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# A Comparative Analysis of the Impact of Electronic Information Resources Use Towards Research Productivity of Academic Staff in Nigerian Universities

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## Introduction

The university is an institution of higher learning that provides facilities for teaching/learning, research, community service/application and is authorized to grant academic degrees; specifically, one made up of an undergraduate division which confers bachelor's degrees and a graduate division which comprises a graduate school and professional schools each of which may confer master's degrees and doctorates (Webster, 2010). However, it is important to understand that universities are not set up simply as degree mills to produce students in learning centers, but primarily to do research, and disseminate outcomes and propagate innovation through the society (Ibidapo-Obe 2012). Thus, the university is dedicated to providing academic, staff, and students with an environment and infrastructure that help them develop potentials for scholarship, creative work, professional realization, and services that culminate in its objectives of building a total man, by impacting knowledge, skills and capacity to identify problems in the society and proffer solutions to them (Obayan, Awonuga, & Ekeayanwu, 2012). To achieve the enormous objectives of the university therefore, different category of staff are recruited and retained to discharge required assignments. Basically, the entire staff make-up in the university system can be categorized into four major groups which include: administrative, Lab-technologists/attendants, security and academic staff — who form the crux of this study.

Academic staff are solely responsible for activities such as teaching and research, teaching and scholarship or research and innovation which represent their career pathways (Kulno, 2016). Academic staff are adept scholars thus very knowledgeable in their subject areas, has personality attributes that promote rapport with students, they are organized, deliver well prepared lectures, humane, give out handouts and extra reading materials, fair and actively engage students in the learning process (Kamla, 2011). Madu (2012) asserted that academic staff are evaluated for promotion every three and four years for both junior and senior levels based on their research productivity (output) especially in the form of publications made in referred works and patents. In this way, academic staff generate knowledge and information classified and packaged into different mediums for onward dissemination.

Information resources occupy a prominent place in promoting academic staff research activities. As such, a university library must not only be well equipped with relevant resources but see to its responsibility of ensuring that the use of such information sources are maximized to the benefit of its patrons. This will be attained by providing not just printed resources but having a stake in the provision of the electronic version commonly referred to as Electronic Information Resources (EIRs). As the name suggests, they are resources in electronic format that can only be accessed with the use of a computer/network technology while some must be accessed through the internet. Owolabi, Ajiboye, Lawal and Okpeh (2012) observed that EIRs have increasingly become an invaluable asset in education, research, teaching and learning. They noted that EIRs have transformed the conduct of research and teaching in universities by allowing Academic staff opportunity for accessing a wide range of accurate and timely information on various subjects. EIRs are highly important teaching and research tools, which complement print-based resources and enhance the learning and research processes in any academic institution (Iroaganachi, 2016; Dadzie, 2005). They comprise digital learning objects selected and organized to facilitate their discovery, access, and use (National Information Standards Organisation, 2008).

EIRs are those resources that were either digitized or created electronically (born digitally) and can only be accessed with the aid of electronic systems and networks (Haridasan and Khan, (2009). They also consists of data (information representing numbers, text, graphics, images, maps, moving images, music, sounds etc.), programs (instructions etc., that process the data for use), or combinations of data and programs in a digital format (Jewel, 2010). More comprehensively, EIRs include: e-journals, e-books, online public access catalogues (OPAC), Web public access catalogues (WebPAC), CD-ROM, electronic mails, E-Data archives, E-Manuscripts, E-Maps, E-Magazines, E-Thesis, E-Newspaper, E-Research Reports, E-Bibliographic Databases, E-Reference sources and other educational sources that are valuable to scholars and researchers. The research potentials of these sources, when effectively utilized, impact the research productivity of academic staff in no small way (Uhegbu, 2007).

