

## **Examining the level of penetration and impact of internet usage amongst Undergraduates in Nigerian Universities -a case study approach.**

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The benefits of using the Internet as a teaching and learning tool in the university environment cannot be overemphasized. To realize and quantify these gains, the level of penetration among the students has to be evaluated, for example; this will reflect their willingness and readiness to use the internet as a learning tool. This study thus focused on the level of penetration of internet usage among undergraduate students in Nigeria using Obafemi Awolowo University (OAU) as a case study. Result showed that about 92% of undergraduate students have embraced the internet and are using it consistently. The online mean time spent is 3.5hrs/week while on the average, undergraduate experience of internet usage is about 4years. We found also that the student use the internet mostly for e-mailing, information searching and chatting; all of these were found to have significant impact on their academics and social life. Further analysis revealed that gender attitude is also an important issue; male students appear to use the internet more than their female counterparts; just as science based students appear to use it more than the non-science based students. This thus provides a glimpse of the future of internet in education within the Nigerian context. The paper therefore recommends appropriate policies to be put in place in all higher schools of learning in Nigeria to facilitate further development, diffusion and use of the internet within the university community.

*Keywords: internet usage; learning tool; gender; digital gap; university community*

### **1 Introduction**

The internet has come with an evolution that cannot be compared with existing technologies that were before it. Molosi (2001) remarked that the television revolution took 13 years to reach 50 million viewers and the internet achieved this mark in only 4 years [1]. There is no doubt that the rate of deployment of new technologies in developing countries is low, especially those of sub-Saharan Africa. This is particularly noticeable in the area of telecommunication and computing infrastructure, such as telephones, power supplies, development of appropriate electronic networks etc [2]. Today, the growth in telecommunication infrastructure has led to increase in internet connectivity. More people get connected to the internet through ISDN, VSAT and even through their mobile phones. Governments in Africa in their ICT reforms programmes have made efforts to liberalize the market and privatize the sole carrier [3]. A number of countries have adopted the Global Systems of Mobile Telecommunications (GSM) which has boosted the overall available telephone lines. For instance, in Nigeria, Zimbabwe and Uganda government have licensed a number of GSM operators. The impact of this moves have been quite dramatic in number of cases for example the Global System for Mobile communication (GSM) in Nigeria before august 2001 there were just about 500,000 mobile and fixed telephone lines in all. Today, the country has over 24 million mobile lines and a little over one million fixed lines for a population of 130million. These transformations have not come in exclusion of country's educational sector. Adeya and Oyelaran-Oyeyinka also believed that education is antecedent to development. [3]. Core research findings have been traced to the universities and the application of these innovations has resulted in tremendous gains to country's economy. A number of universities in Nigeria are now making frantic efforts to improve on their ICT infrastructure, the Obafemi Awolowo University (OAU in short) became a leader among the universities in establishing Internet and computing infrastructure through assistance from foreign agen-

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cies. OAU began with the establishment of a campus wide-area wireless network funded by the World Bank through the International Centre for Theoretical Physics (ICTP) based in Trieste Italy. The network is tagged OAUNet [4]. Now, the academic subnet of OAUNet currently connects 2 colleges and thirteen faculties equipped with a 20km of 2 Gigabit fibre and connects to the internet on a bandwidth of 6Mbps/1.5Mbps bandwidth [5]. In addition to this, OAU also have in her premise eight cyber cafes namely; Eldorado, Infinite grace, Awo internet café, Rotunda, Conference centre, Firstnet, Cyber haven, unifecs with VSAT installations of varied capacities.

### **1.1 Research methods**

Three basic research instruments were used to carry out the work on the chosen institution: observations, interviews and questionnaire. Twenty five set of structured questions were compiled in a questionnaire which was administered to 300 students in 10 different faculties from 40 departments. 288 were duly completed and returned, representing 96% response rate. The respondents were selected across different academic disciplines (both science and non-science based), from different departments, and from both sexes, to ensure coverage of all relevant demographic and academic indicators. The significance of these demographic variables was later tested. Some analytical tools embedded in the computer software- Statistical Packages for Social Sciences (SPSS) were used to quantitatively analyze the data, out of which we drew different inferences made in this paper.

## **2. Results and discussions**

Some of the major indicators of internet usage and its impact as we found out in the work are enumerated, these are: what percentages of students are using the internet, where do they have access to the internet, time spent online, gender attitude to the internet, science and non-science student usage and internet services usage preferences amongst others.

