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Internet Access, Competence and Use Among University of Jos Academic Staff.

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Abstract

The rapid development of the Internet and its expanded use in Institutions of higher learning has revolutionaries research and teaching among academicians. There is increased demand for Internet related services in University of Jos. To assess their Internet access competence and the usefulness of the Internet for teaching and research, questionnaire was distributed and also mailed to academic staff of University of Jos.

The questionnaire asked respondents various Institutional demographic questions, availability of computers and Internet access points, their level of competence, experience on the use of the Internet, and their perceived usefulness of the Internet. The results of the study were presented in tables; cross tabulations were made where appropriate to indicate relationship between variables.

Respondents also provided information on major constraints to the effective use of the Internet, policy issues and how it is deployed. Specific concerns and issues dealing with computer and Internet access were enumerated. Recommendations, particularly for policy formulation and dissemination were highlighted.

Introduction

The benefits of using ICT, however, depend on the effective application of it. This in turn depends on the investment and policies that promote the use of the technologies in any given institution. It also depends on the availability of trained staff to manage and maintain the technologies, also the interest of the staffers in using the technologies. Plomp et al (1996) averred that:

> *A learning process is the result of both structural conditions derived from the learning infrastructure and personal characteristics of the actors involved, and their interaction.*

In other words, the use of technologies effectively, is a direct function of positive attitudes developed by the users.

Computers and the Internet are some of the most used types of ICTs today. This is because of developments in computer and Internet connectivity applications. Computers and Internet facilities have evolved to the extent that they bring together a number of functions that some technologies provide. For example networking has made it possible for computers to be connected locally in an institution or department in form of what is called an Intranet or internal network. But at a wider scale, the various networks that have been interconnected worldwide is referred to as the Internet. Such connectivity provides for lecturers and other people access and sharing of hardware, as in the case of intranet, and a wide range of information as provided by both intranet and the Internet. The use of ICT and Internet facilities for teaching and research has been embarked upon by few researchers in developing counties according to Lacey, (1999). However, Russell (2000), in his report recognized that some institutions of higher learning elsewhere are already advanced users of information and communication technology (ICT), using cutting-edge technologies such as interactive whiteboards, posting curriculum and homework on the internet and making use of video conferencing to share specialist teaching.

The establishment of computer center in the University of Jos became a reality in September 1991 with a mission of providing a first class central academic computing facility for the entire university. The vision of providing computer services includes training and equipment maintenance for staff, students and departments of the University. The idea is to make the best academic support unit in the Nigerian University System and the West African Sub-region.

The objectives of the Computer center which is an Academic Support Unit were primarily established for the purpose of: -

(1) Teaching and Research Support

(2) Training

(3) Development of Software, multimedia, websites etc.

(4) Consultancy services.

The first aim and objective of the computer center of the University as an academic constituency, where this study is based, was further substantiated in the strategic plan of the University of Jos, under *goal 6*:

The University has set up strategies as well as manpower and infrastructure necessary to explore the use of modern information and telecommunications technology in both academic and non-academic pursuits. This is outlined in plan 6.2 thus:

> to install the communication infrastructure necessary to provide full campus-wide access to electronic communication and the internet and make free, full internet services available for staff and students.

Even though the installation of these infrastructures and access to electronic communication and the Internet were possible, it is however, not for free – but within affordable range for both staff and students.

The provisions of Teaching and Research Equipment (TARE) for the planned period were estimated to cost close to four hundred and twenty million (₦419,768,496) Naira which represents 40% of capital provisions, in line with the policy the Nigerian University Commission (NUC). For it's networking, the University has put in place its goals and strategies of a University Wide Area Network (WAN) with durable and state of the Art Technology. Almost all faculties and Departments have computer laboratories and other systems linked to the computer center. This was done through a fiber optic backbone between buildings and with category cables for interior connections. Two of the phases were estimated to cost a total of thirty million Naira (₦30, 000,000 =00).

