

Full Length Research Paper

Utilization and impact of online sourcing of information on the academic performance of medical students in a Nigerian university

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This study examines the use of internet facilities by medical students of the Lagos State University College of Medicine (LASUCOM) Ikeja. Apart from serving as a learning tool, the sourcing of information through the internet motivates students to undertake research and helps them to develop skills in collecting and analyzing data. A two-part questionnaire was developed and used to elicit the necessary information for the study. Three hundred and five copies of the questionnaire were distributed to the students in the College of Medicine Ikeja, Nigeria, out of which 250 copies were completed, returned and used for the study. This constitutes 81.9% response rate. Findings showed that the medical students have access to internet facilities, although majority of the respondents (46.4%) have access through cybercafés around the campus. On the average, respondents spent at least between 30 min and 1 h accessing the internet on a weekly basis. The study also revealed that medical students consulted the PUBMED database regularly and that access to myriads of online resources through the internet has a positive effect on the academic performance of the respondents. The study recommends increase in the number of computer terminals for accessing internet facility in the College including acquisition of internet ready computers for the College library. Another vital recommendation is the need for an increase in the bandwidth of the hub for the internet connectivity in the College.

Key words: Lagos State University College of Medicine, Ikeja, Nigeria, internet use, academic performance, students' usage, education.

INTRODUCTION

We are continually witnessing the silent revolution taking place in the changing world of knowledge. The impact of Information Communication Technologies (ICTs) on the higher education cannot be overemphasized, particularly from the perspective of the Internet. ICTs are currently used for research purposes, for teaching and learning as well as networking in various universities and educational institutions around the world. Being a global network of computer over superhighways, the internet has proven to be a vital communication channel for advancement of knowledge including promotion of research and development throughout the world. All over the world, the

higher education sector is continually undergoing significant changes, mostly in response to the emerging development brought about by the impact of information communication technology. The net effect has been significant change in the modes of handling and dissemination of information and dynamic change in the nature of knowledge. By extension, there is significant re-organization of the structure of higher education and their curricula including the review of strategies for implementation of research and learning. As observed, those changes are characterized by processes of expansion and differentiation. "Problems of quality and lack of resources are compounded by the new realities faced by higher education, the first of which is expansion, as higher education institutions battle to cope with ever-increasing student numbers. Not only have higher

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education systems expanded worldwide, the nature of the institutions within these systems has also been shifting through a process of differentiation" (World Bank, 2000: 26, 28).

Information Communication Technology (ICT) plays an important role in these processes as it has been noted to be one of the forces imparting the world today and especially higher education. The internet has continued to be a viable tool for researchers to communicate and share project data in higher education. Today, the .edu domain remains one of the largest contributors to the internet. However, the internet is unorganized as some of the web sites appear, disappear, move or mutate on a daily basis. While it is difficult to search for information through the internet, it is even more difficult to have the search terms refined well. Moreover, the information found through the internet search has both the useful and the useless materials co-existing (New Mexico State University Library, 2002). Vitalicy (2003), while reporting on the role played by information technology in educational institutions, opined that networking has made it possible for computers to be connected locally in an institution or department to form what is referred to as an internal network, otherwise described as local area network (LAN). The internet can be conceived as a rich, multi-layered, complex, ever-changing textual environment. The internet is advantageous as it provides several opportunities for the academia. It is a mechanism for information dissemination and a medium for collaborative interaction between individuals and their computers without regard for geographic limitation of space (Leiner et al., 2000; Singh, 2002). Content created on the internet ranges from simple e-mail messages to sophisticated 'documents' (sites) incorporating sounds, images and words (Evans, 1996). The internet is a 'live', constantly 'moving', theoretically borderless and potentially infinite space for the production, circulation and dissemination of information. The internet is arguably one of the most significant technological developments of the late 20th century. Peters and Lankshear (1996) asserted that while printed materials have a certain fixity and finitude, texts published via the internet have a much more fluid character.

