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# Access to Online Databases: Predicate for Faculty Research Output

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## **Access to Online Databases: Predicate for Faculty Research Output**

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### **ABSTRACT**

The study examined the role of access to online databases as the basis for faculty research output in six universities (comprising two each of federal, state and private) in two Southwestern states in Nigeria. A descriptive research design guided the study. Multistage sampling procedures including purposive, stratification, randomization as well as proportionate sampling techniques were employed to select 339 faculty members who provided the data for the study. The data were collected using a structured questionnaire. Of the 339 copies of the questionnaires administered, 89 per cent were retrieved fully completed and found usable. The research questions that guided the study were analyzed using inferential statistics. Findings revealed that HINARI, ProQuest, JSTOR, and EBSCOhost were the most regularly accessible online databases. Incessant power supply and lack of downloadable full-text posed the greatest threats to online databases access. Similarly, the study found that the provision of full-text of most relevant research materials, steady power supply and acquisition of information literacy skills were the most effective ways of addressing online databases access constraints. Accordingly, the study recommended adequate funding of university libraries, provision of alternative means of power generation and increased user education for maximum exploitation of subscribed databases.

**Keywords:** Access, Online databases, Faculty, Research output.

### **INTRODUCTION**

Research is a method of scientific enquiry by which, through careful and exhaustive investigation of all ascertainable evidences, bearing upon a definable problem, one can reach a solution to that problem (Connaway and Powell, 2010). It can also be described as a process of engaging in a systematic study in order to provide answers to questions, gain new insights on

knowledge, develop new products and initiate services. Thus, research is a studious activity engaged in by universities and other research-based institutions geared principally, towards the creation of knowledge needed for economic growth and sustainability. For optimum result, certain individuals with requisite academic qualifications and intellectual expertise are entrusted with the process. These individuals are sometimes referred to as Academics, Lecturers or Faculty; as this study chose to address them.

Through original research faculty contributes to the development of research or academic disciplines and institutions they are attached. All faculty in the teaching and research pathways are expected to spend significant amount of their time on research in order to remain research active—producing researches that are internationally excellent in terms of originality, significance and rigour. Faculty engagement in the production of quality research keeps them abreast with best international practices in their respective fields. Their engagement with civil society is integral to ensuring that Universities' academic activities have genuine economic, social, cultural and intellectual benefits. This engagement is not a separate activity, but derives from the scholarly activities of faculty staff. The research successes of these individuals directly predict the academic image and reputation of the academic institution they belong. Leaving no room for alternative viewpoint, Stern (2010) quoting Renee Kaswan, founder of IP Advocate, observed that "people care about the university because of faculty". Their research undertakings keep their universities and the society they belong current and informed.

One of the key criteria for ranking world class universities is quantity and quality of faculty research output (Times Higher Education, 2016); a factor that essentially determines universities' scholarly credibility and faculty promotion assessment. Besides other factors like information capacity, soundness of intellectual acumen, technology proficiency and research infrastructure, faculty research output, also depends greatly on access to available information resources due to their expediting influence on quality research (Iroaganachi and Izuagbe, 2018). Due to the proliferation of technology these resources are now being produced, packaged, disseminated and accessed electronically with the aid of technology. This development is both instrumental to the emergence of database technology and the spread of consortium building among confederating libraries/institutions. Currently, publishers/aggregators/vendors offer access to aggregated information resources in the form of online databases to libraries and other users through various subscription models — a trend that is rapidly replacing the print subscription models (Hielmcrone, Maiello, Bainton & Bonnet, 2012). The number of relevant online databases an institution subscribes to is a measure of its academic and research readiness. Examples of some online databases are: Web of Science, Emerald, Scopus, ScienceDirect, ProQuest, EBSCOhost, MEDline, IEEE and a host of others.

The provision of access to information materials underpins the subscription model—an arrangement where institutions rent 'access' to use online databases without physically or electronically possessing them and will remain so till the subscription contract terminates (Giordano, 2007). Access is a pathway to quality information; but when it is denied, developmental information is lost. Access is one's ability to locate key services at reasonable

cost, in reasonable time and with reasonable ease (House of Commons, 2013). It can also be described as the ability to get what one needs, ideally with a choice of destinations and using a choice of modes (Owen, Murphy and Levinson, 2015). In the context of this study however, access is the ability to locate and retrieve relevant research-based information from subscribed online databases by means of computer and telecommunication system from a remote location.

Hypothetically, access to research information and the eventual process output are correlated. In that, the quantity and quality of research output hinges on access. However, Nworgu (2006) in Attama (2013) argued that correlation does not necessarily translate to causation. In other words, the correlation between variable A and B does not mean variable A is a determinant of B, vice versa. In the same vein, access cannot be equated to use, as circumstances that determine each composed of varying factors. For example, Dadzie (2005) studied access and usage of e-resources at the Ashesi University College and found that the general use of computers for accessing information was high due to the University's level of ICT integration. However, usage of the subscribed academic databases was very low. Similar studies (Kwafoa, Imoro, Osman and Afful-Arthur, 2014; Egberongbe, 2011; Sharma, 2009) have also lend support for this position without recourse to the expediting influence of access. It is on this premise this study aims to examine faculty research output using online databases access as determinant.