Electronic information resources use depends absolutely on relevance to the academic or research need at hand. Therefore utilization of electronic information is a way of using the information on the varied field which has been accessed for meeting the desired need of academic staff beneficially. Uhegbu (2007) defined information use as the actual putting of the acquired information into appropriate context. For any electronic information to be utilized, it must be relevant to the need of the user thus, utilization of information by any clientele is influenced by the kind of job done, profession or function one performs. The advent of EIRs has not only influenced the way students and scholars conduct research, it has also changed their perception and use of the library and its resources. EIRs have become popular and “must use” among academic staff and research scholars due to their ability to report research findings more timely and allow remote access without geographical limitations. Despite the acclaimed advantages, individuals’ views and perception about their research potentials vary greatly, thereby determining the impact of their usage on research output.

### **Statement of the Problem**

Research is a critical and creative investigation that is carried out systematically and rigorously with the aim of extending the frontiers of knowledge or solving specific practical or theoretical problems. Thus, it is one of the basic activities required for an academic staff to be regarded as such because the quality and quantity of his/her research productivity determines his or her worth. Their career progression, appointments and tenure promotions, local and international recognition including institutional assessments and rankings is also dependent on their research productivity. Consequently, they needs to conduct research regularly in other to meet the requirement for their desired progress as there can be no successful academic career without significant progress in their research endeavors.

In Nigeria, universities are broadly categorized into three clusters by ownership—federal, state and private. A further classification could be public and private. The general objective of providing high level education/manpower of these universities notwithstanding, the rationale underpinning their establishment differs significantly—while that of private universities cannot be divorced from profit, those of federal and state are not. Evidence therefore abounds that the level of financial attention given to Nigerian universities hinges on their parent institution’s financial status, which in turn, determines the attention given to teaching equipment, learning aids as well as investment in research activities and resources. Thus, the quality of academic and

research productivity of academic staff is greatly dependent on availability of fund and facilities/resources provided to support such activities.

Obviously, several studies within the Nigerian universities context have been carried out to examine the impact of EIRs use on the research productivity of academic scholars from different standpoints. While some of these undertakings focused on federal and or state universities (e.g. Madu, 2012; Popoola, 2008; Egberongbe, 2011; Owolabi, 2012; Oduwole & Sowole, 2006.), others x-rayed the scenario from the private universities perspective (e.g. Izuagbe, Hamzat and Joseph, 2016; Aregbesola & Oguntayo, 2014; Fasola, 2013). However, very serious effort has not been made to empirically survey this phenomenon across federal, state and private universities. It is against this backdrop that this study sets out to comparatively analyze the effect of electronic information resources use on academic staff research productivity in selected federal, state and private universities in South-west Nigeria.

### **Objective of the Study**

The objectives of the study are to:

1. ascertain academic staff motivation for using EIRs for research in South-west Nigeria;
2. determine the most utilized EIRs databases for research among academic staff in South-west Nigeria; and
3. identify ways EIRs use have impacted academic staff research productivity in South-west Nigeria.

### **Research questions**

1. What is academic staff motivation for using EIRs for research in South-west Nigeria?
2. Which are the most utilize EIRs databases for research among academic staff in South-west Nigeria?
3. Which ways have EIRs use impacted the research productivity of academic staff in South-west Nigeria?

### **Literature Review**

#### ***Academic staff and research productivity***

Academic staff refers to lecturers or faculty of a university, not precluding librarians. The Higher Education Statistics Agency (HESA) (2009) defined academic staff as academic professionals who are responsible for planning, directing and undertaking teaching and research within the higher institutions of learning. They also include vice-chancellors, medical practitioners, dentists, veterinarians and other health care professionals who undertake lecturing or research activities as well as Librarians. They are most resourceful for the realization of the teaching, learning, research, and community services responsibility of the university. Nkosi et al (2012) observed

that the duty of academic staff is basically that of providing education to students and emphasized the fact that without them, education and research successes in the academic world would be impossible.

Research is a systematic investigation and organized quest for the expansion of the frontiers of knowledge. In other words, research is the process of creating new knowledge or new insights on knowledge, or unlocking knowledge (Ibidapo-Obe, 2010). Apart from research institutes, the university is the place where research is prioritized. In that, it a veritable instrument for exploring problems, experiences, actual situation of events and phenomena which provides outcomes or results that reveal the forces, challenges and reasons behind same and proffers solutions to the issues (Blewitt 2015). Research in the universities is more rooted and more spirited than in the non-university sector and, quite often, borders on basic research, especially in the conventional universities.

