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# Access to and Use of Electronic Journals in Selected Federal University Libraries in the Federal Capital Territory and North Central Zone of Nigeria

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## Abstract

*The study investigated the extent of access and use of electronic journals by the academic staff of federal universities in North Central Nigeria and the Federal Capital Territory from the different E-journal sources available. The study adopted the quantitative research methodology and used cross sectional survey research design. Findings from the study revealed that personal access through open/free source was the most used source of e-journals for their academic activities. E-journals were also most frequently used in academic activities related with research and teaching. No statistically significant difference was established between demographic variables and the most used source of access of E-journals (open/free access) and also the extent of use for academic activities. The study recommended that academic libraries take advantage of the open access policies of some publishers and databases to add to their e-journal holdings. Nigerian Library Association*

*should organise more training and workshops for librarians on E-resources search and retrieval skills; modules should include effective search strategies, designing appropriate metadata and subject headings to enable easy retrieval. In addition, university libraries should retrieve usage statistics that follows recognised standards (such as COUNTER's (Counting Online Usage of Networked Electronic Resources) Code of Practice) and mined data from the publishers or distributors of E-Journals to assess their e-journal services.*

## Introduction

The advent of information and communication technologies (ICTs) has changed the sophistication and pattern of information needs of users. These developments in information technology have made powerful changes in the collection, storage, retrieval, distribution and access process of information. One of the products of these developments which have become indispensable for academic activities worldwide is electronic information resources. These resources in recent times represent an increasingly important component of academic library collections. "Electronic resources" according to Johnson et. al (2012) refer to those resources that require computer access, whether through a personal computer, mainframe, or handheld mobile device. They may either be accessed remotely via the Internet or locally and they include e-journals, e-books, e-images and e-audio/visual resources.

Electronic journals are said to be the most sought after by academics of all the electronic information resources available to them. An electronic journal as defined by Panda and Mohanta (2008) is any

journal, magazine, newsletter or serial publication available over the Internet in electronic format. Borrego, Anglada, Barrios and Cormella (2007) attested to this fact when they reported an increasing preference for electronic journals to the detriment of the printed format amongst the teaching and research staff of the universities under the Consortium of Academic Libraries of Catalonia in Spain. The reason for this was attributed to the fact that research which is one of the cardinal points of academic activity had been identified as an important indicator for evaluating academics in all areas of accomplishments traditionally regarded as 'indices of academic excellence' (Ajegbomogun, 2011). In turn, academics all over the world now place emphasis on research and publications, not only because it is presumed that research enriches both the teaching and the learning process, as well as contributing to the body of knowledge, but also because it is a major determinant of institutional prestige. This implies that there is the need for faster access to areas where new knowledge could be acquired and used. With the different types of e-journals available ranging from free to fee-based, e-journals provide that needed platform.

With evidence from literature, it has been established that the general awareness of electronic journals to academic staff or even the academic libraries is not in doubt. However, the drive for access to and prompt transmission of electronic journals has become an important issue for academic libraries with the wide acceptance and importance of electronic journals to academic staff. Yasir (2004) citing Agnolu opined that many people, especially in developing countries, fail to exploit information even when materials were available for free as in the libraries. This situation is further worrisome with the roles of libraries evolving significantly over the last few decades from an emphasis on service based on physical repositories (Gall, 2005) to a focus on facilitating access to electronic resources (Vasileiou, Rowley and Hartey, 2012). This indicates that libraries are moving towards access instead of ownership, which means they would give up the power that ownership had given them in the past. Individual academic staff can now access electronic journals by subscribing personally to publishers and from open access. The implication is that academic libraries now have competitors as regards access, and so it can be inferred that users of electronic

journals would mostly use 'sources of access' that can give them less challenges and offer more advantages, especially for the academic activities of teaching, research and learning. This is particularly important for academic libraries because in recent times, according to Waldenberg (2006), publishers, academics, scholarly associations and independent scholars have begun to create electronic-only journals, which have no print versions; and there are also speculations from e-journal publishers that in the nearest future, journals would only come in electronic format to cut cost of duplication. Therefore, if there are no improved e-journal user service provisions by the academic libraries in Nigeria, they might lose their users as print journals may no longer be available in the nearest future. Thus, the decisive measure of improved access and use service for academic libraries is user feedback as regards the sources of access of electronic journals and the extent of use of these journals from such sources by academic staff that are the major users of e-journals in order for libraries to meet up the challenges the paradigm shift from 'ownership' to 'access' comes with.