### **Objectives of the study**

1. To find out faculty most accessible online databases for research purposes.
2. To identify faculty's constraints to accessing online databases.
3. To examine possible strategies for overcoming the identified constraints.

### **Research Questions**

1. What online databases are most accessible to faculty for research purposes?
2. What are the constraints faced by faculty in accessing online databases for research?
3. What are the possible strategies for overcoming the constraints faced by faculty in accessing online databases for research?

## **LITERATURE REVIEW**

### **Access and online databases**

Prior to the advent of databases, index card was man's system of storing data and information without recourse to organizing them. This system was highly restrictive because it has to be manned by a person (Kopal, 2015). The development of database according to the author dates back to 1950s. For Nisonger (2003) however, the development of databases stated in the late 60's with bibliographical databases, followed by CD-ROM databases in the late 80's then, online databases in the turn of the twenty-first century. Essentially, the need to structure data into more useful format for easy access and retrieval laid the foundation for the emergence of what we now know as online databases. The rapidity of today's data creation is further

triggered not only due to the advent of new technologies but because the demand for access to quality information has continued to rise across different strata of the society as the usefulness of databases is felt in every facet of our daily lives (Fortune, 2014). This is an innovation the author regarded as “the epitome of the everyday in digital society”.

With the emergence of online databases, libraries, especially academic, now focus more on resources than any other format available, a development that makes information cheaper, less time-consuming, more user-friendly, ease of access and use (Madhusudhan, 2010). Similar view has been shared by Pantry (1997) who opined that the emergence of digital resources has significantly reduced the cost of information and make access more effective than was previously possible. This position tallies with that of Nisonger (2003) who asserted that electronic journals, electronic books as well as full-text databases have emerged as essential sources of information by 1990. Obviously, online databases download capability has made electronic information resources cost cheaper per user when more users access and use them (Dolo-Ndlwana, 2013).

Online databases are collection of electronic information resources uniquely or generally organized to suit the information needs of researchers from specific or multidisciplinary subject fields. Simply, a database is an organized collection of data in the form of schemas, tables, queries, reports, views and other objects (Shaw Academy, 2018). Abubakar and Akor (2017) defined database as an organized collection of information. As the authors further observed, databases are often characterized by the type of information they contain—text, numbers or fields. Electronic databases have become a major element of library collections around the globe. They are essential for learning, teaching and research activities. Samaravickrama and Samaradiwakara (2014) opined that their impact on academic libraries and scholars is noteworthy and unprecedented. These databases are organized digital collections of references to publish literature such as journal articles, newspaper articles, conference proceedings, reports, legal publications, theses, e-books among others. E-databases are in different types such as bibliographic, full-text, directory and multimedia (Larson, 2017). Shaw Academy (2018) stratified databases into: centralized database, operational database, end-user database, commercial database, personal database and distributed database.

Whatever the nomenclature or stratification, online databases portend several advantages for students, academics and research scholars. The robustness of subjects covered and the extent to which access is provided to databases’ contents is a measure of the value derivable from the library. For example, the study of Tenopir and King (2007) reported how return on investment (ROI) for universities subscribed journal collections were determined using access as a measure. The study further revealed the correlation among access to e-journal collection, number of articles consulted per time and the time saved by faculty. Wahab, Shamsuddin, Abdullah and Hamid (2016) found that the quality of online databases determines faculty satisfaction and foster willingness for sustained use of same. This is not without quality access because it is not enough for information to be available or even accessible bibliographically; it must be physically accessible to those who need them in order to stimulate use.

Access and use are significantly correlated (Uzuegbu, Ugah, Nwosu and Aniedu, 2013). However, Turock and Gustav (2010) averred that access to information has evolved beyond ability to obtain same with the freedom to use it but include connections to computer networks with useful and usable content, resources and services with the later implying that users not only have the skill and knowledge needed to locate, retrieve and use information. Access to electronic information resources (EIRs) requires relevant search skills, employ appropriate URLs, and Internet Protocols (IP) to the host sites, and other technologies to access information therewith. It suffice to note as reported by Uzuegbu et al (2013) that there are EIRs that are not hosted in a public domain (Open source environment “free”) or purchased as (CD ROMs) which are not accessible unless they are properly subscribed to. These categories of sources are aggregated into databases. They could be individual journal sites, publishers’ or aggregators’ database sites. Some of them include; Emerald Library, ScienceDirect, Nature, IEEE, AGORA, EBSCOhost, Springer Link, HINARI, SCOPUS, WESTLAW, ILODOC, ProQuest, LISTA among many others.

