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Connectivity and Accessibility in Nigerian University Libraries: A Survey of Access, Usage, and Problems in the University of Nigeria, Nsukka

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Introduction

The Internet is a connection of computers around the world to share data and information. It started life in America in the 1960s. It was later popularized by the United States National Science Foundation (NSFNET), the first nationwide educational network linking universities and academic research establishments. In the 1990s the CERN laboratories of Switzerland and the European laboratory for practical physics jointly developed the most rapidly growing part of the Internet. This is known as World Wide Web (WWW). This allows graphics and even video to be moved across telephone lines, bringing about more possibilities to the Internet.

The Internet brought about a free flow of information all over the globe. One could possibly get access to any kind of information on almost everything. There are educational services too. Universities are offering courses over the network. The world is now said to be a global village.

In the University of Nigeria, Nsukka, because of the necessity of maintaining its relevance in the technology driven world, the administration established the institute of Management Information System (MIS) which mounted information Technology infrastructure and introduced a capacity building programme for the University. This opened the door for aggressive acquisition of computer literacy skills by staff and students of the university. The institute took a bolder step to internalize Internet services by laying optical cables all around the institution to boost wireless Internet reception and services in the University. By so doing Internet access is available to all faculties and departments, staff quarters and student hostels. This set the stage for the utilization of the global information superhighway by faculty and staff.

This paper seek to survey the extent of Internet connectivity and usage by staff and students of this institution, vis a vis private connectivities available in and around the university campuses. The paper will also unravel what the subscribers do with the Internet access, and how it contribute to their academic activities. The study also seeks to find out the problems that may be hindering effective performance. It will also find out what the future holds for this paradigm shift.

Research Questions

1. To what extent are members of faculty and staff in University of Nigeria, Nsukka connected to access the Internet?
2. How accessible is the Internet to members of faculty and staff in University of Nigeria, Nsukka?
3. What do Internet subscribers in University of Nigeria, Nsukka do with it?
4. What problems do members of faculty and staff in University of Nigeria, Nsukka encounter in using the Internet?
5. What is the prospect for continuous Internet access to faculty and staff in University of Nigeria, Nsukka?

Literature Review

Huchison and Sayer (2000) defined the Internet as the "worldwide publicly accessible network of interconnected computer networks that transmit data by packet switching using the standard Internet protocol (IP)". This network consists of millions of smaller domestic, academic, business and government networks which together carry various information and services such as electronic mail, online chat, file transfer and the interlink web pages and other documents of the world wide web. (Capron and Johnson, 2004). In agreement with Capron and Johnson Ayo (2001) noted that the Internet spans the globe, connecting governments military, educational and commercial institutions and private individuals. He also added that this has reduced the whole world to a global village.

The Internet is very useful by allowing users to access vast quantities of information and communication with every one around the world (Eyitayo, 2008). She adds that this has become the most popular way of locating and retrieving information. Because of its connection with information communication retrieval and conservation the Internet became a very useful tool in libraries. Eyitayo (2008) observed that it provides facilities and capabilities to browse through a list of subject headings to get an idea of what is available in other places through the network. Internet connectivity helps reference librarians to answer questions even on areas they do not have prior knowledge. Such information is usually very current and up to date.

Igun (2005) has observed that academic institutions cannot do without Internet services especially in this era of information globalization, explosion and superhighway. Internet connectivity enhances teaching, studying, research, publishing and communication (Adomi, Omodeko and Otolu, 2004).

Commenting on the importance of the Internet facility Ojo-Igbinoba (1997) as cited by Owolabi (2007) stated that Internet has become the market place for learning and online education. Stressing this point Ojedokun (2001) pointed out that Internet has broken down barriers of communication and information access from anywhere in the world. He maintained that the Internet allows users to have access to up-to-date research publications in the net.

Researchers also use the Internet to visit the web sites of libraries to get current information in their various areas of research endeavour. They gladly pay token for these services.

Directly, the Internet helps libraries to source information easily in the areas of Acquisition, organization and dissemination of information. It also helps libraries on inter-library resource sharing. It provides links to remote information and resources around the world (Ibegwam, 2002). Such knowledge gained will be used in answering frequently asked questions by library users. The Internet also permits libraries to access bibliographic records of millions of books as well as the details of collections of academic works in libraries around the world. Connectivity to the Internet enables librarians to communicate with professional colleagues around the world, and to know what is where from Internet sites.

There are many constraints that led to the poor Internet development in Africa. One of this is the initial capital outlay to install Internet facilities (Olabude, 2007). This is because almost all the African countries are experiencing huge debts and foreign exchange required to purchase the facilities are lacking. Many Sub-Saharan African Countries do not have National Policies for Information Technology

(IT). As such there are no coordinated and enduring information communication technology development road maps to follow. In addition there is no efficient telecommunication and power supply base to serve as spring board for the development of Internet services in Africa. Hence, Internet services are not well developed in Africa. Where they are available the expensive nature of the services is another huge factor. Another problem that frustrate Internet services is that there are few reliable Internet Service Provider's (ISP). The ones that are available suffer low bandwidth. This makes the Internet slow and frustrating. Many African libraries and individuals information sciences professionals lack IT skills and full potential for the development and utilization of Internet facilities and services.

Access to the Internet in Nigeria is rather slow and connectivity is low. James Emejo (2009) has reported that about 70 percent of Nigeria's Internet capacity has been disrupted following a reported damage of one of the landing cables of SAT3 submarine system. This incident has according to him caused "temporary setback" to the nation's data market. This is the cause of the network outage being experienced by large number of Internet subscribers in the country (Emejo, 2009).