### **Statement of the Problem**

Electronic journals are important library resources for any academic library, and as such, efforts have been put in place by the libraries of federal universities in Nigeria to enable access to these resources. National Universities Commission (NUC) has also been in the forefront of these efforts for federal university libraries in Nigeria. One of the Commission's major achievements was the aggregation of E-journals in the Nigerian Virtual Library for easy access (NUC News Bulletin, 2010). The main goal according to Tarpel (2012), was to ensure that users had the latest publications of the highest authority in their respective fields to facilitate teaching, research and learning. However, despite these efforts to improve access, research studies on the use of electronic resources have reported low use of e-journals from the University library (Isah, 2010; Egberongbe, 2009). Corroborating these research studies, the usage statistics of e-resources subscribed to via the Electronic Information for Libraries (EIFL), as reported by the EIFL country licensing coordinator posted on the NLA online forum, stated that the usage statistics in 2014 for databases

subscribed to are underutilised with over 50% of the subscribing institutions including federal universities in North Central zone having only 0-5% click to access any of these resources. The low access and use could then be attributed to the fact that academic staff were accessing e-journals from other sources that are yet to be empirically verified. In addition, there was also the need to find out the extent of use of e-journals to further emphasise the importance of e-journals for academic activities. Thus, for these reasons, this study was carried out to answer and test the following questions and hypotheses.

### Research Questions

1. Which type of electronic journal is mostly accessed by the academic staff of federal universities in North Central Nigeria?
2. To what extent does the academic staff in the area under study use electronic journals for academic activities?
3. Which source of access to electronic journals is mostly used by the academic staff under study?

### Research Hypothesis

The following null hypotheses were tested in the study at 0.05 level of significance

$H_{01}$  – There is no statistically significant difference between the demographic variables and the most used source of access of E-journals by the Academic staff in the area under study.

$H_{02}$  – There is no statistically significant difference between the demographic variables and the extent of use of electronic journals by the academic staff in the area under study

### Review of Related Literature

Electronic journals are grouped as online journals and off-line journals. Online journals are paid e-journals that are available on ‘cost-per-access’ bases via online databases while off-line journals are journals published on CD-ROMs or other medium which does not require Internet access. Both types

of e-journals may be bibliographical or full-text. Electronic journals are accessed through a number of sources which include consortium, open access, exclusive fee-based purchase, etc. According to Cook and Jones (2000), electronic journals are provided to subscribers through the following types of medium which includes free access, exclusive subscription, selective access, fee-based access and consortium-based access. They also stated that E-journals were predominately distributed through subscription from the publishers or through aggregator databases. Subscriptions through publishers were made either through vendors or directly from e-journal publisher’s websites. However, open access is another channel of distribution, as stated in Harman and Koohang (2006) when they revealed that academic open access e-journals were gaining widespread acceptance in most, if not all, disciplines and fields of study.

Research studies on the extent of use of electronic journals around the world indicated disparity based on some demographic variables which included but not limited to age, discipline and gender. The eJUST Stanford (2002) study found out differences in the extent of e-journal usage by the age of readers. Younger scholars were frequent e-journal users than are older readers, and older scholars believed e-journals decreased the quality and rigour of research literature searches. Researchers across all faculties in Loughborough University e-journal study (2007) commonly used e-journals, viewing them either daily or weekly. The Loughborough study however differed from Renwick’s study because it only stated the frequency of use and not what electronic journals were used for. In Nigeria, academics at Obafemi Awolowo University, Ile-Ife, used electronic resources mostly for literature search in their research and professional growth (Omotayo, 2010). Adegboro (2010) concluded that databases and electronic journals are used by academics for both teaching and research, among many other uses.

The sources of access of e-journals available from literature are university library subscription and personal subscription/purchase. The Stanford e-journal study (eJUST), a two-year project funded by the Mellon Foundation in 2000, reported that majority of the life scientists and medical professionals relied more on institutional subscriptions than on personal

subscriptions for their research. A large majority (79%) reported accessing journals through institutional library subscriptions, while having a few personal fee-based subscribed e-journal databases and free online access. Khan (2012) research study also revealed that the institutional online subscription was the major source for accessing journals for research scholars and students in Aligarh Muslim University, India. His study investigated the usage level when accessing e-journals through institution subscription. From these studies, it was inferred that scholars with access to institutional journal subscriptions used e-journals more frequently.