Aregbesola and Oguntayo (2014) surveyed the level of awareness, frequency of access, motivations, use and constraints of databases among faculty members in Landmark University, Omu-Aran. It was revealed that having access to wide range of e-books and e-journals from various online databases such as ARDI, Bioline, AGORA, ScienceDirect and Ebrary (now Ebook Central which provides access to more than 400,000 e-books and other documents across all disciplines) to carry out research were the major motivations of faculty member’s use of electronic resources. In another study, Egle, Smeenge, Kassem and Mittal, (2015) observed that ease of access and searchability ranked top most important features of digital resources according to the participants of their study.

For access to online databases to occur, the following factors must be deliberately considered: *availability* (provision of relevant information), *affordability* (the state of being able to bear the financial and technological cost of needed information), *capacity* (ability to define information need, locate and evaluate same within the right context), *convenience* (ability to locate information with relatively less effort) and *safety* (it must information that do not portends significant danger or injury to the user). Obviously, a direct correlation exists between how well these factors are met and the level of access to online databases provided.

### **Access constraints of online databases**

Despite the numerous advantages ascribed to online databases and the resources they contained, the medium is beset with several hiccups that if not checked are capable of restricting access which in turn impede the success of academic and research undertakings among faculty. These constraints are numerous and can be broadly grouped into technological, infrastructural, structural, economic and competency some of which are discussed in this section.

Assessing the problems undergraduate and postgraduate students face in accessing e-resources for various research purposes at Makerere University, Uganda, Okello-Obura and Ikoja-Odongo’s (2010) findings showed that the respondents have positive attitudes towards e-

resources utilization. However, the problems identified with both groups of students include: slow Internet connectivity; inadequate networked computers; lack of access; inability to use advanced search strategies on most databases; and a lack of awareness of most of the e-resources. Obviously, the enormity of these challenges hinders access to research-based information on all fronts. With these constraints, the quantity and quality of respondents' research output will be greatly affected if the identified problems are not proactively addressed. In a similar study conducted by Aina (2014) to identify awareness level, accessibility and use of online databases among faculty members of Babcock University Business School, Ilishan-Remo, it was revealed that despite the huge financial commitments of the University to relevant online databases subscription, many of which faculty members are aware of are not accessible to them due to internet and power-related challenges.

Another challenge that is associated with online databases access is inflexibility of content transfer. By renting access to online database contents, interlibrary transaction is automatically discouraged among institutions with intention to share resources. Polanka (2011) opined that many database agreements forbid the transfer of contents to a third party. Furthermore, the renegotiation of prior usage of subscribed electronic resources does not take a third party into consideration (Undie, 2015). Prior studies (Metz, 2000; Connaway and Wicht, 2007) have attributed the inefficiency of e-contents sharing initiative to the non-inclusion of third party. However, Polanka (2010) argued that consortia-based subscription to electronic resources provides access to wider number of electronic information materials at substantially lower cost. The e-consortia model allows group of libraries to buy e-information (Vasishta and Navjyoti, 2011).

