

## Creating universal resource locator links on library computers desktop: A panacea for students' underutilization of subscribed electronic databases in academic institutions in Nigeria

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*Received 17 March 2012, revised 3 May 2012*

This study is a 3-week experiment using Michael Okpara University of Agriculture Umudike (MOUUAU) Digital Library and clients as study area and population respectively. Having observed the problem of students and researchers underutilization of electronic databases subscribed by academic institutions in Nigeria, the research was aimed at testing students and researchers approach to a new method that may enhance usage of subscribed electronic databases and recommend it if positive. Dummy links, representing some of the Universal Resource Locators (URLs) of the databases subscribed by MOUUAU were created as the desktop page of ten computers in the digital library. Designed purposively, a click on the dummy links referred clients to the librarian. The record of clients who reported to the Digital Librarian as a result of the dummy upload request was collated. Apart from finding that, gender, level of study and purpose of visit are electronic database utilization variables, the study reveals that creating URL links on desktop pages would effectively sensitize and increase students' utilisation of the various electronic databases subscribed by individual Nigerian academic institutions. The experiment's result show that URL links would effectively introduce subscribed electronic databases to students and researchers much better than any other means.

**Keywords:** Electronic resources, use studies, Nigeria, URLs

### Introduction

Academic Libraries spend a large portion of their budget on subscription to scholarly literature, especially on peer-reviewed journals and databases. Even with the information explosion, the increasing cost and availability of scholarly information in electronic mode have been a problem to academic institutions worldwide<sup>1</sup>. This is the reason why academic libraries are engaging themselves in a formal association or joint ventures often referred to as consortium<sup>2</sup>. This effort however, seems not to have made the cost of acquiring electronic information resources cheap, coupled with the fact that not all libraries of academic institutions join any consortium. Whichever way, Nigerian academic institutions are not exception in the situation. For instance, Nigerian universities and their libraries, either individually or through consortia like Nigerian Universities Libraries (NULIB), are spending millions of naira to subscribe to electronic databases in order to enhance teaching, learning and research activities of their academic staff and students<sup>3</sup>. National and international bodies like

United Nations (UN), through its organizations, are giving free access or discounted access to journals and databases through programmes like Access to Global Online Research in Agriculture (AGORA), Electronic Information for Libraries Network (EIFL.NET), Health Internetwork Access to Research Initiative (HINARI), Online Access to Research in Environment (OARE), Pharmaceutical Education and Research Institute (PERI), etc.<sup>4</sup>. The Federal Government of Nigeria has also made some input in this regard. Fabunmi<sup>5</sup> recalls how much effort the Government has made to ensure that academic libraries have access to relevant and current electronic information resources. EBSCO Host Online Research Database is one of the electronic databases that the Government through the National Universities Commission (NUC) relieved NULIB of its high cost in 2008. Other databases still subscribed by Nigerian academic libraries include Science Direct, ECONLIT, ERIC, LANTEEL, LEXIS NEXIS, MEDLINE, among others.

Subscription databases consist of published journals, magazines, reports, documents, newspapers,

books, image collections, and more, with a majority of these databases available via the Internet while few are available within the library on DVD or CD-ROM. Institution's mandate and teaching coverage are focal in the subscription exercise. Although the worry of internet access is gradually diminishing as studies reveal how academic libraries in Nigeria are getting internet service<sup>6</sup>, some researchers say that the factors that still hinder the utilisation of electronic databases include inadequate facilities, lack of maintenance, lack of skills, unawareness, inadequate power supply amongst others<sup>7-9</sup>. Other studies reveal that students and researchers in Nigerian universities are unaware of subscribed electronic databases, coupled with unfriendly interface and other usability challenges<sup>10,11</sup>. This relates to the findings of Bozimo<sup>12</sup> who observed that the usage statistic of electronic databases in Nigerian academic libraries is very low. As a result, scholars and librarians are worried. For this reason, EIFL.NET in Nigeria has declared the need to devise better ways of ensuring that the costly electronic information resources are utilized by students and researchers. NULIB has been organizing national workshops to educate librarians towards actualizing this noble goal<sup>12</sup>. Librarians, on their own attempt, are sensitizing their institutions' faculty members and students, making available the username and passwords of the subscribed databases.