In addition to these, all academic and administrative staff MHATISS 13 and above are to have a computer each in their offices. The computer systems are all to be on the network and the usual peripherals, surge protectors UPS, software and printers were to be provided at an estimated cost of one hundred and forty million Naira for the planned period.

Objectives of the Study

The objectives of the study are to: -

1. Assess the extent of computer and Internet availability among and within University of Jos Academic Staff.

2. Find out the level of competence in computer and Internet use among University of Jos Academic Staff
3. Investigate the level of experience on the use of the Internet among University of Jos Academic Staff.
4. Determine the extent of usefulness of the Internet on teaching and research activities among University of Jos Academic Staff
5. Find out the major constraints in the use of Internet infrastructure for teaching and research activities among University of Jos Academic Staff
6. Investigate if management policy on the provision of ICT/TARE has influence teaching and research activities among University of Jos Academic Staff

Methodology

The survey approach was adopted for this research.

The total number of academic staff available for the study was 688 in the year 2003, spread over the seven faculties and other academic units of the University forming the study population. Five hundred academic staff constituted the sample of this study. The random sampling technique using the fish-bowl method was employed for the purpose of this study. The instrument for data collection used was the questionnaire adapted from the instrument developed by Ojedokun and Owolabi (2003). Instrument were distributed and collected both on personal contact and the use of e-mail addresses of University of Jos academic staff only. Data collected was analyzed using descriptive statistic- frequencies, percentages and cross-tabulation, employing the use of statistical package for social sciences (SPSS).

Results and Discussion

Extent of Computer and Internet Availability

Among the 454 (100%) respondents, only 153 (33.7%) had personal computers in their offices, while 209 (46.0%) have personal computer at home. Similarly, among the 33.7% of the respondent that have personal computers in their offices, 54 (11.9%) are for personal use, while 73 (16.1%) of them share the computer in their offices. Three hudred and thirty seven (72.0%) did not respond, this might be due to lack of personal computer in their offices for either personal

use or for sharing. Few of the respondents, (19.2%) can access the Internet in their offices, while insignificant percentage (7.5%) can access the Internet at home. Therefore, for the adoption and diffusion of ICT/Internet technology in the University of Jos, there must be adequate availability of computer and Internet access points. Carr (1999), supports that, "past adoptions of a new technology for education have signaled a confidence in its potential to alleviate a particular problem or to make a job easier or more efficient". Fleck Jr. and McQueens, (1999); conducted a similar research in Columbus State University (CSU) and identified the access points to be w.w.w., e-mail, and telnet. These points include the campus library, supervised labs, certain departments, unsupervised labs, classrooms, dormitories, and dial-in to campus. The first four access points are also available at University of Jos, however, access to computer and Internet services are available at other points (residential, business centers, etc).

Table 1: Computer and Internet Availability

Availability	Response 'Yes'		Response 'no'		No Response		Total Percentage
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Personal Computer in Office	153	33.7	299	65.9	2	0.4	100
Personal use	54	11.9	-	-	327	72	100
Shared	73	16.1	-	-		-	"
Personal Computer at home	209	46.0	235	51.8	10	2.2	100
Internet access in office	87	19.2	341	75.1	26	5.7	100
Internet access at home	34	7.5	404	89.0	16	3.5	100

Level of competence in Computer and Internet Use

Most of the academic staff that responded (59.9%) is competent in the use of the computer, and more than half of the respondents (54.4%) indicated competence in accessing the Internet. From the close ratio rate indicated in competence in computer use

and competence in accessing the Internet (59.9%: 54.4%) respectively, is a pointer that indicates clearly that computer use competence is directly associated with Internet use competence. Perhaps academic staff married the need for computer with Internet use. It is however an irony, since very reasonable number of the respondents (75.1%) claimed to have received formal training on how to use the computer, but only 272 (59.9%) attained competence Similarly, those that received formal training on accessing the Internet and also been informed on the resources available in the Internet 282 (62.1%) and 324 (71.4%) respectively, outnumbered those that claimed competence in accessing the Internet. It thus appear that perhaps the low availability of personal computer in academic staff offices, vis-à-vis the lack of access to the Internet in their offices to make them use it as regular as possible might have affected the level of competence in computer and Internet use among the academic staff. Piaget (1999), supports this saying, That people learn through active exploration, and that learning occurs when the learner's exploration uncovers an inconsistency between their current knowledge representation and their experience