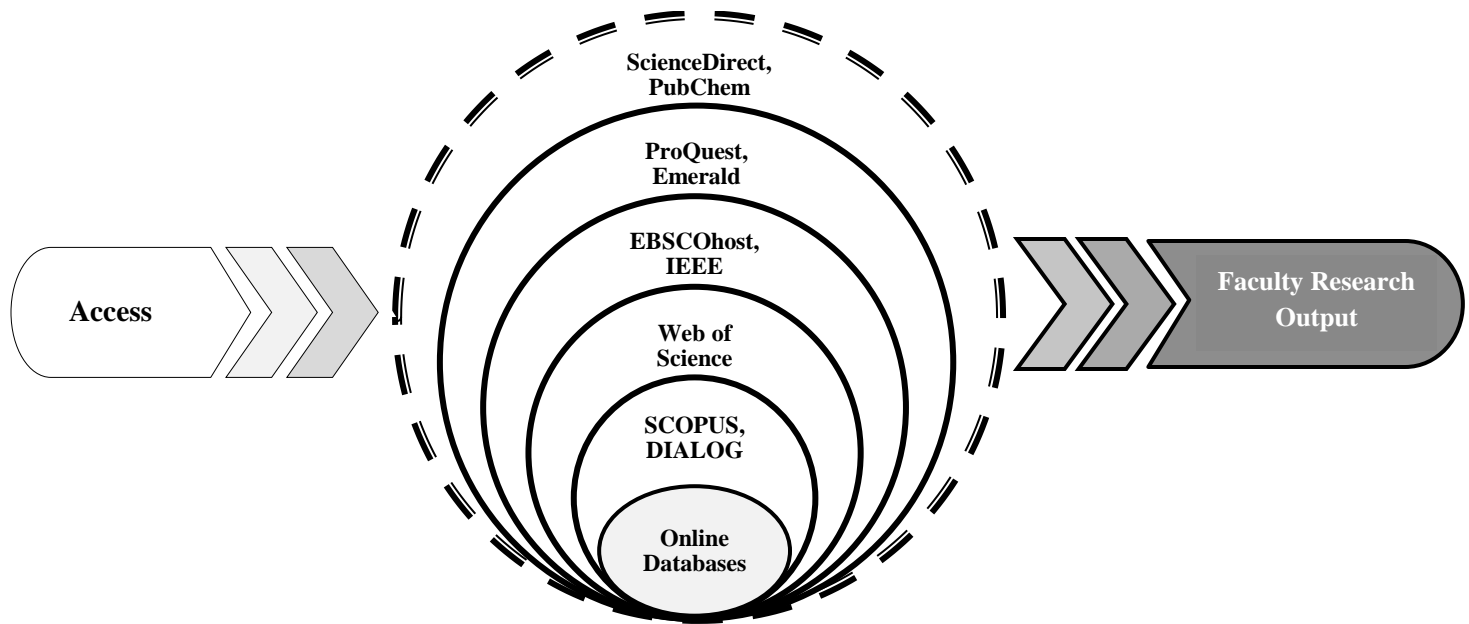
Access to online databases can also be restricted due to security authorization, or the inability to crawl portions of the web. In any of the cases, documents are inaccessible to the user or the system because of some limitations. With respect to the latter, for instance, the difficulties involved in navigating a web site may mean that certain documents are not indexed by the Information Retrieval (IR) system, and therefore are not accessible to the users via the same platform. It has been noted that the search ability of a web site would be affected by how easily pages can be crawled and how well the search engine matches and ranks them (Qiu, 2014). Thus, search ability becomes inevitable for accessing online databases. Possession of adequate search skills would afford faculty the confidence in using the full range of subscribed online databases and other digital resources they would need for scholarly undertakings, research inclusive. Whosoever wishes to take full advantage of the benefits that online databases offer must be technology savvy; that is the ability to manipulate and navigate both software and hardware to access needed electronic information (Issa, Amusan, Olarongbe and Akangbe, 2013).

Software and hardware incompatibility is another barrier that could impede access to online databases if not considered during the subscription contract. Quoting a blog post (Pooley, 2013); Kahn and Underwood (2013) reinstated the need for publishers to take into account the production of formats of digital resources that are researchers-friendly. The author noted further that because e-books are in most cases device-specific, some academics and researchers prefer

not to read them rather than struggling with their format. Incompatibility of devices for accessing online databases negatively affects access (Crosetto, 2011). With respect to e-book databases collection, the provision of sufficient work stations that promises adequate storage capabilities are crucial, otherwise, access to the database contents may be hindered (Kahn and Underwood, 2013). Since subscription to relevant online databases does not automatically translate to access and its eventual use, it therefore behooves libraries (who are usually saddled with such responsibility) to consider format compatibility prior to subscription.

Constant power supply is a prerequisite for accessing online database contents. In other words, without sustainable supply of electricity, access to subscribed databases will be hampered. This is a serious limiting factor in developing nations and until this issue is effectively addressed, a major challenge of accessing EIRs will continue to stare users from these parts of the globe in the face. Accordingly, Iroaganachi (2016) affirmed that availability of adequate power supply will facilitate access to electronic information resources. Regular power supply ensures both downloads and on-screen reading of information materials. Other issues that portend significant challenge to unhindered access to online databases as Uzuegbu (2012) reported from the study carried out at the Michael Okpara University of Agriculture library are: lack of professional skills, poor knowledge of open access by the university community, low commitment at the decision-making level of the University Community, internet access in the University library and space. Where the aforementioned challenges are prevalent, faculty research effort declines considerably. This in turn affects the scholarly image and credibility that universities have been trying to build overtime.





*Figure 1: Conceptual model for online database access and research output*

## METHODOLOGY

### Participants

A descriptive research design was adopted because it aims at analyzing the proposed variables in order to establish whether or not a correlation exists between access to online databases and faculty research output. In terms of variable and subject scope, twenty-five online databases (i.e. full-text and bibliographic) were covered with the former making up about 95 per cent. Also, faculty were drawn from across the following programmes: Agriculture, Computer Science, Education, Engineering, Sciences and Social Sciences.

### Procedure

In order to achieve good representation, the multistage sampling technique was applied. First, the Southwest geopolitical zone of Nigeria was purposively selected due to its high concentration of higher institutions. Next, universities in the region were stratified by ownership (i. e. federal, state and private). Based on this stratification, all the federal, state and private universities in the region stood equal chance of being selected from the distribution. Thirdly, the simple random sampling procedure of the ballot system was further employed to select two universities each from two states (i.e. Lagos and Ogun) as shown in Table 1. The population of faculty selected from the six universities across federal, state and private in the two states was 3,339. To finally reduce the population to manageable scope, the proportionate sampling technique based on 10 per cent (Aina, 2002) was used and this gave a sample of 339 faculty.