Irrespective of these attempts, usage of subscribed electronic information resources in many Nigerian institutions has not improved<sup>10</sup>. Besides, most current, certified and rich information resources are only accessible in the subscribed databases and not easily found through Google, Devil Finder, Alta Vista and other search engines used by students when they go on the internet for research. It is this gap of underutilisation of subscribed electronic databases by students and staff of Nigerian apex institutions that this study intends to fill. The researchers used an experiment with "dummy" universal resource locator (URL) links on library computers desktop page, with Michael Okpara University of Agriculture, Umudike and its students as the subject and population of the study respectively.

### **Electronic resources at Michael Okpara University of Agriculture Library Umudike (MOUUAU)**

Michael Okpara University of Agriculture (formerly Federal University of Agriculture), Umudike, Abia State, Nigeria was established as a specialized

university by a Federal Government of Nigeria Decree No 48 of November 2, 1992. Today, the university has nine colleges as well as a Post Graduate School, School of General Studies and the Continuing Education Centre. The University Library is the support engine of teaching, learning and research. The collection of the library is rapidly growing. Apart from access to its modest collection of books, journals and periodicals, library users have access to electronic databases subscribed by MOUUAU Library. The databases are AGORA, EBSCO Host, HINARI, OARE, NUC Virtual Library and Lan-TEEAL of 2005 CD and 2009 DVD versions<sup>13</sup>.

NUC, in May 18, 2010, sent a usage report of the NUC Virtual Library and EBSCO Host for the period between January 2009 and February 2010 to the Vice Chancellor of MOUUAU. The report has the login statistics rated at 0.04%, with a search count of 0.70% and a total usage record of 0.05%<sup>14</sup>. Relatively, the internal usage record of the Digital Library reveals that students and staff hardly consult any of the databases. They rarely ask for the passwords and usernames of these rich resources, irrespective of the efforts of Deans and Heads of Departments in interpersonal sensitization of academic staff and students in their colleges as directed by the then Vice Chancellor. The effort made by library management by publishing the information in the university bulletin did not appear to have improved the situation. Hence, this experiment is intended to produce another suggestion which would be workable not only at MOUUAU, but in other academic institutions as well.

### **Literature review**

A database consists of organized pieces of information placed into records. An electronic database is a specialized record of related published information documents which are not available on Google or other common search engines, especially in full text. They are broken down by subject to help the researcher find exactly what he or she needs. Within an electronic database, a computer programme assists the user in selecting desired pieces of data also referred to as electronic information resources. Ani and Ahiauzu<sup>6</sup> states that electronic databases is a collection of electronic information sources (e-journals/e-books) by publishers from various fields/disciplines and that some of these databases are provided free of charge to libraries in developing countries by their publishers or vendors, while others

require some fees for subscription. Access to these databases provides researchers with thousands of scholarly journal articles in one field of specialization.

There are different types of electronic databases in the world today, including statistical databases, image databases, among others. However, all databases have unique traits, which include subject coverage, interface (appearance) and advanced features. Electronic databases usually contain publications and other resources that can be found in hard-copy or are from credible sources. The articles found on electronic databases are the same articles that are found in a print version of a magazine or journal. Common features of an electronic database are search tools, keyword searching capability, subject searching capability, help section and the publications section. All electronic databases have a basic search tool. Usually the user will enter a word or phrase into the search box to look for the topic. The keyword search is often the default feature of a database. This means that the keyword search screen will be the first screen that appears when a database is selected. Furthermore, almost all full-text databases have a subject listing. This is an alphabetical listing of subjects used to categorize the articles. And in the case of problem finding information on the database, the help screen is there to assist the user in learning how a particular database works. In the long term, this saves time and energy. All databases have a way for the user to find out which publications (magazines, journals, newspapers, etc.) are parts of the database. Thus, electronic databases are very valuable and useful for time-saving research (<http://library.sullivan.edu/old/css/databasedescription.htm>).