With texts no longer housed between library or bookshop walls, it becomes impossible to 'pin down' all or even most of the available materials in given subject areas for archival and classification purposes. The internet might thus be described as a 'sea of information', subject to the ebb and flow of various forces (political, corporate, institutional, etc.), creating an ever-shifting shoreline. Another important advantage of the internet is that it affords students (all over the world but more beneficial to those in developing countries) the opportunity to access a large pool of data which could help reduce the information gap resulting from the disadvantages of the education opportunities. The university library has a role to play through provision of

access to the vast amount of information sources via the mediation of internet access. Resources that the library makes available must be integrated with one another and within the library environment; and library services must support the learning and research behaviors of users. Furthermore, users often want to access and use items from more than one content provider; so, they ultimately interact with various user interfaces. But even then, each service has a different user interface for discovery, with its unique set of 'presentation services' that the user must learn and understand (Walker, 2006). Walker (2006) further stated that: "E-access opens up great opportunities for people to find - and get access to - an increasing corpus of knowledge. Search engines such as Google, MSN and Yahoo! are now targeting the traditional library user; and libraries are under increasing pressure to develop and offer new paradigms for discovery that meet the changing expectations of end-users. The library needs to be where the users are, and to deliver quality services to the users where and when they need them - on the network and within their preferred work or study environment."

Statement of the problem

The lack of funds for effective running of the Universities and especially their Libraries has adversely affected adequate provision of quality modern books, updated literature materials and journals, and where available, are now expensive as warranted by the economic recession, global political crises and currency devaluation, compounded by the information explosion that we have witnessed in the global electronic village that the World has turned to. In view of those afore-stated problems, Nigerian medical students have now turned their attention to the use of the internet for the purpose of studying, conducting research and obtaining general information. Thus, how often they use the internet, what they specifically use it for and whether its use enhances their academic performance are the main focuses of this study.

Objective of the study

The aim of this study is to investigate the accessibility, extent of use and the effects of the internet on timely completion of assignments, turning in of term papers, seminar presentations. Another important advantage of the internet is that it affords students (all over the world but more beneficial to those in developing countries) the opportunity to access a large pool of data which could help reduce the information gap resulting from the disadvantages of the education opportunities (Komerik, 2005) and overall academic performance of medical students at the Lagos State University College of Medicine (LASUCOM), Ikeja, Nigeria.

Table 1. Sex of respondents.

Sex	Frequency
Male	146 (58.0)*
Female	109 (42.0)*
Total	250 (100)*

(*)percentage.

Background to Lagos State University, Ojo

Lagos State University (LASU) was established in 1983 (Komerik, 2005), by the enabling Law of Lagos State of Nigeria for the advancement of learning and establishment of academic excellence. The university caters for a population of over 61,000 students, enrolled in full-time and part-time programmes at the Diploma, Undergraduate and Postgraduate levels. Lagos State University (with the acronym: LASU), located in the city of Ojo, Lagos, Nigeria is the only state university in the former British colony now known as Lagos State. The University was conceived as a multi-campus, collegiate and non-residential higher education institution. Today, Lagos State University operates a multi-campus system; with its main campus at Ojo, along the Lagos-Badagry Expressway and other three (3) fully-owned campuses. The other campuses are the Engineering Faculty sited at Epe, while Ikeja Campus houses the College of Medicine and the campus for the communication programmes is situated in Surulere. There are, as well, nine (9) external/affiliated campuses situated in Badagry, Festac, Agege, Jibowu, Isolo, Anthony, Alaka in Surulere, Lekki and Ikorodu. The Medical Library at the Lagos State University College of Medicine (LASUCOM) was established in February 1999. It is a branch of the University Library at the Main Campus, Ojo, Lagos. The Medical Library is strategically located within the College of Medicine to complement the training and research activities undertaken in both the College and the Lagos State University Teaching Hospital through its available facilities and services. There is a Library Committee, as a Standing Committee of the College Academic Board, that acts in advisory capacity to the Medical Librarian and reviews all matters pertaining to the library and its development. The main objective of the Medical Library is to serve the information needs of the target users. To meet its education, research and patient care missions, the Library selects resources to support research, education and teaching. The Library also provides unhindered access to global biomedical information sources and assists clientele to keep abreast of knowledge and information in their specialties.

Though the primary users of the Medical Library are the students and staff of the College of Medicine, other users include the medical and paramedical personnel of the Teaching Hospital. The Library also serves doctors, students, researchers and other health care professionals

within Lagos and its environs as well as from other institutions across the country. The Medical Library has a collection of over 4,000 volumes and 60 current medical journal titles. There is a functional circulation unit, well organized bibliographic unit, responsive serials unit, well-developed audio-visual and cataloguing units. There is a Library extension that also houses the Education Trust Fund (ETF) - sponsored Information Communication Technology (ICT) Centre, well equipped with networked stations via V-SAT for wireless internet access. Hence, the Medical Library strives to provide a conducive environment where users can study, seek and create information or explore new knowledge sources. Services provided by the medical library include reference and information services, lending services, reservation of books, inter-library loan, current awareness services (CAS) and photocopying services (Onatola and Oduwale, 2008).