The variance of the entire population was determined using;

$$\sigma = \sqrt{\frac{\sum (x - \mu)^2}{N}}$$

Where  $x$  represents each value in the population,  $\mu$  is the mean value of the population,  $\Sigma$  is the summation (or total), and  $N$  is the number of values in the population.

The standard deviation of the sample was ascertained using:

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

Where  $x$  represents each value in the population,  $\bar{x}$  is the mean value of the sample,  $\Sigma$  is the summation (or total), and  $n-1$  is the number of values in the sample minus 1.

**Table 1. Distribution of responded universities by states and institution type**

S/N	University	Selected states		Total
		Lagos	Ogun	
1	Federal	University of Lagos, Akoka	Federal University of Agriculture Abeokuta	2
2	State	Lagos state University, Ojo	Tai Solarin University of Education, Ijebu-Ode	2
3	Private	Pan-Atlantic University, Ibeju-Lekki	Covenant University, Ota	2
<b>Total</b>		<b>3</b>	<b>3</b>	<b>6</b>

### Instrument

The questionnaire was adopted as the method of data collection. It was structured to enable the study collect data on faculty responses vis-à-vis access to online databases and faculty research output. It was administered on the respondents and retrieved by the researchers. For access to online databases, the instrument was designed on a 4-point scoring scale weighted as follows: Regularly Accessible (RA) = 4, Occasionally Accessible (OA) = 3 points, Never Accessible (NA) = 2 points and Unfamiliar With (UW) 1 = point. This was to enable the study determines the level to which the examined online databases are accessible by faculty in the universities studied. For constraints to online databases access and possible strategies for overcoming the constraints faced by faculty in accessing online databases for research, Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1 were used to ascertain respondents' level of agreement to the items generated. Of the 339 questionnaire administered, 298 representing over eighty-nine per cent were duly completed and returned.

## Data analysis

The study adopted the inferential statistical analysis; data were presented in tables in simple percentage, mean and standard deviation using real limit of number principle. Also, responses were ranked and decision taken based on the measurement scale adopted. Findings were discussed in relation with the objectives and research questions.

## Analysis of findings

**Research question 1:** What online databases are most accessible to faculty for research purpose?

**Table 2:** Mean and standard deviation scores of respondents on the most accessible online database among faculty

S/N	Online databases	School Ownership						Overall		R	D
		Federal		State		Private		Mean	SD		
		Mean	SD	Mean	SD	Mean	SD	Mean	SD		
1	HINARI	3.25	.82	3.19	.92	3.15	.86	3.21	.87	1 <sup>st</sup>	RA
2	ProQuest	3.14	.79	3.18	.87	3.29	.80	3.19	.83	2 <sup>nd</sup>	RA
3	JSTOR	3.06	.92	3.18	.91	3.28	.80	3.16	.90	3 <sup>rd</sup>	RA
4	EBSCOhost	3.21	.95	3.10	.99	3.09	1.03	3.14	.98	4 <sup>th</sup>	RA
5	OARE	3.06	1.04	3.11	.90	2.94	1.13	3.07	.98	5 <sup>th</sup>	RA
6	BioOne	2.94	.93	3.16	.85	2.94	.95	3.05	.90	6 <sup>th</sup>	OA
7	AGORA	3.01	.89	3.09	.81	2.76	.99	3.01	.87	7 <sup>th</sup>	OA
8	PubChem	2.95	1.09	2.98	1.01	3.09	.83	2.99	1.01	8 <sup>th</sup>	OA
9	MedlinePlus	3.00	.97	3.03	.94	2.79	1.04	2.98	.97	9 <sup>th</sup>	OA
10	WESTLAW	2.93	1.00	2.90	1.08	3.21	.81	2.96	1.02	10 <sup>th</sup>	OA
11	ASCE Library	3.04	.92	2.96	1.05	2.68	1.09	2.95	1.01	11 <sup>th</sup>	OA
12	EMBASE	2.85	1.06	2.95	.90	3.06	.74	2.93	.94	12 <sup>th</sup>	OA
13	Europe PMC	2.84	.96	3.06	.97	2.62	.99	2.92	.98	13 <sup>th</sup>	OA
14	African Journals OnLine	2.79	1.03	3.04	.93	2.82	.97	2.92	.97	14 <sup>th</sup>	OA
15	Springer Link	2.95	.98	2.92	1.08	2.79	1.15	2.91	1.06	15 <sup>th</sup>	OA
16	PsycINFO	2.88	1.04	2.92	1.00	2.85	.96	2.89	.90	16 <sup>th</sup>	OA
17	ERIC	2.70	1.06	2.95	1.01	3.03	.87	2.87	1.01	17 <sup>th</sup>	OA
18	ScienceDirect	2.95	1.02	2.88	1.06	2.59	1.18	2.86	1.07	18 <sup>th</sup>	OA
19	SCOPUS	2.69	1.09	2.82	1.14	3.15	.86	2.82	1.09	19 <sup>th</sup>	OA
20	AGRICOLA	2.91	1.02	2.65	1.15	2.76	1.26	2.76	1.12	20 <sup>th</sup>	OA
21	OCLC FirstSearch	2.86	1.00	2.75	1.02	2.41	1.10	2.74	1.04	21 <sup>st</sup>	OA
22	Ebook Central	2.65	1.09	2.70	1.04	2.76	1.05	2.69	1.05	22 <sup>nd</sup>	OA
23	Emerald	2.54	1.24	2.60	1.26	2.76	1.26	2.60	1.25	23 <sup>rd</sup>	OA
24	Web of Science	2.70	1.26	2.48	1.28	2.53	1.24	2.57	1.26	24 <sup>th</sup>	OA
25	IEEE	2.23	1.23	2.65	1.22	2.56	1.16	2.48	1.23	25 <sup>th</sup>	NA
<b>Cluster Mean</b>								<b>2.91</b>	<b>.78</b>	<b>OA</b>	