A Universal Resource Locator (URL) is the address of a web page on the World Wide Web. It is also the same as Uniform Resource Locator or Uniform Resource Identifier (URI)<sup>15</sup>. It indicates where a known resource is available and the mechanism for retrieving it. A URL, in addition to identifying a resource, provides a means of locating the resource by describing its primary access mechanism (e.g., its network location). URL was created in 1994 by Tim Berners-Lee and the URL working group of the Internet Engineering Task Force (IETF) as an outcome of collaboration started at the IETF Living Documents of Birds of a Feather (BoF) session in 1992<sup>16</sup>. URLs with hypertext transfer protocol secure (https) as a scheme such as “<https://example.com/>” requires that requests and responses will be made over a secure connection

to the website. Some schemes that require authentication allow a username and perhaps a password too, to be embedded in the URL, for example “<ftp://asmith@ftp.example.org>.” Passwords embedded in this way are not conducive to secure working, but a full syntax like “[scheme://username:password@domain:port/path?query\\_string#fragment\\_id](scheme://username:password@domain:port/path?query_string#fragment_id)” would possibly secure full access and working on the page<sup>17</sup>.

Nevertheless, subscription databases are specialized databases which a person or an institution can subscribe to. Subscription databases consist of published journals, magazines, reports, documents, newspapers, books, image collections, and more. Most of these databases are available via the internet; some are available within the library on DVD or CD-ROM. Libraries subscribe and provide access to these resources for their patrons. Subscription databases are not freely available to the public. Resources in subscription databases are easily identifiable by their citation information. For journals, the author, title of article, title of journal, volume and issue number, date, and page numbers are evident. But for books, author, title, place of publication, name of publisher, and date are indicated<sup>18, 19</sup>.

The desktop page is the primary user interface of a computer. When a computer boots up the desktop page is displayed as soon as the startup process is completed. It includes the desktop background (or wallpaper) and icons of files and folders one may have saved on the desktop. For instance, in Windows Operating System (OS), the desktop page includes a task bar, which is located at the bottom of the screen by default. In Mac OS, the desktop page includes a menu bar at the top of the screen and the Dock at the bottom. The desktop page is visible on both Windows and Macintosh computers as long as an application or window is not filling up the entire screen. (<http://www.techterms.com/definition/desktop>). A user can create or drag items to and from the desktop, just like a folder. Since the desktop page is always present, items on the desktop can be accessed quickly, rather than requiring one to navigate through several directories. Therefore, it may be helpful to store commonly used files, folders, and application shortcuts on the desktop page. More so, desktop pages are customizable. One can choose what items are shown on the desktop by selecting Finder Preferences and checking the items one wants displayed or alternatively install new ones through Dreamweaver software<sup>20</sup>.

There are several obstacles to the use of library resources. Among them is electronic resources, which are perceived as not being straightforward. In contrast to an internet search engine, where a single keyword search will usually result in thousands of hits, no matter what the topic, in the library, students have to choose a particular database and be more selective in the search words they use. Moreover, database subjects often overlap, with differences in dates, journal and subjects covered, and whether the material is full-text or not<sup>21</sup>.

According to Banwell and Coulson,<sup>22</sup> the JUBILEE project has also identified that the level of take up of electronic database services by students is dependent on factors such as training, awareness and promotion to and by academic staff. The importance of promoting the services of electronic databases and the need to improve users' information skills has also emerged from other papers<sup>9</sup>. Effective use of electronic information resources in Africa are being hampered by varying factors. Studies have revealed that these factors include poor funding of universities resulting in very poor funding of ICT development, high cost of IT equipment, high rate of foreign exchange, poor telecommunication infrastructures, inadequate power supply and so on<sup>23,24</sup>. More so, positive attitude are widely recognized as a necessary condition for effective use and integration of information technology in teaching and learning<sup>25,26</sup>. In Nigeria, Ojo and Akande<sup>8</sup> have observed that a major obstacle to the use of electronic databases information is lack of information retrieval skills for exploiting electronic resources, which has made the level of usage of resources by students very low.

Electronic information resources have provided wider access to information in academic institutions for teaching, learning, and research than the traditional print. Through the use of electronic information resources, researchers as well as students now have access to global information resources through the internet for their scholarly communication. Ani *et al*<sup>10</sup> defined electronic library as a library that consists of materials and services in electronic formats rather than the print format. The usage of electronic resources is a topical issue in Nigeria. Research has shown that certain variables influence the use of electronic resources - age, gender, faculty influence, computer skills, library use, self-efficacy, amongst others - have been argued by researchers as factors that affect electronic resources use<sup>27-30</sup>.

In Nigeria, while some studies reveal that use of electronic resources by students and researchers is very poor<sup>10, 12</sup>, other studies have indicated high use<sup>31-33</sup>. Thus this study shall contribute to existing knowledge by finding out the situation in MOUAU.