According to Harman (2010), research productivity is the outcome of any research endeavor which determines academic staff efficiency and is measured by a number of factors such as: the number of publications produced over a period of time, teaching quality as well as soundness of intellectual acumen. Popoola (2008) corroborated this position when he affirmed that research productivity is one crucial factor in the determination of academic efficiency of academic staff. These assertions aligned perfectly with the regulations of the Nigerian Universities Commission (NUC), which state that academic staff shall be evaluated for promotion every three and four years for both junior and senior levels as the case may be with their research publications in referred works being the dominant factor (Madu, 2012). Thus, research production is a vital requirement in any academic discipline as well as essential for the growth of every academic career progression among professionals.

Basically, research in the university cut across individual research, institutional research, commissioned or contractual research, collaborative research and student research. Wherever the focus lies, the quality of these endeavors is a major determinant of efficiency and productivity in the academia. As a result, quality research in the digital age is unattainable without effective utilization of quality information and information resources. This scenario greatly favors the use of EIRs among scholars against print resources for research purposes. Similarly, scanning through the conventional card catalogues for research materials has long receded into history due to the facilitating potentials of EIRs in meeting time-bound research. Thus, researchers now utilize the plethora of EIRs for research more frequently due to speed of availability and ease of access (Noreh, 2009).

### ***Electronic information resources use and research productivity***

Electronic information resources (EIRs) can either be materials born-digitally or printed materials that were converted (digitized) into electronic format including those with rare or unique content or institution-specific resources such as university records and grey literature. They can either be subscribed to (proprietary), bought, donated or open sourced and preserved for retrieval. Such collections can either be access online or offline and may include multimedia as well as multilingual resources. Before now, EIRs were widely found in the form of text and images. In recent time however, audio, video, and interactive materials are fast taking on

electronic form, either digitally generated and/or converted from older materials into various machine-readable formats (Das & Maharana, 2013) due to their research value.

The findings of research, presented in descriptive statements are usually widely disseminated at the end of a cycle, for other researchers in the field to be able to react to the study. This is due to the fact that research in the academic environment is generally not regarded as complete until it is widely disseminated (Aina, 2002) through various scholarly communication channels like online databases, e-journals, e-conference proceedings, e-report etc. Thus, the role of EIRs in the facilitation of research and intellectual discourse is phenomenal due to the pace with which EIRs have been integrated into the research and learning models in the university environment (Budu, 2015). The study of Madhusudhan (2008) showed that research scholars' use of UGC – Infonet e-journals has created high dependency value on their research effort. In the same vein, Egberongbe's (2011) study revealed that 90.6 and 80.0 per cent of lecturers and research scholars who constitute the majority in the study indicated preference for e-journals among the EIRs types covered in the study.

Oduwale and Oyewumi (2010) posited that the frequency of EIRs use fosters research-based decision-making. EIRs are pivotal in enhancing research, development activities and improving the intellectual productivity of an individual (Kumar & Singh, 2011). The authors reported further that EIRs use is expanding boundaries to a greater extent in the fulfillment of individual research objectives. As a result, awareness of these resources among academic staff is widespread. For example, Khan (2008) studied the use of e-journals by research scholars at Aligarh Muslim and Banaras Hindu Universities. The findings revealed high awareness of EIRs among research scholars who largely use them for research purposes. Similar result was obtained by Sinha and Sarkar (2010) who examined the search pattern of online resources among academic staff, research scholars and postgraduate students of Assam University, Silchar, India.

Several research strings have found a positive correlation between EIRs use and quality of academic staff research productivity. For example, Nawe and Kiondo (2005) affirmed that research quality had improved significantly with the use of EIRs globally. Manda and Nawe (2009) shared similar views when they reported that the relationship between quality and quantity of research is influenced by a number of factors such as, the nature of the organization, individual attributes, available infrastructure and technological innovations. (Ugwu and Onyegiri, 2013) also inferred from literature that there is a positive relationship between the EIRs use and improvement in the quality and quantity of research produced by universities and research institutions.