Table 2: Competence in Computer and Internet Use

Competence Level	Response 'Yes'		Response 'no'		No Response		Total
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Percentage
Competence in the use of computer	272	59.9	178	39.2	4	0.8	100
Trained on how to use computer	341	75.1	111	24.4	2	0.4	100
Competence in accessing the Internet	247	54.4	196	43.2	11	2.4	100
Trained on how to access the Internet	282	62.1	166	36.6	6	1.3	100
Informed on the resources available in the Internet	324	71.4	121	26.7	2.0	3.5	100

Level of Experience on the Use of the Internet

The study revealed that 85(18.7%) respondents have used the Internet for less than one year; While 328 (72.3%) for 1 to 5 years and above (Table 4). The study further revealed

that 159(35.0%) of the respondents have bee using the Internet between 3 – 5 years. This is in tune and confirmation with the installation and diffusion of this new technological innovation in University of Jos (from 1998 to date). The few other ones (10.4%) of the that have been using the Internet for over 5 years and above might have been those that were trained overseas or might have stumble on it elsewhere. The overall level of experience on Internet use seems to be significantly high, despite the disparity in years of experience

On the frequency of the use of the Internet however, 197 (43.5%) respondents moderately put it to use (Table 3). The reasons for this could be enormous ranging from lack of computers and Internet access in offices, erratic power failure, time of usage and the likes. Not withstanding 35 (7.7%) respondents' use the Internet very regularly and 94 (20.85%) use it regularly.

Fairly, reasonable respondents (24.9%) scarcely use the Internet for either teaching and or research. The obvious reason perhaps would have been the non-connection to the Internet for faculties of Arts, Social and part of medical sciences at permanent and old campuses.

Tables 2 and 3 reveal that formal training on Internet use have no relational effects on the frequency of use of the Internet. This is in agreement with the first three principles postulated by Larose, F. *et al* (1999), that:

> *Each person forms his own representation of knowledge, building on their own individual experiences and consequently that there is no single "correct" representation of knowledge but is labeled by constructivists as objectives..*

Table 3: **Frequency of Use of the Internet**

Frequency	Number	Percentage of Respondents
Very Regularly	35	7.7
Regularly	94	20.8
Moderately	197	43.5
Scarcely	113	24.9
No Response	15	3.3
Total	454	100%

Table 4: Experience on Internet Use

Years	Frequency	Percentage (%)
Less than one	85	18.7
1 – 2	122	26.9
3 – 5	159	35
Over 5	47	10.7
No. Response	41	9
Total	454	100

Respondents were asked, if they were aware that the Internet resources could be used for research and teaching, a total of 390 (85.9%) indicated they have awareness of research resources on the Internet, while 365 (80.4%) were aware of teaching resources on the Internet

Table5: Awareness of Internet resources for research and teaching.

Availability	Response 'Yes'		Response 'no'		No Response	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Awareness of research resources in Internet	390	85.9	44	9.7	20	4.4
Awareness of teaching resource in Internet	365	80.4	66	14.5	23	5

Extent of Usefulness of Internet on Research

The cross-tabulation of the extent of Internet usefulness with that of Internet access competence revealed the perception and importance of the Internet in research (Table 6). Of the total respondents, 247(54.4%) affirmed the usefulness of the Internet for research and this percentage of the respondents are also competent in accessing the Internet. This is in consonance with the submission of Ojedokun and Owolabi (2003) "...that the Internet offers researchers the opportunity to conduct library research given the growth of electronic journals. This is further buttressed by Zenger and Walker in (http://cssrvr.entnem.ufl.edu/~walker/fewww/zengerArehtm) that the Internet greatest impact on research is on the migration to the web of journals and other specialized research literature.