Access to the Internet may be slow, but awareness of its importance is growing steadily. A study carried out by Ollor-Obari in 1999 at Enugu revealed only 20% awareness and usability of the Internet amongst the sampled population. In her study of students' use of library in distance learning Mabawonku (2004) found that part time students were making use of electronic information through the Internet. In his study of students access, usage and awareness of electronic information resources in 2004, at the University College Hospital Ibadan Akande found out that 74.3% of his population were aware whereas only 25.7% were not (Akande, 2004).

These revelations are pointing to a steady growth of awareness and usability of the Internet in Nigeria.

Research Methodology

The research design used was a survey design. The population include members of the faculties and staff who have access to the Internet by subscribing to the University of Nigeria, Nsukka MIS facility or any other facility on campus. A total of two hundred subjects were randomly selected and sampled. A structured questionnaire was used to elicit responses from the respondents. The researchers also went round to observe other privately owned facilities along with the university's facility in use. The instrument for data collection was a structured questionnaire, administered to the respondents and collected back immediately to ensure high rate return. At the end only 195 one hundred and ninety five responses were useable. A four point likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree was used to elicit responses. A criterion mean (a mid-point mean score) of 2.50 was adopted. Any mean ranking 2.50 and above was regarded as positive while anything below 2.50 was treated as negative. Both descriptive and inferential statistical method were used in data analysis. Percentages, frequencies tables, charts and graphs were used to collate, analyze and present data.

Data Presentation and Analysis

Section A: Biodata of Respondents

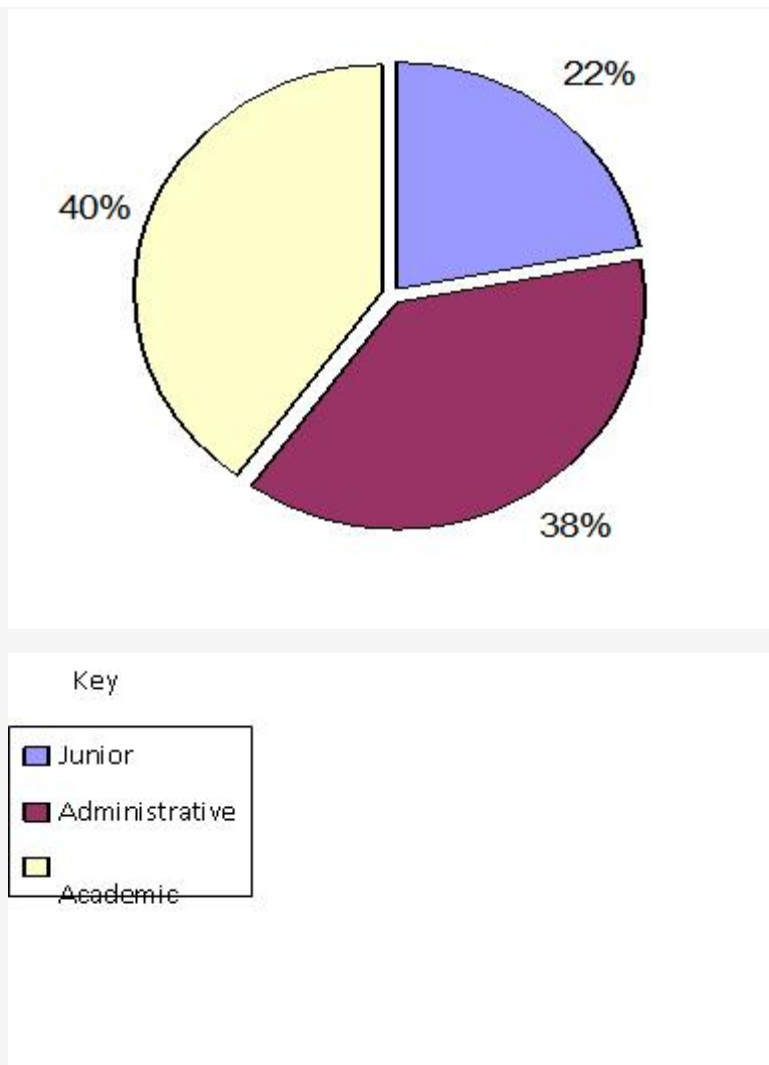
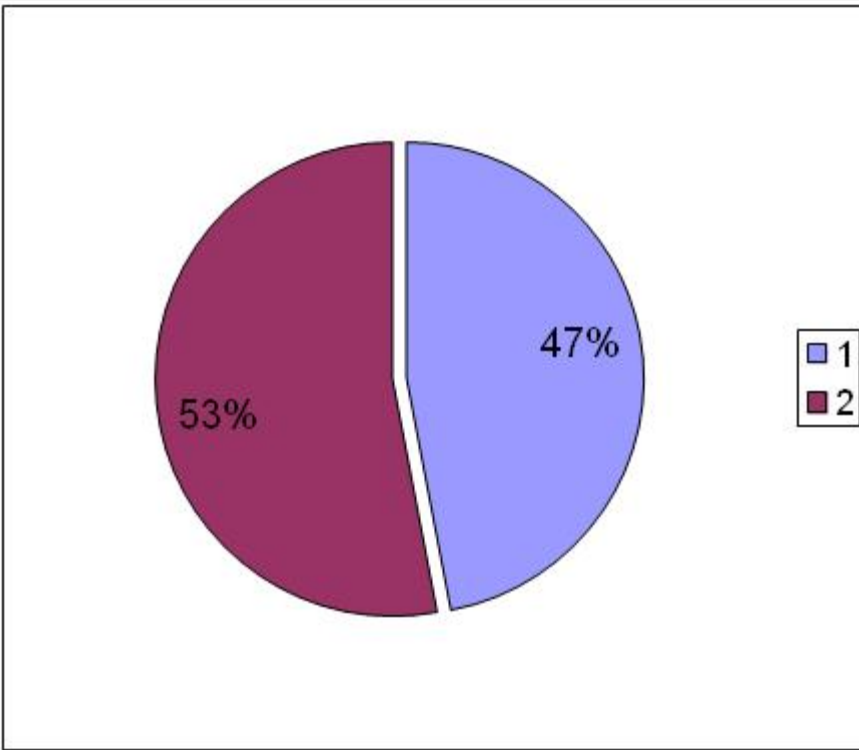