\*N = 298; R = Ranking; D = Decision

Table 2 showed the mean ratings of the respondents on access to online databases by faculty staff of the selected universities. Using real limit of number principle, the results of the

data analysis showed that HINARI (Mean = 3.21), ProQuest (Mean = 3.16), JSTOR (Mean = 3.19), and EBSCOhost (Mean = 3.14) were the most regularly accessible (RA) online databases as the overall mean ratings suggest with HINARI leading the pack. In contrast, Web of Science (Mean = 2.57), Emerald (Mean = 2.60) and Ebook Central (Mean = 2.69) and a host of others were occasionally accessed (OA). Regrettably, IEEE (Mean = 2.48), a very rich online database containing quality research materials in the field of computer science, electrical electronic engineering and allied disciplines was never accessed (NA) hence; it was ranked least among the databases distribution. By institution the same line of responses were obtained when respondents from federal and state universities identified HINARI (Mean 3.25 and 3.19 respectively) as the most accessible online databases, while those from private universities identified ProQuest (Mean = 3.29) as the most accessible online database.

**Research question 2:** What are the constraints faced by faculty in accessing online databases for research?

**Table 3: Mean and standard deviation scores of respondents on the constraints to online databases access**

S/N	Items	School Ownership						Overall		R	D
		Federal		State		Private		Mean	SD		
1	Incessant power supply	3.25	.82	3.19	.92	3.15	.86	3.21	.87	1 <sup>st</sup>	A
2	Unavailability of full-text of most relevant materials	2.94	.93	3.16	.85	2.94	.95	3.05	.90	2 <sup>nd</sup>	A
3	Unsteady access to the web	3.00	.97	3.03	.94	2.79	1.04	2.98	.97	3 <sup>rd</sup>	A
4	Expensive subscription fee for some materials	3.04	.92	2.96	1.05	2.68	1.09	2.95	1.01	4 <sup>th</sup>	A
5	Slow servers	2.85	1.06	2.95	.90	3.06	.74	2.93	.94	5 <sup>th</sup>	A
6	Lack of techniques to retrieve most relevant information	2.84	.96	3.06	.97	2.62	.99	2.92	.98	6 <sup>th</sup>	A
7	Low computer operating skills level	2.79	1.03	3.04	.93	2.82	.97	2.92	.97	7 <sup>th</sup>	A
8	Inability to use the computer for long period	2.70	1.06	2.95	1.01	3.03	.87	2.87	1.01	8 <sup>th</sup>	A
9	Lack of awareness of the availability of needed information	2.68	.95	2.72	1.07	2.76	.96	2.71	1.01	9 <sup>th</sup>	A
10	Work overload/internet connectivity	2.65	1.09	2.70	1.04	2.76	1.05	2.69	1.05	10 <sup>th</sup>	A
<b>Cluster Mean</b>								<b>2.92</b>	<b>.45</b>		<b>A</b>

\*N = 298; R = Ranking; D = Decision

Table 3 revealed the mean ratings of the respondents on the constraints to online databases access among faculty. Typical of developing countries, incessant power supply (Mean = 3.21) top the items identifying constraints to online databases access. Next is unavailability of full-text of most relevant materials (Mean = 3.05), unsteady access to the web (Mean = 2.98) and expensive subscription fee for some materials (Mean = 2.95). On institutional bases however, the position of respondents in relation to the order differ slightly. For example, unavailability of full-

text of most relevant materials was not rated as the second most challenging constraint to online databases access among respondents in federal and private universities. Observably, the issue of inadequate skills required to effectively access these resources is common among faculty in state universities than their federal and private universities counterparts. Overall, the table indicated that faculty from the three institutional types surveyed unanimously agreed (A) that the items pose significant threat to online databases access.

**Research question 3:** What are the possible strategies for overcoming the constraints faced by faculty in accessing online databases for research?