### **2.1 The penetration- what percentages of the students are using it and their access points?**

On faculty basis we found that less than 10% (46/272) of the total students from some of the faculties use the internet on a daily basis, and about 80% (36/46) of this number are from science related faculties. About 40% of the total respondents (N=272) use it on a weekly basis, 38.8% use it on a monthly basis and 4% rarely use it (11/273), they use it only once in a year. But the overall usage and adoption is calculated at 92% and compare this figure with Oyelaran-Oyeyinka et al 2002 who earlier reported 69% adoption among Nigerian students [3]. This shows an upward movement of 23% internet usage and adoption among Nigerian university students within 4years, from 2002 to 2006. We also found that the students have more access to the internet in the Cybercafés (90.8%), followed by departments (5.9%), offices (2.2%), homes (0.7%) and Library (0.4%). Due consideration of our data revealed the need to put suitable policies in place to improve access points in the departments, offices, hostels (homes) and library was established.

### **2.2 Internet experience and services usage**

On Table 1, the ranking of internet usage experience among the undergraduates were conducted in ten

Table 1 Ranking of Internet usage experience (XP) among undergraduates by faculty

Faculty	Internet Usage Experience		
	Mean Internet Usage XP Index (MUXI)	Percentages of respondents (%)	Mean XP Ranking
Technology	3,07	9,3	1
Agriculture	3,04	9,3	2
Health Sciences	2,94	11,8	3
Science	2,83	10,7	4
Law	2,76	10,0	5
Pharmacy	2,73	5,2	6
Education	2,67	10,4	7
Arts	2,58	10,0	8
Social Sciences	2,57	12,8	9
Administration	2,54	9,7	10
Average of MUXI	2,77		

(Min)1=0-1yr, 2=2-3yrs, 3=4-5yrs, 4=6-7yrs, (Max)5= over7yrs

faculties out of thirteen faculties in the university and Table 1 showed that students from faculty of technology were ranked highest with the MUXI of 3,07 followed by faculty of Agriculture 3,04 ranked second meaning that they have about 4,5yrs experience using the internet, and faculty of Administration 2,54 ranked least (10<sup>th</sup>) with about 3yrs experience (see Table 1). Total average of Mean internet Usage eXperience Index (MUXI) for the students is 2,77 which translates to about 4yrs, meaning that some of the students have been using the internet even before they gained admission into the university. We found that some of the students with up to 4 years internet experience are now in 300-500 level of their programme. The implication is that the next two sessions/years we will begin to have internet literate graduates who will then participate in the labour market.

### 2.3 Time spent online

Our further analysis showed that time spent on the internet is an important issue; we found that students spent an average of 3.5hrs/week online. SPSS generated mean=1.43 and the standard deviation 0.7 using the following categories: 1=1-3hrs/week, 2=4-6/week, and 3= >6hrs/week. This is a considerable improvement when we compare this to an earlier report of Jagboro who observed online time spent of students in the university to be 1hr/week [6]. Although this is still far behind the time spent when compare to students in developed countries like England where it was reported by Hills and Argyle [7] that students in oxfordshire, England spent an average of 7.9hrs/week. This is likely due to the privilege of having access to the internet at home and hostels.

### 2.4 Gender and Level of adoption of internet usage

Pearson correlation 2-tailed test was performed on gender and internet usage of the students, we found that there was a fairly strong correlation between the two variables with a value of 0.326, at a level of significance of 0.01. This shows that gender have significant effect on internet usage. Further analysis confirmed that male student use the internet more than their female counterparts, much more on a daily basis. At all levels (100-400) male students use the internet regularly and more often than their female counterparts (see Table 2).

**Table 2** evaluation of core demographic variables

Variables/Level	criteria	100		200		300		400	
		Male	Female	Male	Female	Male	Female	Male	Female
*How long have you been using the internet(yr)	≤3yrs	52,63	43,14	34,15	41,07	20,00	32,61	21,43	16,67
	>3yrs	47,36	56,86	65,85	58,93	80,00	67,39	78,57	83,33
*How often do you use the internet	-Often <sup>2</sup>	77,78	38,00	62,50	38,18	72,73	64,44	71,43	70,00
	-Rarely <sup>3</sup>	22,22	62,00	37,50	61,82	27,27	35,56	28,57	30,00
*Online time spent/week(hr)	≤3hrs	35,29	81,25	53,66	87,27	53,49	83,72	69,23	50,00
	>3hrs	64,71	18,75	46,34	12,73	46,51	16,28	30,77	50,00