To adequately support academic staff research endeavors, academic libraries strive constantly to subscribe to relevant online databases with a view to justifying their existence and making their presence felt on a global scale, to maintain relevance in the digital era. In other words, academic libraries now engage in extensive collection building and proactive services development in order to make them available and accessible to users beyond the four walls of a building complex. EIRs are highly valuable teaching and research tools, which complement print-based resources and enhance the learning and research processes in any academic institution (Iroaganachi, 2016; Dadzie, 2005). Thus, EIRs are crucial in enhancing both academic and research productivity of individuals if they are proactively taken advantage of.

## Methodology

### Procedure

The study employed survey design of correlational type. A survey design of correlational type determines whether or not and to what degree a relationship exists between two or more quantifiable variables (Nworgu, 2006 cited in Attama, 2013). This study seeks to establish the relationship (if any) between EIRs use and academic staff research productivity. Thus, the adopted research design is justified. Furthermore, the multi-stage sampling procedure was used since the study plans to do multiple selections of samples from the population size comprising federal, state and private universities in the South-west geopolitical zone of Nigeria with emphasis on Lagos and Ogun states respectively. These states pride some of the best universities in the region and the country in general. As a result of the high academic activities in the region, the two states were purposively selected. Additionally, the balloting sampling procedure was further utilized to select six (6) out of the twenty-one (21) NUC approved universities (federal = 3, state = 2, private = 16) in the region.

### Population

The population of the study consists of 3,339 academic staff drawn from the six universities (two each from federal, state and private) selected to provide the data and institutional setting for the study. To reduce the scope to manageable fraction, the 10 per cent proportionate sampling technique (Aina, 2002; in Omeje, 2010) recommended for a population in few thousands was adopted to select the sample (see Table 1). Since the total number of academic staff is 334, representing 10 per cent of 3,339, total enumeration was used.

**Table 1: Distribution of universities and their population**

S/N	State	Federal University	No	(%)	State University	No	(%)	Private University	No	(%)
1	Lagos	University of Lagos	1,300	130	Lagos State University	710	71	Pan Atlantic University	45	5
2	Ogun	Federal University of Agriculture Abeokuta	560	56	Tai-Solarin University of Education	304	30	Covenant University	420	42
		<b>Total</b>	<b>1,860</b>	<b>186</b>	<b>Total</b>	<b>1014</b>	<b>101</b>	<b>Total</b>	<b>465</b>	<b>47</b>

Source: *Academic planning units of the various universities*

Number of universities in the region: <https://campusbiz.com.ng/list-of-universities-in-nigeria/>

### Instrumentation

The method of data collection was a structured questionnaire. It was designed to elicit data on EIRs use for academic staff research productivity across three types of universities — federal, state and private. The instrument had 15 items and was divided into 3 sections. Section A was intended to elicit information on personal data of the respondents while section B focused on

EIRs use. Section C was on research productivity of academic staff and section D was concerned with the relationship between section B and C respectively. The instrument was designed on a 4-point rating scale weighted as follows: Very Highly Used (VHU) = 4 points, Highly Used (HU) = 3 points, Less Used (LU) = 2 points and Not Used (NU) = 1 point. In addition, Great Extent = 4 points, Little Extent = 3 points, Very Little Extent = 2 point and No Extent = 1 points. Not precluding Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point for positive items and vice versa for negative item. Of the 334 questionnaires administered on the respondents, 298 (representing a high response rate of 89.2 per cent) were duly completed, returned and analyzed using the Statistical Package for the Social Sciences (SPSS).