**Table 4: Mean and standard deviation scores of respondents on possible strategies for overcoming the identified access constraints to online databases**

S/N	Items	School Ownership						Overall		R	D
		Federal		State		Private		Mean	SD		
1	Provision of full-text of most relevant materials	3.21	.96	3.11	.94	3.35	.77	3.18	.93	1 <sup>st</sup>	A
2	Provision of steady power supply	3.11	.91	3.25	1.20	3.03	.87	3.17	3.11	2 <sup>nd</sup>	A
3	Reduced subscription fee for all online databases	2.89	.99	3.10	.97	2.94	1.01	3.00	.98	3 <sup>rd</sup>	A
4	Steady access to the web	2.98	.95	2.93	.98	3.29	.91	3.00	.97	4 <sup>th</sup>	A
5	Training on acquisition of information literacy skills	2.91	.94	3.02	1.03	3.03	.97	2.98	.99	5 <sup>th</sup>	A
6	Provision of high quality information on the web	3.10	.88	2.90	.99	2.88	.95	2.97	.95	6 <sup>th</sup>	A
7	Provision of increased internet bandwidth	2.95	.88	2.88	1.05	2.71	.84	2.88	1.01	7 <sup>th</sup>	A
8	Development of good staying power with the computer for longer period	2.69	1.07	2.81	.96	2.91	.97	2.78	1.05	8 <sup>th</sup>	A
9	Training on improvement of computer operating skills	2.76	1.07	2.72	.84	2.68	.97	2.73	1.10	9 <sup>th</sup>	A
10	Awareness creation of the availability of needed information	2.60	.84	2.54	.78	2.76	.96	2.60	.76	10 <sup>th</sup>	A
<b>Cluster Mean</b>								<b>2.63</b>	<b>.83</b>	<b>A</b>	

\*N = 298; R = Ranking; D = Decision

Table 4 revealed the mean ratings of the respondents on strategies for overcoming the challenges faced by faculty when accessing online databases. Overall, the provision of full text of most relevant materials (Mean = 3.18) ranked highest among the distribution. This is followed by provision of steady power supply (Mean = 3.17), reduced subscription fee for all online databases and training on acquisition of information literacy skills (Mean = 3.00) respectively. On the other extreme, awareness creation of the availability of needed information (Mean =

2.60), training on improvement of computer operating skills (Mean = 2.73) and development of good staying power with the computer for longer period (Mean = 2.78) ranked least respectively, suggesting that they are not serious constraints affecting online databases access. The institutional mean ratings differ significantly from the overall. For faculty in state universities, the provision of steady power supply (Mean = 3.25) stood out as way of addressing online databases access constraints. Also, steady access to the web (Mean = 3.29) ranked second according to faculty in private universities.

## **DISCUSSION OF FINDINGS**

Research question one sought to identify the most accessible online databases for research purposes among faculty in selected federal, state and private universities in Southwest Nigeria. According to analysis, HINARI, ProQuest, JSTOR , and EBSCOhost were the most regularly accessible among the examined online databases. By implication, online databases that provide free or low-cost online access to information resources for researchers, especially in developing countries constitute about 50 per cent of the regularly accessed online databases to faculty members in the studied universities. This finding contradict that of Iroaganachi and Izuagbe (2018) who found that Google Scholar, Springer Link, Emerald, MyLibrary are the most utilized electronic information resources databases by academic staff for research in Southwest Nigeria. Though, the focus of the study was not to determine access (as the current study intends) but utilization. However, studies (Abubakar and Akor, 2017; Aina, 2011; Angello, 2010) have established that it is access that gave rise to use. In other words, prior to the identification of the most utilized databases, individuals must first gain access to them. By inference therefore, the research information contained in some of the reputed online databases like IEEE, Web of Science, Emerald, ScienceDirect and Springer Link are either occasionally accessed (OA) or not accessed at all (NA) by faculty. This position is very true of faculty in federal and state universities as findings revealed. Inability to access quality online databases equals denial of quality research information.

The knowledge-base of a faculty who is not engaging in research becomes obsolete for lack of up-to-datedness that comes as a result of quality research that makes the academia. Without the acquisition of new knowledge, research and quality articles published in reputable journals, a faculty will remain stagnated allowing secondary illiteracy to set in. Provision of unhindered access to online databases is thus a useful way of equipping faculty, postgraduate students or other persons who are expected or desire to maintain a close professional understanding of current developments in scholarship in their subject fields.

Research question two attempted to unearth the constraints to online databases access for research purposes among faculty. Typical of developing countries, incessant power supply posed the greatest threat to online databases access among faculty. This result tallies with that of Attama (2013) who revealed that the most inhibiting factor to e-resources utilization by academics is lack of adequate supply of power. On the role of constant electric supply to sustainable development, Ekundayo and Ekundayo (2009) reported that incessant power

supply/interruption in Nigeria is a perennial challenge plaguing almost every aspect of the nation's economy; education inclusive. Nine years down the line, the outcome of the current study shows that the situation has not changed. This infrastructural deficit may compel faculty to settle for print resources, a choice capable of limiting speed, quality and quantity of research output. This is because, online database contents have the ability to provide faster and easier access to current information anywhere (Iwehabura, 2009).