### Objectives of the study

The objectives of this paper are:

- To determine students' prior awareness of the subscribed electronic databases by giving them the opportunity to browse the databases links on a click on library computers desktop page or browse Google and other search engines.
- To find out if the utilization of subscribed electronic databases by students will increase when the URL links of the databases are created on the library computers desktop page.

### Methodology

Ten internet-enabled computers in the digital library department of the university library of Michael Okpara University of Agriculture, Umudike (MOUAU), located at the AfriHub ICT Resource Centre inside the University premises, were used. A web designer was hired by the researchers to re-design the desktop page on the computer monitors. The web designer created six URL links on the computer monitors, which appear as hypertexts on the screens of the ten computers the moment they are turned on, booted and are ready for use. Four of the URL links, which includes databases subscribed by MOUAU, had motivating statements written under them, intended to draw the attention of prospective users to click on them. Some of the statements read: "click here to download articles", "find journal articles for your theses work" etc. (Figure 1). The other two links are for Internet Explorer and Mozilla Firefox, with "click to browse the net" written under them.

However, while the Explorer and Mozilla links were created to accommodate students or client who would want to face their business in the library rather than complain, coupled with the researchers interest on avoiding to contravene the airtime commercial business of AfriHub (the internet network provider in the Digital library), the other four URL links on the ten computers were dummy. Whereas a click on the Explorer and Mozilla URLs uploads the airtime login page of AfriHub (Figure 2), a click on any of the dummy database links will display a page requesting