## Analysis of Research Questions

**Research question 1:** What is academic staff motivation for using EIRs for research in South-west Nigeria?

**Table 2: Mean response of respondents' motivation for electronic information resources use in the selected universities.**

N = 298

	Items	Ownership Type						Overall		R
		Federal		State		Private		Mean	SD	
1	They enable me accomplish research tasks more quickly	Mean 3.14	SD .87	Mean 3.21	SD .94	Mean 3.24	SD .82	Mean 3.18	SD .93	1 <sup>st</sup>
2	They provide more current information	3.11	.91	3.25	1.20	3.03	.87	3.17	1.06	2 <sup>nd</sup>
3	They are more informative	2.98	.95	2.93	.98	3.29	.91	3.00	.97	3 <sup>rd</sup>
4	I use them to identify with other users	3.06	1.05	2.98	1.07	2.91	1.19	3.00	1.08	4 <sup>th</sup>
5	They are easy to use	2.98	.93	2.89	1.08	3.29	.91	2.98	1.01	5 <sup>th</sup>
6	They are more expansive	3.10	.88	2.90	.99	2.88	.95	2.97	.95	6 <sup>th</sup>
7	They are more preferred	2.95	.88	2.88	1.05	2.71	1.14	2.88	1.01	7 <sup>th</sup>
8	They are more useful	2.93	.87	2.79	.99	2.76	.89	2.83	.93	8 <sup>th</sup>
9	They provide a variety of same subject	2.87	1.02	2.74	1.09	2.97	.97	2.82	1.05	9 <sup>th</sup>
10	They are the trend	2.75	.99	2.80	1.01	2.88	.77	2.79	.97	10 <sup>th</sup>
11	you have more access to them	2.91	1.02	2.65	1.15	2.76	1.26	2.76	1.06	11 <sup>th</sup>
12	They provide ease of access	2.75	.86	2.61	.99	3.09	1.03	2.73	.96	12 <sup>th</sup>
<b>Cluster Mean</b>								<b>2.93</b>	<b>.71</b>	

Table 2 showed the mean ratings on the motivation for EIRs use for research productivity among academic staff in the responding universities. The results of the data analysis revealed a general consensus among all respondents that EIRs ability to enable academic staff accomplish more research tasks quickly than otherwise possible is the strongest motivation for EIRs use (Mean = 3.18) among the respondents. The provision of more current information for research purposes (Mean = 3.17) was harmoniously ranked second by the respondents. The relative ease with which EIRs allow access to research information ranked lowest (Mean = 2.73). Comparatively, the mean scores of item 1, 2, 3, 5, & 12 clearly revealed that academic staff in the private universities have greater motivation for EIRs use for research in relation to their peers in federal and state universities.



**Research question 2:** Which are the most utilized EIRs databases for research among academic staff South-west Nigeria?

**Table 3: Mean response of respondents on the most utilized EIRs databases for research among academic staff in the selected universities.**

