, P., (1999), "Teachers Would Have to be Crazy not to Use the Internet!": Secondary Social Studies Teachers in Indiana," a Paper Presented at the Annual Meeting of the National Council for the Social Studies, Orlando, FL, November 19–21. <http://www.eric.ed.gov>, retrieved on Saturday, 15th June 2008.
- Yuen, A. & W. Ma, (2002), "Gender Differences in Teacher Computer Acceptance," *Journal of Technology and Teacher Education*, 10(3): 365–382, http://www.ascilite.org.au/conferences/brisbane05/blogs/proceedings/51_Markauskaite.pdf, retrieved on Wednesday, 23rd July, 2008.