### 2.5 Science and Non-Science based students

The ten faculties under test were divided into two categories: science and non-science (see Table 3). We also have a second level of categorization of frequent and non-frequent users; the frequent users are those that use the internet both on a daily and weekly basis and the non-frequent users as those that use it on a monthly and yearly basis. Over 60% of those that rarely use the internet are from non-science based faculty. This is a reflection that most of the non-science based students do not fancy the use of the internet and do not count it as important. This may be the reason why science based students are more proactive than their non-science based counterparts. It is important now to encourage them so as not to be left behind. Furthermore, faculty ranking revealed that faculty of health science was ranked highest (1) which is an indication of where the most frequent users emerge. Faculty of Agriculture was ranked second (2) and faculty of education was ranked least (8). We carry out further analysis to ascertain what students in the highest rank and the lowest rank faculties actually use the internet for; interestingly we found that there is no significant difference. They both (highest and lowest ranking faculties) use it mostly for e-mail and information search and the usage is almost at the same level 72% and 70% respectively. Ukwe [8] stated that many people simply use the Internet for e-mail, partly due to the cost element while Jensen corroborates this also by stating that universities were at the forefront of early Internet developments in Africa, mostly with e-mail services [9].

**Table 3** science and non-science based categorization by faculty & ranking of internet usage

	Faculty	Participation (N)	Frequent Users (FU)	Non-frequent Users (NFU)	Frequent Users (%)	Ranking
Science	Health Sciences	32	23	9	72	1
	Agriculture Technology	26	17	9	65	2
	Science	26	16	10	62	3
	Pharmacy	29	18	11	62	3
		14	8	6	57	4
		127	82 (64,5%)	45 (35,5%)		
Non-Science	Arts	29	18	11	62	3
	Administration	25	14	11	56	5
	Social Sciences	36	19	17	53	6
	Law	29	14	15	48	7
	Education	30	11	19	37	8
		149	76 (51%)	73 (49%)		

<sup>2</sup> Often(daily and weekly)

<sup>3</sup> rarely (monthly and yearly)

### 2.6 Internet Service Usage Preference

Most students (over 70% ) at all levels use the internet for e-mail (206 out of 288 respondents) followed by information search about 65% with 185 respondents, about 20% (58 respondents) polled for chat and finally about 1% (2 respondents) use the internet for other things which are not specified.

### 2.7 constraints to the use of the internet

Constraint focus open-ended question allowed us to gather some of the major constrictions and challenges facing the students in using the internet. These are: financial constraint, erratic power supply, inefficient internet links and servers, not having enough time, no personal access to the internet, not being computer literate, cyber congestion, lack of reliable storage facilities, long distance and pop-up of porno sites (spyware).

### 3.0 Conclusion and Policy recommendations

our investigation showed that the that majority of the undergraduates in the university use the internet for many purposes; and have realized the benefits the internet has to offer undergraduate students in higher school of learning. A large percentage of the students declared that the usage of the internet has impacted greatly on their academic and social life. This is in agreement with a study by Liaw [10] who reiterated that the success of internet utilization was very much related to the user's attitude toward the internet.

The benefits as mentioned by students are highlighted as follows: generally the students believe it serves as information database, helps to search for more information on a particular subject, provides avenue to contact relatives and friends, it widens knowledge, it gives information on education, politics and social events, it is used for information development, it enhances easy communication globally, it improves academic performance, gives information about happenings around the world, it is used as a research tool, provides solution to assignments, gives information on entertainment & education, a source of scholarship search, creates fun, provides avenue for online business; it also provides immediate information about the university (OAU).

To address some of the problems mentioned by the students, we found erratic power supply to be a major issue which has to be tackled. Idowu mentioned that while constant electricity is not a problem in Mozambique as it is the case here in Nigeria. It is essential therefore that government policy be directed at encouraging the reliability of electric power, to avoid further deterioration. 'Catching the students young' is also very important in the application of ICT in education. To achieve this, changes in curricula may be necessary in order for ICT to become the teaching and learning tool that it ought to be. These policies must periodically be reviewed for proper monitoring of compliance in all higher school of leaning. Beyond that, Government should seek to increase the amount of, and access to, up-to-date ICT equipment in all higher school of learning as well as provide adequate resource including bandwidth relative to the school population. Adoption of effective strategies to enhance staff skills in the use of ICT to deliver the curriculum is also very important. Greater use of ICT for students, staff, and parent by introducing online checking of results and information about their programmes, assessments, reporting, monitoring and evaluation is also desirable.

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