N = 298

	Items	Ownership Type						Overall		R
		Federal		State		Private		Mean	SD	
1	Google scholar	3.21	.87	3.14	.94	3.24	.82	3.18	.90	1 <sup>st</sup>
2	Springer Link	3.15	.97	3.09	.91	2.91	.90	3.08	.95	2 <sup>nd</sup>
3	Emerald	2.85	.94	3.05	.82	3.03	.76	2.98	.86	3 <sup>rd</sup>
4	MyLibrary	2.96	.91	2.93	.94	3.21	.84	2.98	.84	4 <sup>th</sup>
5	ProQuest	3.03	.95	2.87	.97	3.00	.92	2.95	.97	5 <sup>th</sup>
6	Web of Science	2.90	.97	2.89	.96	3.15	.96	2.93	.91	6 <sup>th</sup>
7	AGORA	2.86	.98	2.92	.98	3.12	.98	2.93	.96	7 <sup>th</sup>
8	Wikipedia	2.83	.96	2.88	.91	3.24	.74	2.92	.96	8 <sup>th</sup>
9	ScienceDirect	2.88	.97	2.94	.97	2.68	.95	2.88	.95	9 <sup>th</sup>
10	ILODOC	2.79	.98	2.86	.94	3.09	.90	2.87	.96	10 <sup>th</sup>
11	Ebrary	3.08	.71	2.69	.81	2.91	.87	2.86	.80	11 <sup>th</sup>
12	NUC Virtual library	2.90	.85	2.72	.87	2.97	.80	2.83	.85	12 <sup>th</sup>
13	WESTLAW	2.80	.98	2.79	.96	3.06	.92	2.83	.05	13 <sup>th</sup>
14	HINARI	2.78	.96	2.86	.92	2.79	.92	2.82	.94	14 <sup>th</sup>
15	LISA	2.89	.93	2.71	.98	2.82	.96	2.79	.97	15 <sup>th</sup>
16	OARE	2.90	.88	2.69	.93	2.76	.96	2.78	.95	16 <sup>th</sup>
17	EBSCOHOST	2.95	.97	2.64	.99	2.76	.05	2.77	.96	17 <sup>th</sup>
18	LISTA	2.74	.92	2.69	.90	3.03	.94	2.76	.95	18 <sup>th</sup>
19	MIT Open Courseware	2.84	.91	2.69	.95	2.76	.90	2.75	.93	19 <sup>th</sup>
20	Library	2.98	.98	2.62	.97	2.50	.93	2.73	.96	20 <sup>th</sup>
21	JSTOR	2.60	.91	2.59	.97	3.38	.49	2.71	.93	21 <sup>st</sup>
22	Nature	2.60	.97	2.65	.94	2.85	.98	2.67	.95	22 <sup>nd</sup>
23	SCOPUS	2.75	.85	2.55	.88	2.82	.90	2.66	.89	23 <sup>rd</sup>
24	OCLC FirstSearch	2.68	.99	2.55	.92	2.91	.98	2.65	.96	24 <sup>th</sup>
25	IEEE	2.51	.93	2.54	.95	2.79	.91	2.57	.97	25 <sup>th</sup>
<b>Cluster mean</b>								<b>2.84</b>	<b>.45</b>	

Table 3 showed the mean ratings of the respondents on the most utilized EIRs databases for research by academic staff in the selected universities in South-West Nigeria. The overall mean indicated that all academic staff in the six universities studied unanimously agreed that Google Scholar is the most utilized EIRs database for research productivity (Mean = 3.18). This is followed by Springer Link (Mean = 3.08) and Emerald (Mean = 2.98). However, IEEE (Mean = 2.57) ranked lowest in the distribution. The ranking based on institutional view showed academic staff in private universities are more proactive in the use of these databases for research far above

their peers in federal and state universities as the mean score of items 1, 2, 3, 4, 5, 6, 7, 8, 10, 13, 18 & 21 clearly shown in Table 2. The mean rating placed federal university second and State third.

**Research Question 3:** Which ways have EIRs use impacted the research productivity of academic staff in South-west Nigeria?

**Table 4: Mean response of respondents on ways EIRs use has impacted the research productivity in the selected universities.**

N = 298

S/N	Items	School Ownership						Overall		R
		Federal		State		Private		Mean	SD	
1	The use of a variety of EIRs, has improved the quality of my discussions at conferences, workshops and symposia.	3.14	.79	3.19	.87	3.29	.80	3.19	.83	1 <sup>st</sup>
2	The use of a variety of EIRs, has improved my community services.	3.06	.92	3.18	.91	3.28	.80	3.16	.90	2 <sup>nd</sup>
3	As a result of my use of a variety of EIRs, my research report and publications have increased immensely.	3.21	.95	3.10	.99	3.09	1.03	3.14	.98	3 <sup>rd</sup>
4	The use of a variety of EIRs has enhanced my leadership and other relevant skills.	3.06	1.04	3.11	.90	2.94	1.13	3.07	.98	4 <sup>th</sup>
5	As a result of my use of a variety of EIRs, my personal development has improved.	3.01	.89	3.09	.81	2.76	.99	3.01	.87	5 <sup>th</sup>
6	The use of a variety of EIRs, has improved my job as a academic staff.	2.95	.98	2.92	1.08	2.79	1.15	2.91	1.06	6 <sup>th</sup>
7	The use of a variety of EIRs, enhance the quality of my Dissertation/Thesis.	2.88	1.04	2.92	1.00	2.85	.96	2.89	1.00	7 <sup>th</sup>
8	As a result of my use of a variety of EIRs, my teaching experiences have improved significantly.	2.95	1.02	2.88	1.06	2.59	1.18	2.86	1.07	8 <sup>th</sup>
9	As a result of my use of a variety of EIRs, I have written more Books than ever.	2.91	1.02	2.65	1.15	2.76	1.26	2.76	1.12	9 <sup>th</sup>
10	As a result of my use of a variety of EIRs, my examinations/tests have been most imparted.	2.86	1.00	2.75	1.02	2.41	1.10	2.74	1.04	10 <sup>th</sup>
<b>Cluster mean</b>								<b>2.97</b>	<b>.53</b>	