### Research Methodology

This study adopted a quantitative research methodology using the cross sectional survey research design. The population of the study was 1,271 lecturers from the five faculties in the University of Ilorin, Federal University of Technology, Minna and University of Abuja. The sample size of the study was 300 based on stratified sampling technique and values from Louis, Lawrence and Keith (2007) table. From the table, for a population of 1,300, a confidence level of 95% and confidence interval of  $\pm 5\%$ , a sample size of 225 is sufficient. Confidence level (usually expressed as a % of 95 or 99 or 90) according to Louis, Lawrence and Keith (2007) is an index of how sure one can be (95% of the time or 99%) that responses lie within a given variation range. The variation range also known as confidence interval is the degree of variation range ( $\pm 1\%$ ,  $\pm 2\%$  etc) that one wishes to ensure. For this study, a confidence level of 95% and a confidence interval of  $\pm 5\%$  were used. However, to make up for non-response error or attrition or the likes, the sample size was rounded up to 300. The sample was distributed proportionately using 50%, 30% and 20% respectively amongst the selected universities based on the population of academic staff in each university. Frequencies, Percentages and Kruskal-Wallis analysis of variance were used to analyse the results.

## Research Analysis and Discussion

### Response Rate

A total of three hundred (300) copies of the questionnaire were administered to the academic staff in the sampled universities. Out of this number, two hundred and seventy five (275) copies of the questionnaire representing 91.6% were properly filled, returned and found useful for the analysis while twenty-five (25) representing 8.3% were either not returned or were found unusable. The overall response rate was 91.6% with the respondents from FUT Minna returning 82 (91.1%) of the questionnaires, University of Ilorin, 143 (95.3%) and University of Abuja, 50 (83.3%). The demographic breakdown of the respondents is indicated in table 1.

Table 2 indicated that 234 (85%) of the respondents accessed free Access e-journals, a good number of the respondents 200 (73%) accessed free-Access with print fee-based subscription. This was followed closely by 172 (63%) respondents that accessed exclusive fee-based subscribed e-journals and 141 (51%) respondents that accessed trial subscription/access e-journals. Only 70 (25%) of the respondents accessed Consortium Based E-journals. Results on this table indicated that majority of the academic staff (85%) accessed free access e-journals than the other types of e-journals available.

Table 3 revealed that over half 155 (56.3%) and 154 (56.0%) of the academic staff in North Central federal universities used e-journals frequently to find relevant information in area of study and for research (Dissertations and Thesis). Similarly, 150 (54.5%), 140 (50.9%), 137 (49.8%) and 102 (37.1%) of the respondents also frequently used e-journals for extensive literature review, article publishing and seminar presentation, to keep up to date in their fields of study and search for factual information respectively. Most of the respondents sometimes used e-journals to prepare lecture notes for teaching and for routine study 87 (31.6%) and 84 (30.5%) respectively. A sizeable number of the respondents rarely used e-journals for higher and professional examinations, 113 (41.1%). The results from table 3 indicated that the respondents used e-journals more for academic activities that are closely related to

**Table 1: Demographic Variables Breakdown**

<b>Discipline</b>	<b>No.</b>	<b>%</b>
Sciences	74	27
Agriculture	54	20
Education	47	17
Engineering	50	18
Management	50	18
<b>Total</b>	<b>275</b>	<b>100%</b>
<b>Gender</b>	<b>N</b>	<b>%</b>
Male	217	79
Female	58	21
<b>Total</b>	<b>275</b>	<b>100</b>
<b>Age</b>	<b>N</b>	<b>%</b>
21-30	36	13
31-40	106	39
41-50	110	40
Over 50	23	8
<b>Total</b>	<b>275</b>	<b>100</b>
<b>Teaching Experience</b>	<b>N</b>	<b>%</b>
less than 1 year	29	11
1-5 years	106	39
6-10 years	50	18
over 10 years	90	33
<b>Total</b>	<b>275</b>	<b>100</b>

**Table 2: Electronic Journal Type Mostly Accessed**

<b>S/N</b>	<b>Types of E-journals</b>	<b>(Frequency) N</b>	<b>Percentages (%)</b>
1.	Trial Subscription /Access E-journals	141	51
2.	Consortium Based E-journals	70	25
3.	Exclusive fee-based subscribed E-journals	172	63
4.	Free access E-journals	234	85
5.	Free-access with Print fee-based subscription	200	73