Figure 1: Categories of Respondents

Respondents to the questionnaire of the study were drawn from three major categories of the university staff namely: academic, administrative and junior staff. The pie chart in figure 1 shows that academic staff constituted 40% of the population; administrative (non-academic) staff constituted 38%; while junior (also non-academic) constituted 22% of the respondents used for this study.

Gender of Respondents



1=Male; 2=Female

Figure 2: Male and Female Respondents

The gender of the respondents was also taken note of in the study. The pie chat above shows the gender divide between the respondents. The pie chat in figure 2 shows that male respondents constituted 48% while female respondents constituted 52%. That is to say that female respondents were slightly higher in number than their male counterparts.

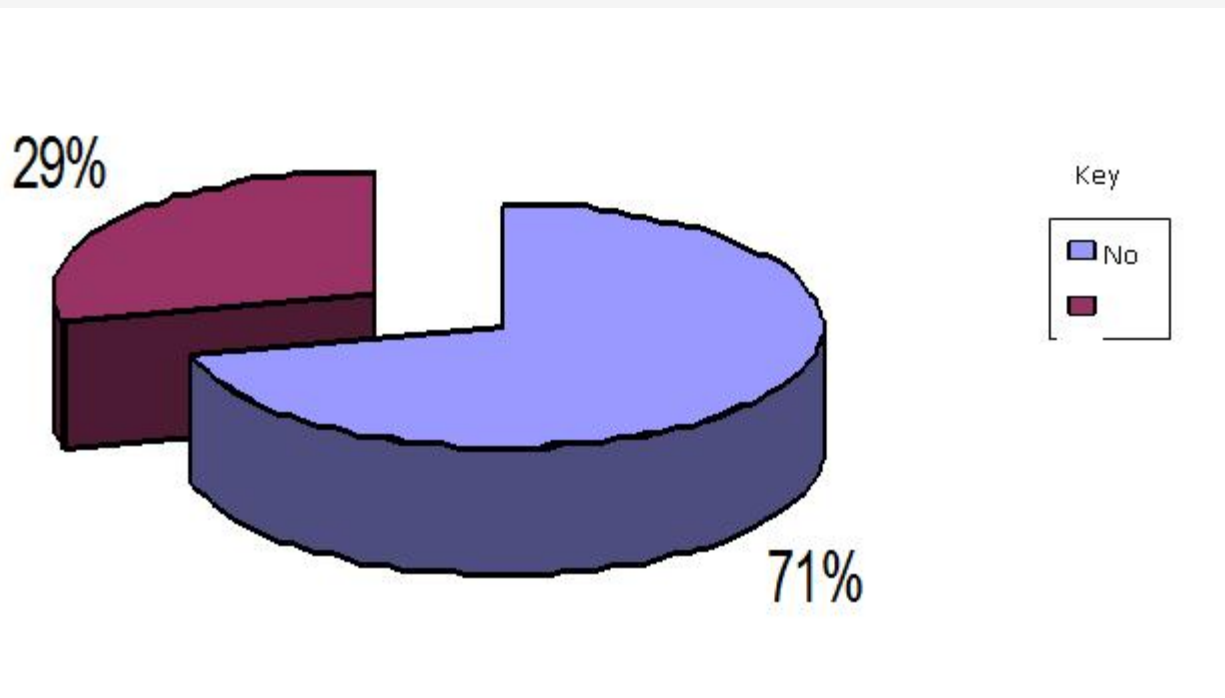


Figure 3: Respondents' Knowledge of Computer Application

The pie chat in figure 3 shows a self evaluation of respondents knowledge of computer usage in application to the individual's activity. Responses illustrated with the pie chat in figure 3 shows that a greater number of the respondents (71%) have basic knowledge of computer operation amongst the

three categories of staff in the University of Nigeria Nsukka. Those who do not yet have the knowledge of computer application constitute only 29% of the respondents.

Table 1: Internet Connectivity in the University

S/No	Items	Response			
		Yes	%	No	%
1	Availability of computers with Internet connectivity in the Department/Faculty	122	55	98	44
2	Permission to use the Internet	118	53	102	48
3	Availability of Internet access elsewhere on campus	201	91	19	9.0
4	Availability of Internet services outside the University campus	164	74	56	26
5	Ownership of wireless laptop computers	69	31	151	69
6	Intension to acquire laptop computer in the near future	179	81	41	19

N = 220

Data in table 1 shows the existence of Internet connectivity in and around the university of Nigeria Nsukka and Enugu campuses. At various places elsewhere on campus there are computer facilities with Internet connections to the extent of 91% attestation by respondents. Even outside the University campus, there are availability of Internet services to the extent of 74% respondent attestation. There are also 55% connectivity in the various departments and faculties of the university. As much as 53% of the respondents are given free access to this connectivities. As much as 31% of the staff of the University have personal wireless laptop computer systems which allow them access to the Internet. Of those who do not have laptop computers, at the time of the survey, 81% of them, knowing the value were looking forwards to acquire them.