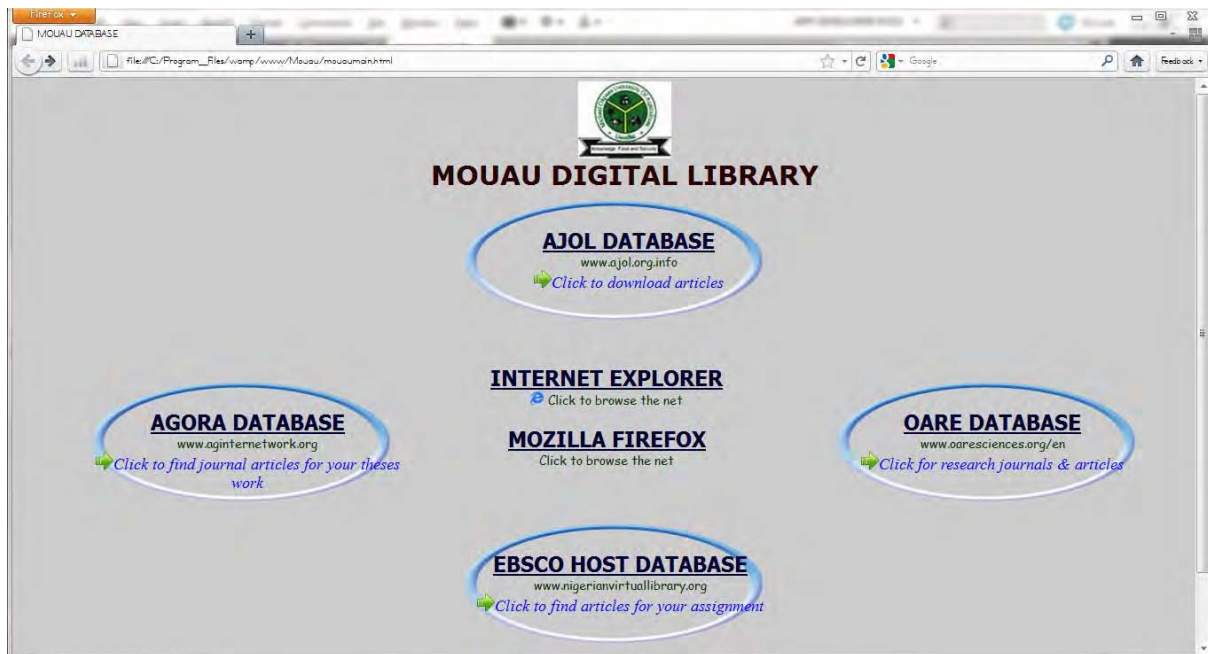


Fig. 1—Desktop page for the clients' computers in the library

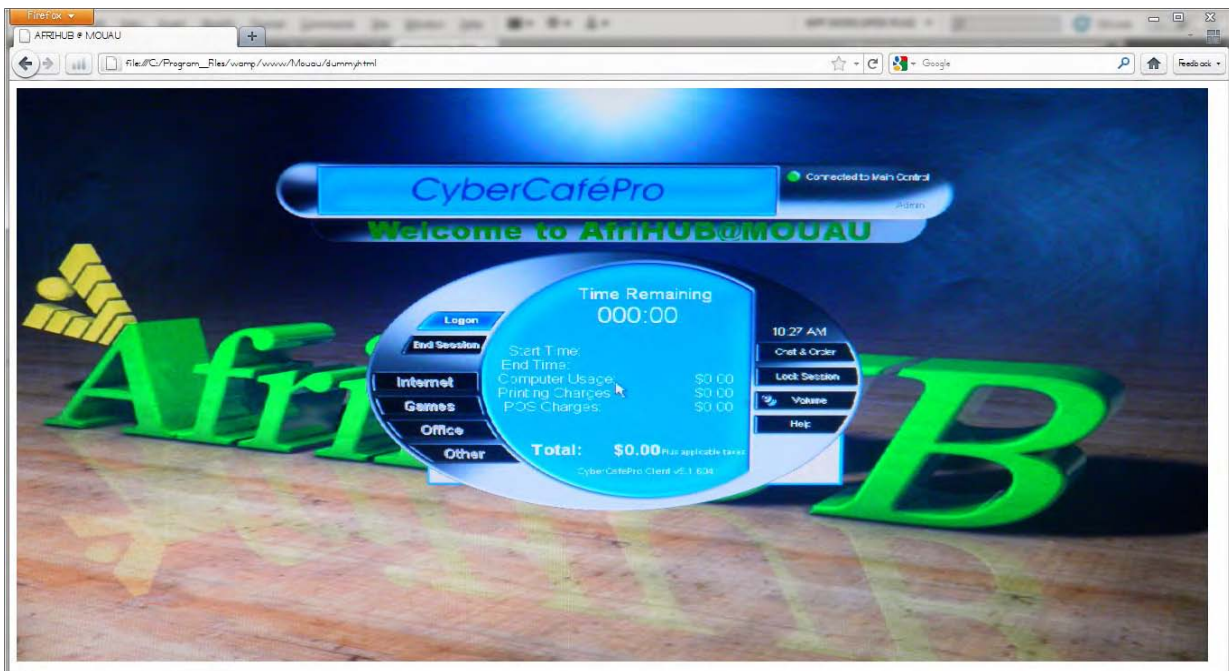


Fig. 2—Page display for a click on Internet Explorer or Mozilla Firefox URL Links

the client to see the Librarian in charge for direction (Figure 3). The sole purpose of the latter was to find out how many clients will contact the Librarian for help, which would reveal their interest on using the links to find information, contrary to those who would not, because they ignored the dummy display and navigated back to Explorer and Mozilla or never

clicked on the dummy databases at all. The researchers believe that these situations will be indicators to and as well, provide answers to the research questions, which ask:

- 1 Could it be that students are aware of the subscribed databases but simply do not want to use them?