Scope and limitation of study

The study includes the respondents who are medical students of the Lagos State University College of Medicine, Ikeja, and their use of internet facility for academic purpose only. Persistent lack of electricity supply coupled with inadequate funds to effectively manage the infrastructures pose serious limitations to the study.

METHODOLOGY

For this research study, the population and sample used comprise all the medical students in the College during the 2008/2009 academic session. The population was three hundred and five (305) and the same was used as sample size. A two-part questionnaire was developed and used to elicit the necessary information for the study. Three hundred and five (305) copies of the questionnaire were distributed to the students in the College of Medicine, Ikeja, out of which two hundred and fifty (250) copies were completed and used for the study. This constitutes 81.9% response rate. The College of Medicine has students spread across 200 and 600 levels only, as the 100 level students are in the main campus in Ojo. The questionnaire was designed to know the students' utilization of the internet facilities and the constraints encountered including the impact of using the internet services on their academic work. The items in the questionnaire also seek the respondents' perception of the internet as an ICT tool in enhancing their research work.

RESULTS AND DISCUSSION

Out of the 250 medical students who responded to the questionnaire, 109 (42%) were females while 146 (58%) were males (Table 1). This point to the fact that there are more male than female medical students at the College of Medicine. This result is not too surprising as it is believed that the medical profession is more populated by the male gender in Nigeria. However, one should bear in mind that 55 respondents representing one fifth of the

Table 2. Age of respondents.

Age	Frequency
(a) 16-20	26 (10.4)*
(b) 21-25	75 (30.0)*
(c) 26-30	113 (45.2)*
(d) 31- 35	34 (13.6)*
(e) 35and above	2 (0.8)*
Total	250 (100)*

()*percentage.

Table 3. Distribution of medical students by level.

Class/level	No of questionnaire distributed	No of questionnaire received
(1) 200	75	67
(2) 300	75	70
(3) 400	82	72
(4) 500	36	31
(5) 600	37	32
Total	305	250

Table 4. Medical students access internet services.

Access	Frequency
a) Yes	250 (100)*
b) No	0 (0.0)*
Total	250 (100)*

population did not complete the questionnaire and thus their sex could not be determined. Majority, represented by 45.2% of the medical students are between the age ranges of 26 to 30 years as shown in Table 2. Table 3 shows that the Lagos State University College of Medicine, Ikeja has five different categories of students - ranging from 200 to 600 level. From the study, all the 250 (100%) students of the College of Medicine surveyed have access to the internet (Table 4). Although, a greater number (46.4%) of the students access the internet from commercial cybercafés outside the campus (Table 5). This finding is in tune with Jagboro (2003) who reported that students of the Obafemi Awolowo University, Ile-Ife visited the internet cafés more to browse the web. The foregoing result might not be unconnected with the inadequate number of computer terminals on campus and for the fact that access to the internet connectivity in the College was a little bit slow. There are 50 networked stations in the College ICT Centre to cater for over 300 students, 120 academic staff and 256 non academic staff. On the frequency of use of internet facilities, 168

(67.2%) of the respondents visited the College ICT centre once a week while 11 (4.4%) visited everyday (Table 6). The average time spent on using the internet facilities by the medical students was between 30 min to 1 h (54%) (Table 7). This finding is in consonant with the report by Awolaye et al. (2008) that students spent 1 to 3 h on an average on the Web when they assessed the adoption of internet usage amongst Nigerian University undergraduates.

Web visits by the students may be due to the fact that internet is endowed with huge resources that are needed by them to write their projects/assignments, as well as communicate with colleagues through electronic mail. Moreover, the library of the College of Medicine has a website (www.lasucomlib.org) on which medical databases have been aggregated for ease of use by the students. The internet as an information source, compliments the information resources provided by the Medical Library on one hand and lectures delivered by the academic staff on the other hand. According to the respondents, the most commonly used search engine is

Table 5. Location of internet services used by medical students.