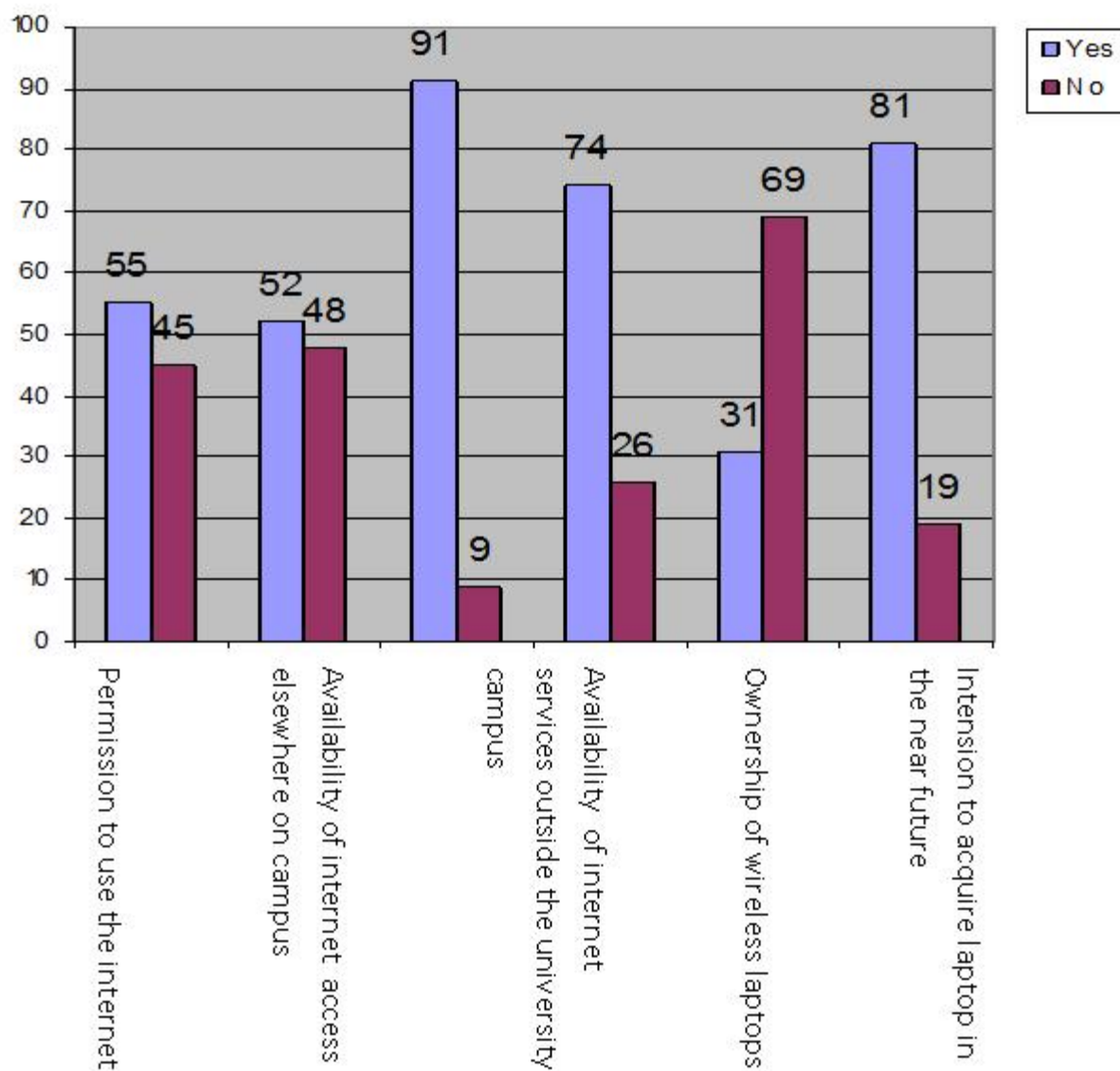


Table 2: Acquisition of knowledge of Access to the Internet

S/No	Items	Response			
		Yes	%	No	%
1	Possession of knowledge of Internet access experience	180	81	40	19
2	Acquire through the University's capacity building training	158	71	62	29
3	Acquired through private training	161	73	60	27
4	Acquired through personal experience	142	64	68	36
5	Acquired through tutorials	79	35	141	65
6	Through friends	79	35	141	65
7	Through my Department	72	32	148	68

8	Through workshops	74	34	146	66
	N = 220				

Fig.5: Possession of knowledge of Internet Access.