Table 4 showed the mean ratings of the respondents on ways EIRs use have impacted research productivity in the selected universities in South-west Nigeria. The result of the data analysis divulged that improvement of the quality of discussion at various fora such as conferences, workshops and symposia took the pride of place with overall mean of 3.19. Relatively, the factor impacted the research of academic staff in private universities most (Mean = 3.29) and followed

by state universities (3.19). Contrarily, the view of academic staff in federal universities revealed that the 'immense increase of research report and publications' (Mean = 3.21) as the way EIRs use has impacted their research. On the other extreme, the impact of EIRs use for academic staff examinations/tests ranked lowest (Mean = 2.74) in the distribution. Comparatively, the general impact of EIRs use in fostering academic staff research productivity is greater in state universities (see mean scores of items 1-5) in comparison to private and federal universities.

## **Discussion of the Findings**

The crux of this study is to do a comparative analysis of electronic information resources use on academic staff research productivity in federal, state and private universities in South-west, Nigeria. The findings obtained from the research questions formulated to guide the study are discussed as follows:

Research questions 1 seeks to ascertain academic staff motivation for EIRs use for research in the selected universities in South-west Nigeria. Results showed that EIRs ability to facilitate the accomplishment of research tasks more quickly and provide more current information, form the greatest motivation for academic staff use of them. This is a view unanimously shared by all academic staff with that of private universities' taking preeminence. This result is in tandem with the findings of Olasore and Adekunmisi (2015) where it was reported that academic staff preferred the EIRs for research because they are more informative (46.5%), more useful (46.5%) and time saving (66%). This was further justified when an insignificant (7.2%) claimed EIRs are time-consuming. This result is quite expected considering the combination of assignments of academic staff (teaching, learning, research and community development).

Indicatively, time saving and up to dateness of information that EIRs use guarantees are of essence in maximizing academic staff research productivity. Similarly, the Information Utilization Theory hypothesized among other things that individuals will continue to use a given source of information that promises satisfaction (Todd, 1999). The result of Ozoemelem (2009) and Akpojotor (2017) further lend credence to this position. Surprisingly, ease of access was not a motivation for EIRs use among the academic staff studied. This finding contradicted those of Umoru-Onuka (2002); Aramide and Bolarinwa (2010) as well as Okoye and Ugwuanyi (2012) who individually found that 'ease of access' was a dominant consideration for EIRs acceptance and use among researchers. Generally, it was discovered that academic staff in private universities have the greatest motivation hence; they are more predisposed to using EIRs for their research as opposed to their peers in federal and state universities. The reason for this result may not be far-fetched because as Ayeni, Shorunke and Akinola (2014) found in their study that the level of ICT diffusion, integration and use by researchers in private universities in South-west Nigeria exceeds that of researchers in research institutions.

Research question 2 aims at identifying the most utilized EIRs databases for research among academic staff in South-west Nigeria. Among the EIRs databases examined, the study revealed that Google scholar, Springer Link, Emerald, MyLibrary are the most utilized EIRs databases by academic staff for research. This result corroborated that of De Groote, Shultz and Blečić (2014) who reported that Google Scholar was the second (behind MEDLINE) most utilized EIRs database among Health Sciences faculty. The result is further strengthened by the revelation of

Ollé and Borrego (2010) where Google Scholar was regarded as an emerging important source of information for researchers due to its knowledge up-dating capability, explicit citations, relevance ranking and supersession of traditional indexing and abstracting databases among others.