Locations	Number of respondents	Percentage (%)
College ICT center	97	38.8
College library	0	0.0
Café (outside the campus)	116	46.4
Personal homes	33	13.2
Others (please specify)	4	1.6
Total	250	100

Table 6. Frequency of use of internet services by medical students.

Frequency	Number of respondents	Percentage (%)
Everyday	11	4.4
Once a week	168	67.2
Once in two weeks	67	26.8
Once in a month	4	1.6
Occasionally	-	-
Never	-	-
Total	250	100

Table 7. Average duration spent on internet use by medical students.

Average duration	Number of respondents	Percentage (%)
< 30 min	9	3.6
30 – 60 min	135	54.0
60 - 90 min	83	33.24
2 h	16	6.
>2 h	7	2.8
Total	250	100

the Google. A total of 106 (42.4%) final year students chose this search engine when asked to choose their most commonly used search engine. This is followed by the Yahoo! search engine (29.2%). Personal and close interactions revealed that most computers on the campus have Google set as their default search engine by the system operators (Table 8). The effect of the use of internet on the academic performance of medical students was found to be positive. For instance, 238 (91.2%) respondents claimed that the internet access have increased their communication with friends and colleagues with whom they share educational information, while 179 (71.6%) reported a positive prompt access to information needed for class assignment (Table 9). All these, they reported, contributed positively to their academic performance. When respondents were asked to select the most popular database they consult on the internet from a list, the result revealed that all the medical students used the PubMed database (Table 10).

This finding is in consonance with Ajuwon (2006) in a study on the use of internet for health information by 172 physicians at the University College Hospital (UCH), Nigeria, which reported that 99.2% of the healthcare providers (especially physicians) use the PubMed/MEDLINE database.

One of the major internet access problems identified by the medical students is the inadequate number of computer terminals that are currently linked to the internet network hub in the College. There is also the problem of low bandwidth which was mainly responsible for the slow internet connection speed commonly experienced by the IT users.

CONCLUSION AND RECOMMENDATIONS

From the study, it was observed that all the medical students at the Lagos State University College of

Table 8. Search engines used by medical students in conducting searches.

Search engines	Number of respondents	Percentage (%)
Yahoo	73	29.2
Google	106	42.4
Teoma	11	4.4
Alta Vista	5	2.0
Hotbot	17	6.8
Dogpile	14	5.6
Mamma	8	3.2
Ask Jeeves	16	6.4
Total	250	100

Table 9. Effect of internet services on academic performance of medical students.

Effect	Positive	Negative	No change
Prompt access to information needed for class assignment	179 (71.6)	--	--
Educational communication with friends/colleagues through e-mail	238 (91.2)	--	---
Ability to perform new task	08 (43.2)	---	-
Improve quality of project/research work	164 (65.6)	-	-
Other (please specify)			-

()*percentage.

Table 10. Medical students use of internet based resources (multiple response).

Information sources	Frequency
PubMed	250 (100)*
Free books for doctors	225 (90.0)*
Free Medical journals	200 (80.0)*
CINAHL	125 (50.0)*
African journal online (AJOL)	88 (35.0)*
Directory of open access journal	100 (40.0)*
Cochrane library	50 (20.0)*

()*percentage.

Medicine, Ikeja, Nigeria have access to internet facilities, how reliable the connectivity is could be another issue. The frequency of use of these facilities ranges from daily to monthly basis. Access to internet facility by final year students is mostly through café outside the campus because of the inadequate number of computer terminals and slow speed of the internet connection on Campus. Final year students spent an average of 30 min to 1 h to access and use the internet. The search engine that is most commonly used by the respondents is the 'Google'. Major problems identified by the medical students include inadequate number of computer terminals with internet access as well as slow internet connection speed. In conclusion, the use of internet facility by medical students

of the Lagos State University College of Medicine, Ikeja, Nigeria has led to prompt access to information needed for class assignments and improvement of quality of their project/research work. The following recommendations are made from the study:

- 1) The college has the potential to make online access to the collections in the medical library possible if required infrastructure is acquired. The library has the capacity to host up to twenty (20) workstations. This will augment the available fifty (50) workstations at the college ICT centre.
- 2) The library should embark on information literacy/sensitization programme for students in order to effectively harness the various web-based electronic

resources it subscribed to.

3) The slow internet connection speed should be improved upon. This can be achieved through an increase in the internet bandwidth.

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