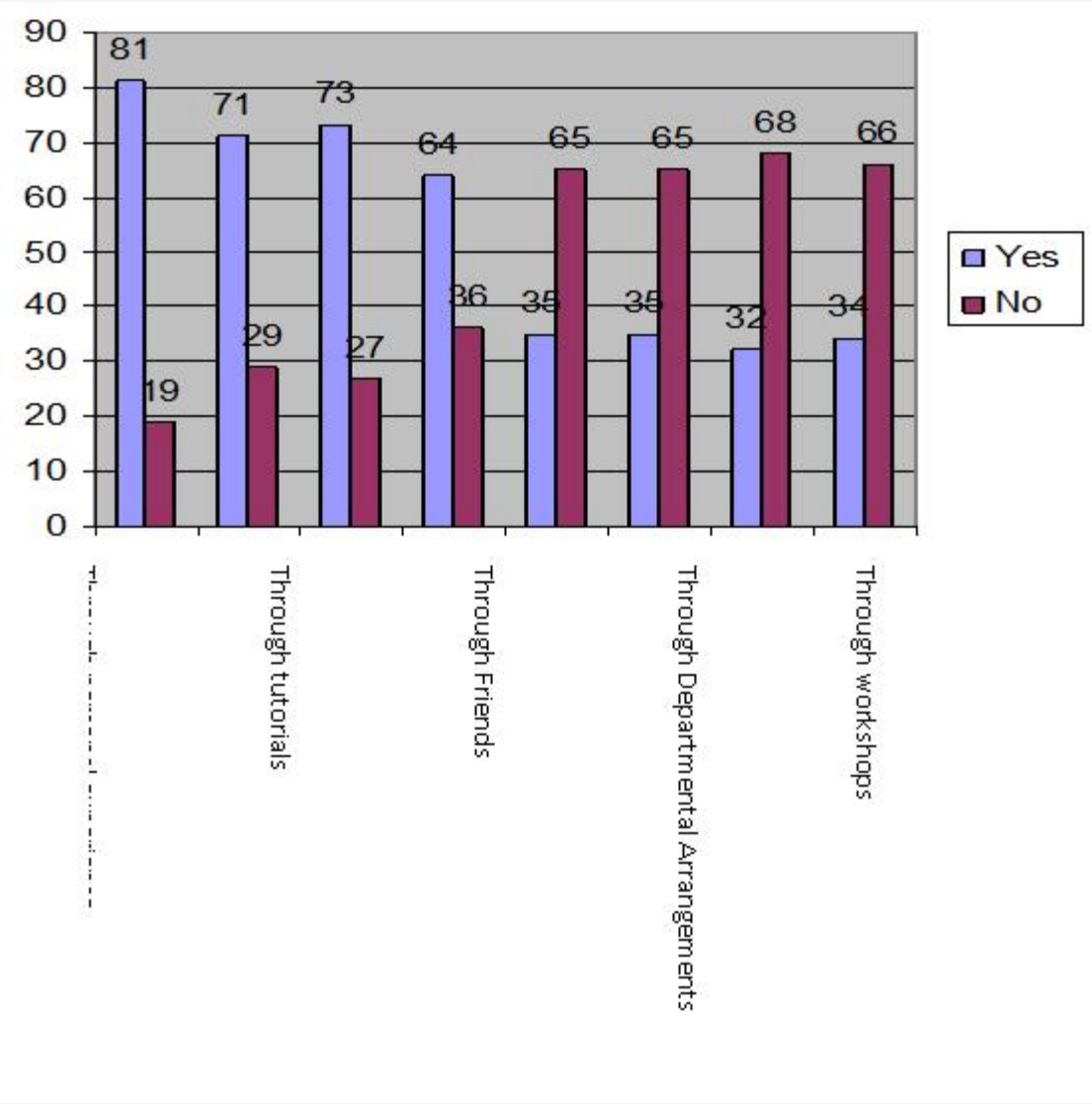
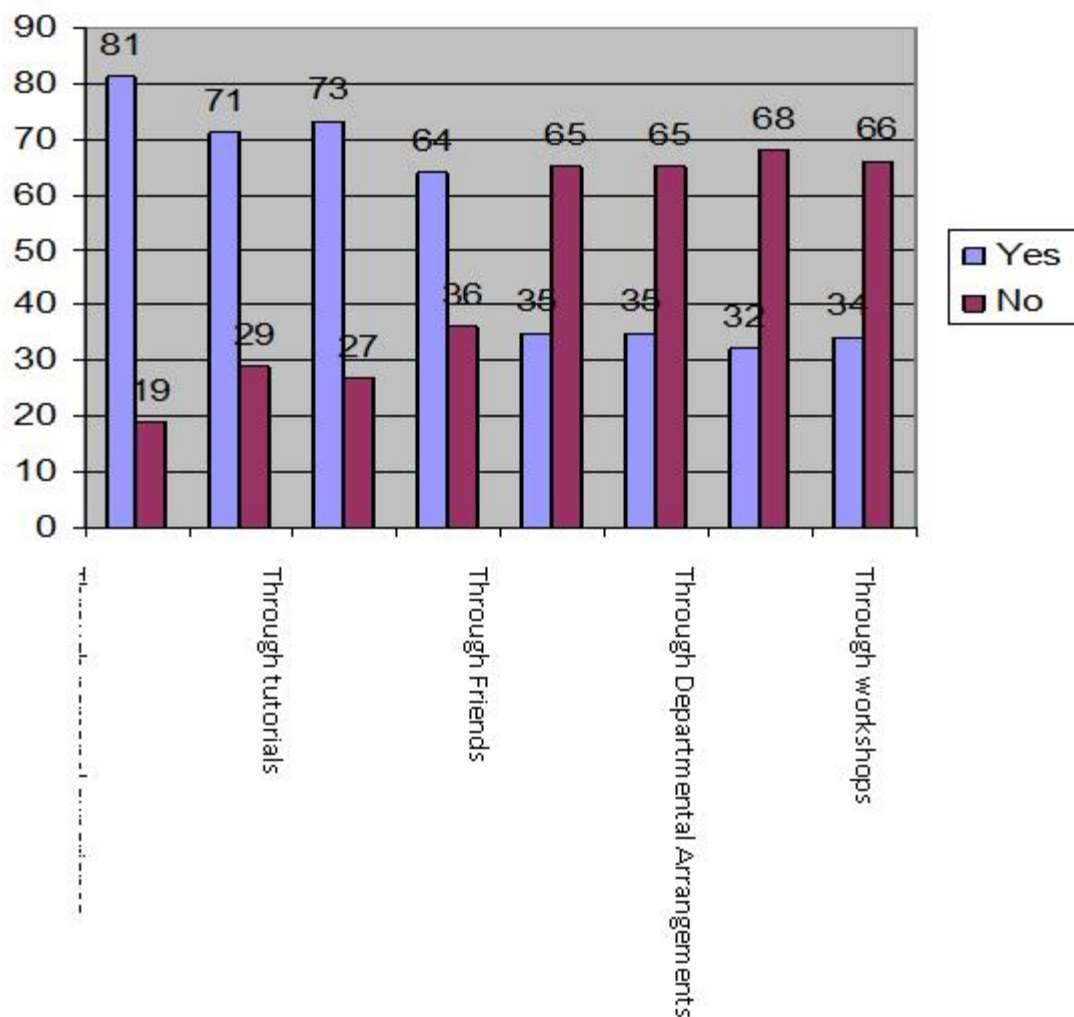