**Table 3: Extent of Use of E-Journals for Academic Activities (N=275)**

S/N	Academic activities	Never	Rarely	Sometimes	Frequently	Remarks
	N=275	Number (Percentage)	Number (Percentage)	Number (Percentage)	Number (Percentage)	
1.	Lecture notes for teaching	19 (6.9%)	63 (22.9%)	106 (38.5%)	87 (31.6%)	Sometimes
2.	Research (Dissertations and thesis)	4 (1.4%)	40 (14.5%)	77 (28.0%)	154 (56.0%)	Frequently
3.	Keep myself up to date in my field of study	12 (4.3%)	43 (15.6%)	81 (30.1%)	137 (49.8%)	Frequently
4.	Routine study	19 (6.9%)	78 (28.3%)	94 (34.1%)	84 (30.5%)	Sometimes
5.	Find relevant information in area of study	15 (5.4%)	29 (10.5%)	76 (27.6%)	155 (56.3%)	Frequently
6.	Article Publishing and seminar presentations	15 (5.4%)	31 (11.2%)	85 (30.9%)	140 (50.9%)	Frequently
7.	Extensive literature review	10 (3.6%)	43 (15.6%)	71 (25.8%)	150 (54.5%)	Frequently
8.	Search for factual information and answers to specific questions	14 (5.1%)	58 (21.09%)	101 (36.7%)	102 (37.1%)	Frequently
9.	Professional /higher degree examinations	51 (18.5%)	113 (41.1%)	64 (23.2%)	47 (17.1%)	Rarely

**Table 4: Source of Access of E-Journals Mostly Used (N=275)**

S/n	Sources of Access N=275	Not Used	Moderately Used	Highly Used	Very Highly Used
	N=275	Number (Percentage)	Number (Percentage)	Number (Percentage)	Number (Percentage)
1.	University Library Access	142 (51.6%)	77 (28.0%)	27 (9.8%)	29 (10.5%)
2.	Personal Fee-based Access	28 (10.1%)	78 (28.3%)	105 (38.1%)	64 (23.2%)
3.	personal Open Access	6 (2.1%)	57 (20.7%)	93 (33.8%)	119 (43.2%)

Table 4 revealed that majority [93 (33.8%) and 119 (43.2%)] of the respondents highly and very highly used 'personal open access' as a source of access of e-journals. A substantial number of the respondents [105 (38.1%) and 64 (23.2%)] respondents highly and very highly used 'personal fee-based access' as a source of access of e-journals. Only a very low [27 (9.8%) and 29 (10.5%)] of the respondents highly and very highly used the university library as a source of access of e-journals. The results in the above table indicated that open

access was the most used source of e-journals for academic staff of North Central federal universities. Another important finding to note was that access to this source was by personal effort and not through the university library.

**Hypothesis 1:** There is no statistically significant difference between the demographic variables and the most used source of access of E-journals by the academic staff in the area under study.

**Table 5: Statistically Significant Difference between the Demographic Variables of the Academic Staff and the Most Used Source of E-Journals.**

Ranks			
	Demography	N	Mean Rank
Open Access	Experience	126	126.92
	Discipline	112	141.41
	Age	37	165.42
	Total	275	
Test Statistics <sup>a,b</sup>			
	Open Access		
Chi-Square	8.130		
Df	2		
Asymp. Sig.	0.17		
a. Kruskal Wallis Test,			
b. Grouping Variable: Demography			

Rankings and significance level for Hypothesis one

research.

From table 5 above, (Chi-square value = 8.130,  $\alpha = 0.17$ ), the significance level 0.17 is greater than 0.05. This meant that no statistically significant difference was established between the demographic variables and the use of e-journals personally through Open Access. The null hypothesis 'There is no statistically significant difference between age, teaching experience, discipline and the personal access from open source by academic staff of North Central federal universities' was therefore supported.

**Hypothesis 2:** There is no statistically significant difference between the demographic variables and the extent of use of electronic journals by the

**Table 6: Statistically Significant Difference between Demographic Variables and the Extent of Use of E-Journals**

Ranks			
	Demography	N	Mean Rank
Extent of use for Academic activities	Experience	126	140.90
	Discipline	112	126.61
	Age	37	162.58
	Total	275	
Test Statistics <sup>a,b</sup>			
	Extent of use		
Chi-Square	6.052		
Df	2		
Asymp. Sig.	0.690		
a. Kruskal Wallis Test			
b. Grouping Variable: Demography			
Rankings and significance level			

Academic staff in the area under study.

From table 6 above, (Chi-square value = 6.052,  $\alpha = 0.690$ ), the significance level 0.690 is greater than 0.05. This indicated that no statistically significant difference was found between the demographic variables and the extent of use of e-journals for academic activities. The null hypothesis which states that 'there is no statistically significant difference between age, teaching experience, discipline and the extent of use of e-journals for academic activities by academic staff of North Central federal universities' was therefore supported.