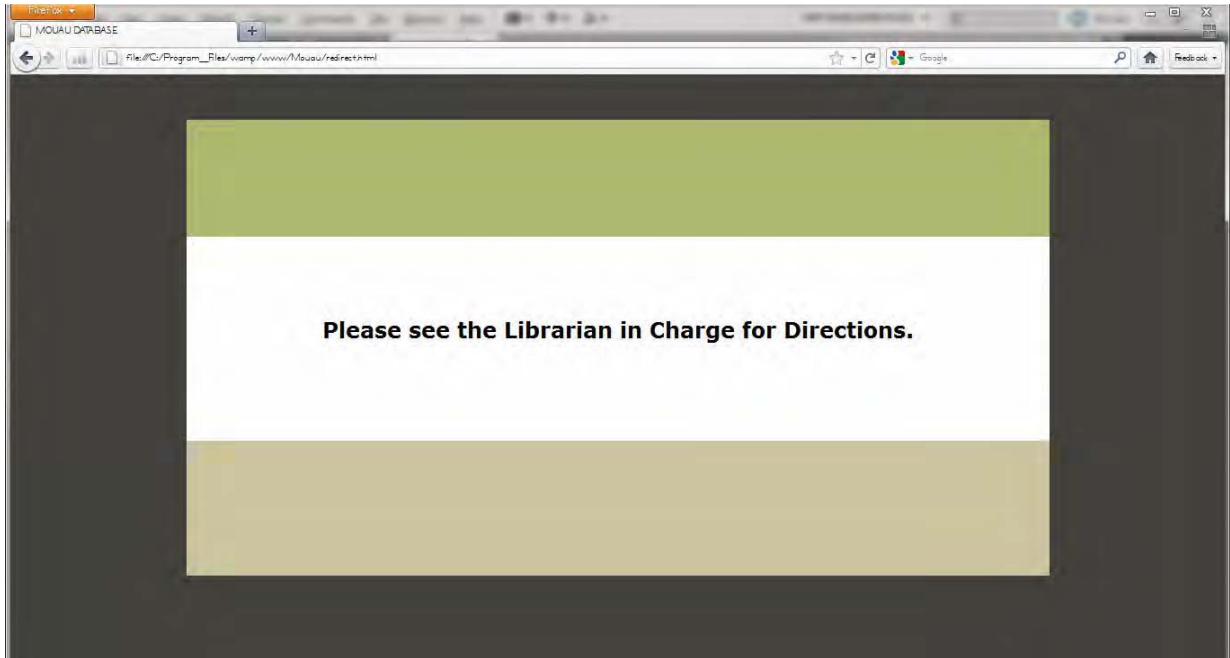


Fig. 3—Display page for a click on any of the four subscribed electronic databases URL

- 2 Would students be willing to search for research materials without going through Google and other search engines?
- 3 Can URL links on the desktop page introduce students to electronic database resources?
- 4 Can URL links on the desktop page increase students' utilization of electronic database resources?

Therefore, for three weeks (fourteen working days) in the month of June 2011, one of the researchers, who is the Librarian in charge of the digital library, monitored the experiment and recorded the number, gender, level of study and purpose of visit of clients who reported to him for assistance as directed in the dummy display. The number recorded to have reported to the Librarian for assistance was compared with the record of clients who, from January to May, 2011, had used or asked the Librarian for username and passwords of any of the MOUAU's subscribed electronic databases. The later record is extracted from the usage schedule of the Digital Library. Data collected are presented in tables, pie charts and analysed in simple sentences.

**Analysis**

The gender, level of study and purpose of visit of all the clients who use the computers given in Table 2.

Table 1 shows that out of 293 clients who used the experiment computers within the study period,

Table 1—A table of clients who used the experiment computers

Day	Total no. of clients that used experiment computers during the study period	Total no of clients that reported to librarian because of the dummy display	Total no of clients that did not report to librarian irrespective of the dummy display
1	24	13	11
2	19	10	9
3	21	17	4
4	16	12	4
5	17	11	6
6	29	18	11
7	27	20	7
8	15	8	7
9	19	10	9
10	31	22	9
11	21	15	6
12	18	11	7
13	17	10	7
14	19	11	8
<b>Total</b>	<b>293 (100%)</b>	<b>188 (64%)</b>	<b>105 (36%)</b>

64% (188) reported to the librarian for assistance in accessing information in the electronic databases against 36% (105) who did not meet the librarian because they either did not click on the databases or they ignored the dummy request and resorted to Explorer and Mozilla browsers for their browsing session.

In Table 2, out of the 188 clients who used the experiment computers and reported to the Librarian because of the dummy request (as contained in Table 1), 98 (53%) were males while 90 (47%) were females, 130 (69%) were undergraduates while 58 (31%) were post graduates. While 96 (51%) clients indicated that they wanted to use the electronic database links to complete their degree project (DP), 64 clients (34%) needed to access the links so as to do their class assignment (CA). However, only 28 (15%) used the computers for other purposes.

More so, the researchers compared the results from Tables 1 and 2 with daily usage schedule of clients' utilization of subscribed electronic databases in the digital library. Table 3 shows the total number of clients to the digital library from January–May 2011 along with the number that has requested for username/passwords of the electronic databases within the period. It is observed that only 2% of the total number of clients to the digital library for five months (January – May) used the MOUAU's subscribed electronic databases by asking the Librarian for the passwords and usernames of the databases.