Table 3: Respondents Sources of Internet Access



S/No	Items	Response			
		Yes	%	No	%
1	Internet is received through mobile Internet connection	145	66	75	34
2	Through my office (Departmental) connection	57	26	163	74
3	Through campus residential connection	145	66	75	34
4	Through subscription to MIS wireless access	114	52	106	48
5	GSM phone services	81	34	139	63
6	Through dial up mode	33	15	187	85
7	University's MIS cyber café	129	59	91	41
8	Through AFRIBUB Cyber Café	101	46	119	54

9	Private cyber cafes in town	79	36	141	64
10	Private cyber cafés on campus	149	68	71	32

Data in table 3 display the various sources from where the respondents accesses the Internet. Majority of the respondents access the Internet though private cyber cafes on campus (68%); mobile Internet providers (such as Zain and MTN) 66%; campus residential connection (66%); and University's MIS cyber café (57%) and MIS wireless connections (52%). Other respondents access the Internet through AFRIHUB company services (46%); Private Cyber Cafes in the University town (36%). GSM phone services (34%); Departmental connections (26%) and from dial up mode (15%).

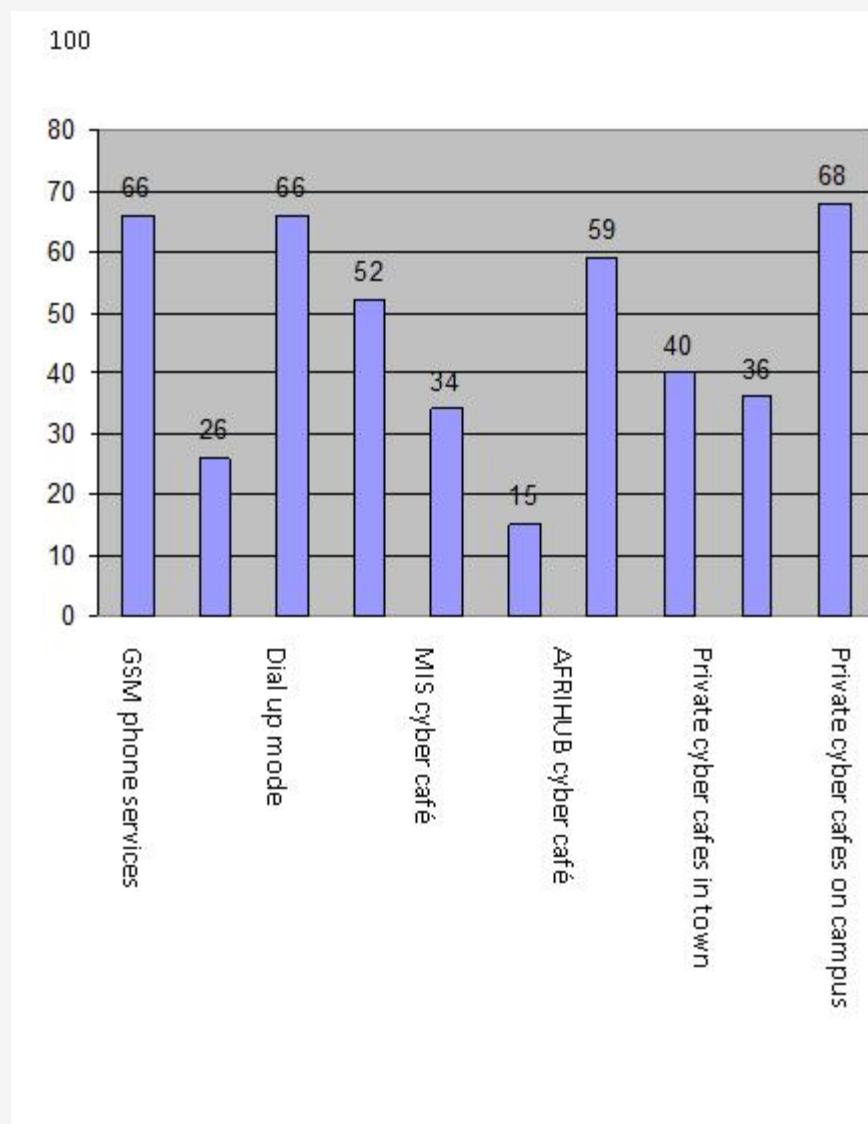


Figure 6: Sources of Internet Connection by Respondents

Table 4: Performance of Internet Access Providers in UNN

S/No	Internet Provider	Assessment	
		Good	Poor
1	UNN MIS providers	62%	38%

2	AFRIHUB Company Providers	51%	49%
3	Private Cyber Cafes on Campus	31%	69%
4	Private cyber cafes outside campus	37%	63%
5	Mobile GSM Internet Providers	55%	45%

Table 4 shows responds rating of the performances of the Internet providers within the University of Nigeria Nsukka. From the table the University's MIS (Management Information Services) which operates the University's IP Internet Provider is performing very well with 65% rating. Following this are the activity of GSM communication agents who provide mobile Internet subscriptions (rated 55%) and AFRIHUB, Company residing on campus in rated (51%). Private individual Internet providers on campus and in town are in existence, but their performance cannot be equated with the others. The ratings are in terms of hardware facilities, accommodation and services they render to clients.