In a descending order of importance, unavailability of full-text of most relevant materials, unsteady access to the web, expensive subscription fee for some materials are other prominent inhibitors of online databases access as analysis revealed. These results showed that faculty are hindered by gamut of challenges in the course of accessing online database contents. Moyo's (2004) study attempted to ascertain users' expectations from their respective libraries. Top on the list of endless items, access to full-text or downloadable or printable resources ranked highest. Carr and Wolfe (1999) had earlier reported that full-text databases are perceived as prohibitively expensive for a single institution. Yi (2018) also revealed that access to databases is impeded due to high subscriptions that take up significant proportion of academic library budget. Where universities lack the financial commitment, they become destitute of high-quality research information sources (Brooks, 2010). If this constraint applies to universities in the developed world where these scenarios were inferred, less is expected of their developing counterparts.

Lack of access to full-text or recent materials as faculty have indicated shows inability to subscribe to quality full-text online databases by their respective universities. With respect to unsteady access to the web, Abubakar and Diyoshak (2015) found that when access to information resources on the internet is unavailable, scholarship suffers. They further observed that steady internet access expedites reference librarians' answers to faculty research queries that may arise in the course of undertaking research. When research materials are not handy due to failure of communication and electrical infrastructure (UNICEF, 2017), the flow of research ideas is hindered and distorted. The Science and Technology Options Assessment (2015) had also attributed unsteady access to the web as one of the constraints to the inefficiency of health systems in developing countries.

For research question three that aimed at identifying possible strategies for overcoming the constraints faced by faculty in accessing online databases, the study found that the provision of full-text of most relevant materials, steady power supply and training on acquisition of information literacy skills were the most effective ways of addressing online databases access challenges. The finding indicated in part that beside the free or low-cost databases examined, most of the quality subscription-based databases surveyed are out of reach to most of the faculty hence; they are appealing for reduction of subscription fee to promote access. This position of faculty is congruent with Izuagbe's (2017) recommendation of consolidating electronic information resource packages for homogeneity thereby increasing affordability to encourage e-resources inclusion in academic libraries. The issue of inaccessibility of full-text online databases to faculty is somewhat worrisome and needs urgent attention, because quality research materials are required for a robust knowledge creation and acquisition, especially from databases

that are duly subscribed to by institutions. If the full-text will not be made available then such should be included only in databases of abstracts. Also, steady power supply for effective utilization of Programme for Enhancement of Resources Initiative (PERii) electronic journals at the University of Dar es Salaam, Tanzania and acquisition of information literacy skill for judicious accessibility and use of online databases have proffered by Katabalwa and Underwood (2017) and Daramola (2016) respectively.

## RECOMMENDATIONS

From the findings emanating from the study, the following recommendations are made:

1. **Adequate funding of university libraries:** To ensure the availability of quality research materials from full-text online databases, governments at the federal and state levels (for federal and state-owned universities) as well as the parent bodies of private universities should ensure increased subscription to relevant downloadable full-text online databases. This is achievable by increasing the annual allocations for universities so that a reasonable percentage of such allocation can be spent on the development of libraries and relevant infrastructures.
2. **Cooperative resources sharing:** Running university libraries can be capital intensive such that most times overwhelm the capacity of individual institution. Thus, university libraries should engage in consortium-building with the aim of sharing resources to promote research among confederating institutions.
3. **Provision of constant electricity:** Regular electricity is sacrosanct for powering internet and other ICT infrastructures in order to guarantee constant access to online databases. Thus, university funding authorities should provide alternative means of power generation, particularly, for their libraries through the provision of generating plants or inverter/solar system to ensure continuous access to both academic and research information resources by faculty and research scholars. Similarly, Nigeria university libraries should engage in the development of ICT infrastructure such as increased bandwidth that is necessary for connecting to the internet for ensuring access to online databases which is of utmost important to faculty/university research output.
4. **Increased user education:** Universities libraries should intensify effort towards organizing proactive regular information literacy drills for faculty to ensure maximum exploitation of subscribed databases for groundbreaking research.

## CONCLUSION

The study examined the correlation between access to online databases and faculty research output and its attendant impact on scholarship. Affirmatively, the study established in



general terms that the overall success of faculty research undertakings is predicated on the quality and quantity of availability of research materials and the level of access provided. More specifically, judging by the scoring pattern adopted in the study, faculty level of access to the surveyed online databases in federal, state and private universities in Lagos and Ogun States can be best described as “occasional”. This was empirically supported by the results of data analysis, discussed side-by-side with extant literature. The disturbing consequences the outcome of this study portend for scholarship is a wake-up call for universities that want to live up to their name, status and expectation, to ensure the availability of institution-research focused online databases as well as providing adequate access to them.

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