Furthermore, Table 4 shows another comparison. It was aimed at evaluating the gap between the clients that requested for passwords and usernames for the period of five months and the clients that reported the dummy request to the librarian within the three-week experiment period. Each of the scores is divided by the number of working days that constituted the period. While about 0.2 request for passwords/usernames was made daily in the D-Library during the period of January to May 2011, a total of 13 clients showed daily interest in accessing

Table 3—Daily usage schedule of the digital library from January – March 2011

	Total number of d-library clients per month	Total number of clients who asked for and used the passwords/usernames of the subscribed databases per month
January	230	3
February	455	5
March	423	7
April	316	5
May	226	1
Total	1,650 (100%)	21 (2%)

Table 2—Profile of clients who reported to librarian because of the dummy display

Day	Gender		Year of study		Purpose of visit		
	Males	Females	Postgraduates	Undergraduates	Degree Projects	Class assignments	Others
1	9	4	3	9	5	3	3
2	3	6	4	14	6	4	2
3	6	4	5	11	6	3	4
4	5	3	3	7	6	5	-
5	8	5	2	9	5	5	1
6	9	10	5	14	8	4	3
7	9	8	3	12	6	6	3
8	7	5	6	6	7	2	-
9	3	10	3	6	13	1	5
10	12	8	5	13	10	5	1
11	8	7	4	6	5	6	-
12	7	6	3	6	8	5	4
13	6	7	5	9	5	7	2
14	6	7	7	8	6	8	-
Total	98 (53%)	90 (47%)	58 (31%)	130 (69%)	96 (51%)	64 (34%)	28 (15%)

Table 4—A comparison table of electronic database (ED) use and report

	Total no. of ED use and report to librarian	Total no. of work days within the periods	Total no. of daily use/report on ED within the periods
Usage of ED for the 5 months Pre-Experiment Period	21	100	0.21
Report of ED matter for the 3 weeks Experiment Period	188	15	13

**NB:** In the above table, work days per month are 20 days. ED = Electronic Database

the subscribed electronic databases of MOUAU Library within three weeks.

### Discussion

Firstly, this research shows that unawareness of MOUAU students on the availability of electronic databases to a large extent is responsible for its underutilization. This agrees with the findings of Ani, et al<sup>10</sup>, Abdulmumin<sup>1</sup>, Abdullah and Gibb<sup>7</sup>, Colvin and Keene<sup>9</sup>, and Ajuwon<sup>11</sup> who maintain that unawareness is a factor that hinder the utilisation of electronic databases.

Secondly, it is observed that gender, level of study and purpose of visit as variables; influence the utilisation of electronic databases in MOUAU. This adds to the findings of Bush, et al<sup>27</sup>, Waldman<sup>21</sup>, Bar-Ilan, et al<sup>28</sup> Laerum<sup>29</sup> and McGuigan<sup>30</sup>

Thirdly, for effective utilisation of electronic databases, not only are computers and internet connection necessary, creating a usable interface is indispensable. Already, Ani, et al<sup>10</sup>, Abdulmumin<sup>1</sup> and Waldman agree that a computer database interface aids access and retrieval of information. Hence, a URL link is an interface that can help students overcome the problems of obtaining passwords, username, inputting error, among other things.

Fourthly, it is also observed in this study that there is a wide gap between those that asked the librarian for passwords/username and the number of digital library clients that simply sat down to browse the databases. This significant difference is as a result of the URL links. Besides, URL links would safeguard the indiscriminate use of the resources by outsiders and in cybercafés.

### Conclusion

In conclusion, the questions raised by the researchers have their answers in the study. Firstly, the positive response to the experiment shows that majority of the students are not aware of the databases, let alone using them. Secondly, clients report to the librarian during the experiment justifies the willingness of students to use electronic databases for research rather than surf Google and other search engines. Thirdly, it is also evident from the experiment that URL links would effectively introduce subscribed electronic databases to students and researchers much better than any other means of sensitisation or awareness creation. Lastly, URL links on the desktop page would increase staff and students utilisation of electronic database resources in academic institutions.

However, our sample was not random, yet our results will be helpful in designing new initiatives that could enhance staff and students utilisation of the electronic database resources subscribed by Nigerian academic libraries. So, while it remains a thing of importance that academic institutions in Nigeria subscribe to relevant electronic databases to boost teaching, learning and research, let their libraries employ web designers to embed the passwords/usernames of their various databases into a link on the computer desktop pages so as to enhance satisfactory access to information resources in the databases and as well provide security against intruders' use of the passwords/username for business outside the university community.

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