Table 5: Uses of the Internet by Respondents

S/No	Uses	Often	Occasionally	Not At All
1	E-mail services	80	20	0
2	Uploading articles for publication	40	50	10
3	Receiving E-Newsletters	10	65	25
4	Distance learning	15	25	60
5	Publicizing my business	8	25	67
6	Downloading articles form online journals	65	30	05
7	Internet phone calls	15	25	60
8	Chatting with friend and relations	22	52	21
9	Participating in international discussions	16	24	60
10	Listening to live radio/TV broadcasts	35	55	10
11	Find romantic partners	02	08	90
12	Read press releases form local and international newspapers	42	65	03
13	Reading e-books online	25	73	02
14	Seek legal advice online	01	08	90
15	Watching videos and films.	22	52	16

Table 5 shows the different uses of the Internet by respondents in the University of Nigeria, Nsukka. Items accepted by respondents are only those that scored 50% and above in the table either in the column for often or occasionally. Based on this criteria, the items on the table accepted by respondents are items 1, 13, 6, 5, 12, 10, 8 and 2 according to their weighted scores. A clearer illustration is shown in the following figure.

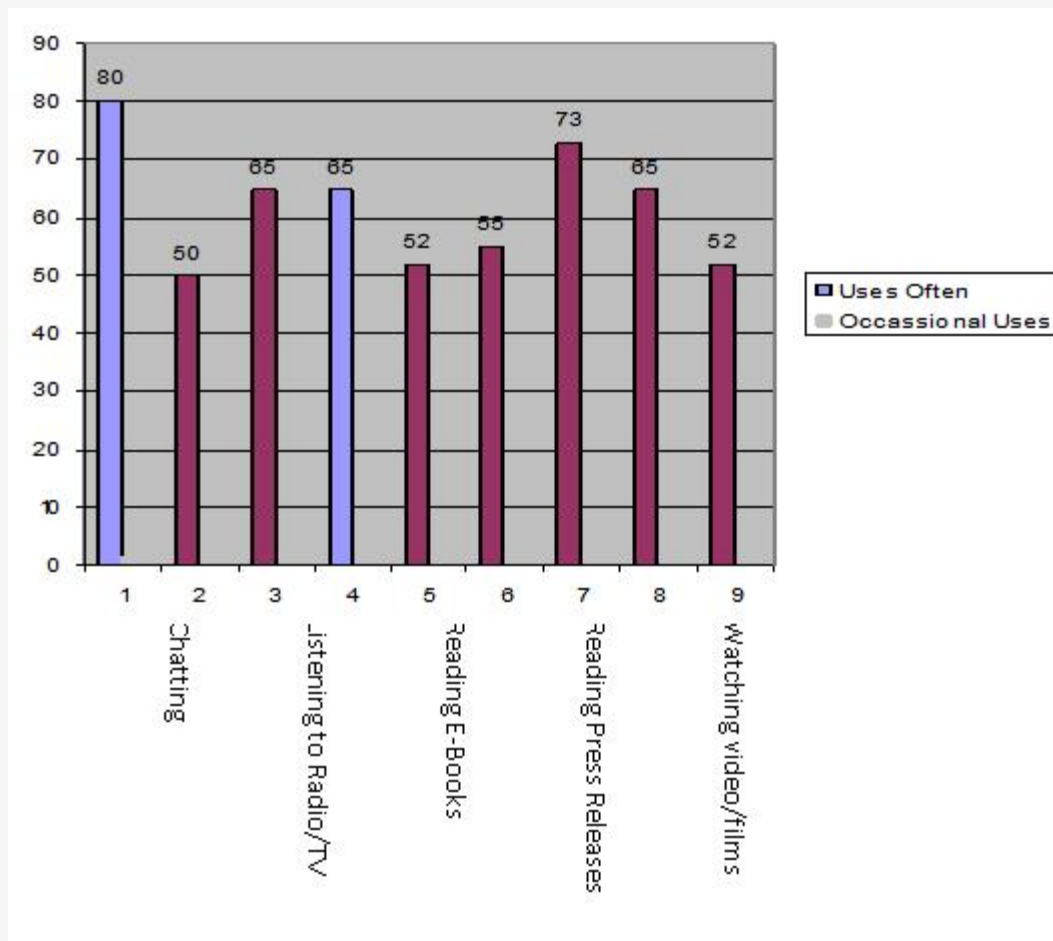


Fig 7: Uses of Internet

Table 6: Problems of Internet Access in UNN

S/No	ITEM	MEAN
1	Inconsistent Internet access	3.2
2	Unsteady power supply	3.4
3	Slowness of the Internet at peak periods	3.1
4	Insufficient Bandwidth for effectiveness	3.1
5	Space constraints in Depts./Faculties	2.9
6	Space constraints at cyber cafes	2.8
7	Insufficient work stations	3.1
8	Poor knowledge of Internet surfing	3.2

9	Poor knowledge of computer skills	3.0
10	Unreadiness of the university library's computer labs.	2.2
11	Insufficient workers to attend to customers at the cafes	2.7
12	Virus contamination of saving devices	2.9

Data on Table 6 shows respondents degree of acceptance of the items on the table as problems that militate against easy access to the Internet in UNN (University of Nigeria, Nsukka). From the table, items 2, 1, 8, 3, 4, 7 and 9 representing: unsteady power supply; inconsistent Internet access; poor knowledge of Internet surfing, by some; slowness of Internet at peak periods; insufficient bandwidth; insufficient work stations and poor knowledge of computer skills. These items scored between 3.4 to 3.0 mean on the table. Other problems that confront Internet users in the University are represented in items 5, 12, 6 and 11 (space constraints, virus contamination and insufficient workers to attend to customers at the cyber cafes. Item 10 on the table was however not accepted by respondents as a problem. This item had a mean score of 2.2, not up to the acceptable mean.