## Discussion

Table 2 revealed that free access e-journals were the most used e-journal by the academic staff. This means the academic staff in North Central Nigeria used free access e-journals more than the other types of e-journals available. It should be noted however that some free e-journals available on the Internet change often as websites/pages that are available today may not be tomorrow. Attesting to this, Sherman and Price (2001) stated that most of the authoritative information accessible over the Internet is virtually invisible to search engines. According to Oladele (2013), the many pages returned from a typical GOOGLE search are visible web pages that present their contents in static HTML

or ASP and are capable of being fully indexed by crawlers that follow links on static web pages. Libraries should incorporate more fee-based e-journals to improve access since free access can be gotten outside the university libraries.

Table 3 showed that academic staff 'frequently' used electronic journals for academic activities related to research (dissertation/thesis, article publishing and seminar presentations, extensive literature review) and sometimes for academic activities related to teaching (Prepare lecture notes for teaching and for routine study). These further buttressed the importance of electronic journals for academic activities and thus the pertinence for academic libraries to re-strategise their access mediums.

Table 4 revealed that personal access (Open Access) was the most used source of access while the university library access was the least used source of accessing E-journals. This indicated that the academic staff in North Central federal universities used the different types of e-journals available to them through personal access. The implication of this situation is that the university libraries were not prompt in meeting the electronic information resources needs of their users which may be a reason why alternative sources of access of information resources are always sought after in developing countries like Nigeria when compared to developed countries where the university libraries were usually the first point of call (Khan, 2012). This finding is attested to by Oyedum (2011) in her study where she stated that 'the low use of university library resources can be attributed to the ready availability of alternative sources of information accessible outside the library through the Internet and other on-line sources'. Aina (2013) opined that Google has attempted to bypass the library by its 'GOOGLE SEARCH' as any user can perform a simple key word search and return the content that best matches the query. This situation can be said to be peculiar to developing countries as the Stanford eJUST study negates these findings when it stated that majority of life scientists and medical professionals drawn from Europe and the United States relied more on institutional access than personal access for their e-journal use. Khan (2012) study also corroborated the eJUST study as institutional online subscription was the major source

of accessing journals for research scholars and students in Aligarh Muslim University, India. An important point to note however was that having personal access to e-journals does not mean it is the most preferred source of access for them. Okiy (2010) citing Covi and Cragin corroborated this fact when they stated that in the last couple of years, students and lecturers in Nigerian tertiary institutions have increasingly demanded and preferred access to electronic sources delivery and networked information from their respective libraries. This implied that personal access as a source of access of e-journals is just an alternative mainly because of the inabilities of the university libraries to provide these resources.

Table 5 suggested that the nominal characteristics (age, teaching experience and discipline) of the academic staff of North Central federal universities made no difference in the use of e-journals personally from open access. Bashorun, Isah and Adisa (2011) study reported low usage and null significant difference across the faculties in the University of Ilorin Library subscribed E-journals. This meant that across the faculties in University of Ilorin, academic staff least use the university subscribed e-journals.

Table 6 showed that the nominal characteristics (age, teaching experience and discipline) of the academic staff of North Central federal universities made no significant difference to the extent of use of e-journals for academic activities. This further buttressed the importance of e-journals for academic activities and corroborated the study of Alhassan (2011) that found out in his research that there was no significant difference in the mean ratings of academics of agricultural sciences across age, gender and experience in the use of ICT for research in Nigerian federal universities. The implication of this is that over the years, e-journals had gradually become useful resources for their research needs for academic staff, irrespective of their nominal characteristics. This is particularly true for academic staff in developing countries like Nigeria as access to print journals, especially international journals, has become a challenge. This made E-journals a readily available alternative.

## Conclusion and Recommendations

The study discovered that there was high access and

use of personally subscribed e-journals as against the library subscribed e-journals. It is thus imperative on university libraries to provide more flexible platforms of access of their subscribed e-journals as e-journals have gradually become the main source of research information for academic staff.

Based on the findings of the study, the following recommendations are suggested:

1. Academic libraries should also take advantage of the open access policies of some publishers and databases to add to their e-journal holdings.
2. Nigerian Library Association should organise more training workshops for librarians on search and retrieval skills; modules may include effective search strategies, designing appropriate metadata and subject headings to enable easy retrieval, etc.
3. University libraries should retrieve usage statistics and mined data from the publishers or distributors of e-journals. These statistics should be studied in order to understand how well their e-journals are used and where researchers were focusing their researches. The statistical reports should follow recognised standards such as ICOLC (International Coalition of Library Consortia)'s Guidelines For Statistical Measures of Usage of Web-Based Information Resources and/or COUNTER (Counting Online Usage of Networked Electronic Resources)'s Code of Practice.

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