Table 6: Extent of the Usefulness of the Internet on Research and Internet Access Competence.

Extent of Internet Usefulness	Internet Access Competence			Row Total
	No Response	Yes	No	
0	1	2	21	24 (5.3%)
Very useful	5	109	62	183(40.3%)
Useful	2	110	53	165(36.3%)
Just useful	2	20	34	56(12.3%)
Rarely useful	-	5	14	19(4.2%)
Not useful	1	1	5	7(1.5%)
Column total	11(2.4%)	247(54.4%)	196(43.2%)	454(100%)

Extent of Usefulness of the Internet on Teaching

To determine the perceived usefulness of the Internet for teaching among the respondents, a cross-tabulation of the extent of the usefulness of the Internet and that of Internet access competence is presented on table 7. The study thus revealed that more than half of the respondents (54.4%) that have Internet access competence affirmed the usefulness of the Internet for teaching. This has proved a direct correlation of the usefulness of the Internet for research and teaching, since the respondents numbers (247 54.4%) exactly tallies. In his study at California State University, Casey, Jean-M, (1994) submitted that a programme designed to integrate technology use during teaching proved its usefulness which further increased the reflectivity, rapport with supervisors, team support, self-esteem, knowledge and use of information access, retrieval, and use of computers. Sherritt *et al* (1997), in their study using the Internet for higher education, further averred.

> *the use of the Internet by Colleges and Universities for delivery of distance education is a trend likely to continue, unlike previous educational trends... Internet use for teaching is enthusiastically supported by forces outside the academia and that the most widely used practices are formal course, self directed learning, online lecture notes,*

new groups, electronic mail, interactive video and virtual realities"

Table 7: Extent of the Usefulness of the Internet on Teaching and Internet Access Competence

Extent of Internet Usefulness	Internet Access Competence			Row Total
	No Response	Yes	No	
0	-	12	22	34(7.5%)
Very useful	5	53	33	91(20.0%)
Useful	2	125	59	186(41.9%)
Just useful	2	32	36	70(15.4%)
Rarely useful	1	20	35	56(12.3%)
Not useful	1	5	11	17(3.7%)
Column total	11(2.4%)	247(54.4%)	196(43.2%)	454(100%)

Major Constraints to the Use of Internet Infrastructure

Responses on constraints to the effective use of the Internet for research and teaching was elicited, analyzed and presented thus on table 8. Major constraints are erratic supply of electricity 254(55.9%), Lack of access to Internet Computer 225(49.6%) and server problems 211(46.5%) respectively. This report is however different from the one reported by Ojedokun and Owolabi (2003) the major constraints they discovered was that of lack of Internet search skills (i.e. the competence level). Perhaps this is due to exposure, attitudes to the new innovation and the environment where this is operated.

However, Mary (1989), in her work titled Submitted that:

> *factors affecting the usage of the technology included cost, workload, difficulties using the software and disappointment with conference results... typical with most innovations, those who had difficulty with the system were less enthusiastic about it's continuation than those who found it easy to use.*

Table 8: Constraints to effective use of the Internet

Constraints	No Response		Response 'Yes'		Response 'No'		Total
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Percentage
Lack of access to Internet computer	14	3.1	225	49.6	215	47.4	454
Lack of personal computer	2	0.4	176	38.8	276	60.8	"
Lack of time	-	-	117	25.8	337	74.2	"
Non-connection to the Internet	-	-	161	35.5	293	64.5	"
Lack of Internet Search Skills	-	-	129	28.4	325	71.6	"
Server Problems	-	-	211	46.5	243	53.5	"
Faculty arrangements on the use of computers	1	0.2	66	14.5	387	85.2	"
Ignorance of Internet resources for research and teaching	1	0.2	49	10.8	404	89.0	"
Erratic supply of electricity	3	0.7	254	55.9	197	43.4	"
Others	3	0.7	8	1.8	443	97.6	"