Table 7: Prospects of Internet Access in the University of Nigeria

S/No	ITEM	MEAN
1	Data center installed in the new library building with higher bandwidth to boost Internet reception.	3.1
2	MTN research center in the new library building provide 500 Internet ready computers accessible to various data bases	3.2
3	Commencement of the New Library's 1000 computer project Research Centre	3.2
4	Many privately owned cyber cafes springing up on the campuses.	2.8
5	Internet booster masts installed all over the campus including residential areas for easy Internet accessibility.	2.8
6	Plans are on going for the restoration of damaged SATZ submarine cable cutting of 70% of Nigeria's Internet capacity.	2.7
7	GSM service providers are offering Internet access through GSM hand sets and mobile boosters for wireless access.	2.8
8	Acquisition of laptop computers by staff and students for wireless access on campus.	3.0
9	The creation of awareness for online teaching and learning by the University capacity building projects.	3.0
10	University's assistance of its staff and students to acquire wireless receiving laptops at reduced costs.	2.8

Data provided in Table 7 revealed the prospects of Internet receptability in the University of Nigeria by staff and students on campus. All the items in the mean table were accepted by varying degrees as prospects of Internet access by respondents. Items 2, 3, 1, 8 and 9 were evaluated as higher prospects

than the rest going by their mean scores between 3.2 to 3.0. The items include: the installation of new data center; MTN's collaboration with the university to offer computer laboratory and data base service; the New University's library e-research centre; acquisition of wireless computer by staff and students and awareness of online teaching and learning. Other items on the table were also weighted by respondents as strategies for the university's plan for Internet accessibility on campus. These are represented in items: 4, 5, 7, 10 and 6 with mean scores between 2.8 to 2.7. They include: the springing up of private cyber cafes; installation of Internet receiving masts round the campus; GSM service providers wireless Internet boosters; assistances of staff and students to acquire laptop computers and the general plan to repair the country's damaged SATZ submarine cables. Respondents accepted all these as possible prospect of Internet services in the University's campuses.

Discussion

Respondents to this research were drawn from three categories of the University's staff (academic 40%; senior administrative 38% and Junior Staff 22%). Majority of the respondents 71% have basic knowledge of computer literacy which include Internet surfing. The minority who had no knowledge at the time of the research are in the process of acquiring the knowledge. The University mounted a capacity building project made compulsory for all categories of staff and students.

Internet access is made available in the institution by various providers. The University's Management Information Services (MIS) mounted masts all around the University for Internet access. Some public organizations and private individuals constitute the Internet providers. Hence Internet is received at various spots including residential quarters and offices. Several cyber cafes abound within and without the University campuses which offer Internet access to members. Those who have laptop computers have the privilege of receiving Internet anywhere within the university walls.

Knowledge of computer literacy is taught at the capacity building programmes to staff and students by the MIS team. The AFRIHUB and other private organizations also offer literacy class within the university. The institution provided computer laboratories in all the university's facilities to encourage the internalization of the knowledge. Mobile Internet connections by GSM mobile phone operators are also available for subscription. The result is a free flow of information and knowledge assets among staff and students. Virtually every member have e-mail address for sending and receiving mails. The cyber cafes assist members in down loading and uploading of data from and to the Internet. In view of the plurality of Internet access the various providers compete for excellence by offering enhanced services. Respondents rated the performances of: the University's MIS; AFRIHUB and mobile Internet providers (62%; 55% and 51%) respectively. Also rated by respondents were the purposes for the usage of Internet. Chief among the uses were for: E-mail services; reading and downloading of books, journal articles, newsletters and listening to live radio broadcasts. Other uses include: chatting with friends; watching videos and films and uploading articles for publication.

Many problems still beset efficient performance of the Internet in the University. Major among the problems are: Unsteady power supply; literacy problems leading to inefficient Internet surfing; low bandwidth to sustain smooth Internet flow; virus contaminations; space constraints at laboratories/cyber cafes and insufficient hands to attend to users in the cafes.

Aware of the challenges posed by the above problems, the university authority is doing a lot to leverage her infrastructure to satisfy staff and student demands. A data centre is being installed in the University new library complex, with a higher bandwidth to boost Internet performance capacity. In partnership with MTN, a research center has been established with over 500 Internet ready computes in a serene environment. The library's 1000 computer proposal has taken off with a research laboratory installed with 100 computers in the Nsukka and Enugu campuses. Internet booster masts have been mounted all around the University campuses to boost wireless receptions within the university's walls.

Many of the university's programmes such as admissions, students registrations payments etc are mounted online to orient students and staff to ICT infrastructure.

Conclusion

The resolve of the leadership of the University of Nigeria to put the Institution on a pedestal of Information and Communication Technology (ICT) is yielding dividends. Internet connectivity in the

University bring about free flow of information and knowledge assets as staff and students have the capacity to log on from their residents departments and classrooms. They use the Internet to solve diverse problems and certify numerous needs for literature and requisite knowledge. The University which has not been visible in the net, in the recent past is now competing for position in the global webometric ranking. Many aspects of their programmes and processes are now digitized and accessible online.

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