Again, the extent of use of these databases among academic staff in private universities tops the most utilized databases. Indicatively, academic staff of private universities are more proactive in the use of EIRs for research, preponderance to their counterparts in federal and state universities. This result is a reaffirmation of Izuagbe et al (2016) who observed that the quest for private universities to carve a reputation for themselves, attract attention for good profit-making, and possibly dominate the Nigerian higher education domain are among informs the high technology acceptance and deployment in private universities in Nigeria.

Research question 3 attempts to unearth the various ways in which EIRs use impact the research productivity of academic staff in South-west Nigeria. It was revealed that EIRs use has significant impact on academic staff research productivity in several ways. These include improved quality of discussions at conferences, workshops and symposia; enhanced community service participation; increased research publications; amplified leadership and other relevant skills among others. This finding substantiated that of Renwick (2005) who found in her study that the greatest impact of EIRs use on research is in the area of scholarly communication (86%), professional communication (79%) and personal communication (77%) among others. Hence, Iroaganachi (2016) concluded in her study that EIRs use significantly impact academic staff research productivity in no small measure. The responses provided to research question 3 also conforms to those of Rakesh and Anil, (2015) and Blewitt (2015) where it showed that adequate utilization of EIRs by academic staff in universities impacts the efficiency and effectiveness of their academic and research endeavors.

The identified ways in which EIRs use impact academic staff research productivity is more noticeable among academic staff in state universities than their peers in federal and private universities. This finding contrast the notion that state universities in Nigeria are lagging behind in terms of research output due to poor funding, lack of facilities and infrastructural development. This result notwithstanding, academic staff in private universities, as this study revealed, are more inclined and motivated towards EIRs use for research purposes than their counterparts in federal and state universities respectively.

## **Conclusion**

This study has led strong empirical support for EIRs use among academic staff in federal, state and private universities in South-west Nigeria. However, the extent of EIRs use for research productivity varies considerably among academic staff by institution type. This may be due to the level of funding, emphasis on academic staff research output, provision for capacity building among others. EIRs use is imperative for improved research productivity by academic staff of universities. On the contrary, under-utilization of EIRs by academic staff is an indication of low level research among academic staff, a situation which invariably affects their research productivity. The implication of this is that the attainment of the nation's socio-economic and technological development that is based on sound scientific and intellectual research would be

hindered. Consequently, there is need for government at all levels, management teams of universities and other stakeholders to adequately provide the enabling environment by ensuring that all necessary facilities that could enhance maximum utilization of EIRs by academic staff in the nation's universities, are made available. This will culminate in increased productivity of the academic staff in the South-west zone of Nigeria as well as improve development in all facets of the nation's GDP.

## **Recommendation**

Arising from the findings emanating from this study, the following recommendations are made:

1. Though, it was not the focus of the study to ascertain the extent of EIRs use in relation to academic staff digital literacy competence. But based on outcomes, management of federal and state universities are encouraged to create training and development platforms for the acquisition of media and digital skills needed for maximum exploitation of EIRs for quality research
2. Similarly, management of academic libraries in Nigeria should intensify effort towards regular and efficient user orientation programme for academic staff. This will not only sharpen their usage capabilities, but create awareness on the availability of resources in the libraries.
3. The databases ranked lowest in this study (IEEE and OCLC FirstSearch) are some of the world leading EIRs databases covering electrical engineering, computer science and electronics, medicine, humanities, social sciences etc. It is therefore adducible as findings suggest that academic staff in the studied universities are quite unfamiliar with the research benefits of these databases. The universities' managements should encourage subscription to more EIRs based on the subject needs of the institutions. This will enhance the satisfaction level of academic staff needs by improving efficiency in the utilization of the resources thereby enhancing research productivity.

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