Management Policy on the Provision of Internet Infrastructure

Information elicited from the respondents on management policy on the integration of ICT for teaching and research is tabulated in Table 9. Respondents showed low response to the awareness of a written policy on ICT 132 (29.1%) and much more lowly responses were indicated by the respondents 74(16.3%) if the policy were implemented accordingly. In the case whether the policy has promoted research and teaching, a total of 101 (22.2%) of the respondent showed positive responses. For the issue of policy implementation, the researchers were able to gather from most of the respondents on one-to-one basis that the format of our questionnaire can trace individual respondents because faculty and departments were asked. This perhaps suggests that there is a fear of victimization in that regard. The low awareness of a written policy could be due to poor dissemination of information. It is in this light that A. Fleck, Jr. and McQueen (1998) reported that "...institutions have a policy concerning campus Internet use and

victimization in that regard. The low awareness of a written policy could be due to poor dissemination of information. It is in this light that A. Fleck, Jr. and McQueen (1998) reported that "...institutions have a policy concerning campus Internet use and disseminate this policy in more than one format. Information is presented verbally or published through book up sequence, student handbook, posted in labs, default desktop, and/or listed on the home page for the institution or web". According to them, rules, policies and procedures are developed in numerous ways. In addition to the utilization of an institutional committee, a single individual, such as the director of information technology/computer unit or academic administrator, establishes policy. Fleck and McQueen particularly cited instances where policies are determined by committee to include faculty, administrators, staff, and in some cases, students.

It is however, a statement of fact that when a formal policy does not exist and or disseminated, an informal policy takes its place. The resulting consequences of an institution's informal or unwritten policies are the violation of the code that eventually results to embarrassment. Therefore, the inclusion of all stakeholders will provide clearer definitions of acceptable use policy.

Table 9: Management Policy on the Integration of ICT for teaching and Research

	No Response		Response 'Yes'		Response ' No'		Total
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Awareness of written policy on ICT	31	6.8	132	29.1	291	64.1	100% 454
Implementat-ion of the policy	234	51.5	74	16.3	146	32.2	100% 454
Promotion of research and teaching by the policy	191	42.1	101	22.2	162	35.7	100% 454

Summary of Findings

The investigation revealed the followings: -

1. That the availability of personal computers in offices for academic use is very inadequate among University of Jos academic staff.

2. Internet access points in academic staff offices are inadequate.

3. The level of competence in the use of computer among the respondents and in accessing the Internet is reasonable.

4. Internet use experience among the respondents is high.

5. Major constraints to the effective use of the Internet for teaching and research were noticed to be erratic supply of electricity, lack of access to the Internet computer and server problems in that order.

6. There is low awareness of the management policy on integration of ICT/Internet and it's driven focus among the respondents.

Conclusion

After a closer examination of the study, the following conclusions were drawn: Skilled users of the Internet among the respondents are fairly high only for the availability of Internet access at both offices and homes. As well as of personal computers for both office and house use who claimed to be competent in the use of the internet and also had formal training still need further training to enable them explore and exploit resources of the internet. The perceived usefulness of the Internet on research and teaching by the respondents were both on the high sides. However, very few respondents indicated that the Internet has no use for research and teaching, this is simply observed because they are not competent on Internet and computer use. The policy meant to guide the implementation and use of the Internet/ICT was not popular among the stakeholders. Therefore, the conceptual framework to this study purported by Rogers (1960) is applicable.

Recommendations

1. The University should encourage lecturers to own computers by providing loan facility to be deducted at source for interested persons.
2. Internet access points should be provided at each lecturer's office – by the University Management. This is non-negotiable if research and teaching is to be enhanced.
3. Despite the level of competence on computer and Internet use, training and retraining is inevitable for maximum utilization of the Internet facilities.
4. Competent technical staff should manage the server to avoid its breakdown.
5. Provision of a powerful and automatic generating plant to supply electricity twenty hours a day for the community.
6. Management should make the present policy public to all stakeholders for inputs particularly on the type of information need from the (ISP) Internet service provider.

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