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Use of Open Access Publications and Lecturers Research Productivity in Polytechnics in South-South Nigeria

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Abstract

The rationale behind this study is to find out the availability of materials that are in open access, and to see if the available open access publications enough to enhance lecturers' productivity in polytechnics in South-South, Nigeria. In accomplishing this, three research questions and one hypothesis guided the study. A sample of 291 lecturers was propositionally drawn from the population of 1,140 lecturers in South-South, Nigeria. Frequency counts was used to analyze the respondents' bio data and research questions 1-4, while the inferential statistics that was used for the testing of research hypothesis is Pearson Product moment correlation coefficient. From the data collected lecturers make very high use of electronic journals, library print journals, PDFs, and Wiki articles. The result of the analyzed data shows that open access resources improves lecturers' productivity in lecturing, online publishing, offline publishing, publishing locally, publishing internationally, and publishing scholarly research papers (peer reviewed). Also, it shows that the lecturers have a very high skill in Internet surfing, word processing packages, use of electronic databases, Windows interface, search engines use, browsers use, downloading, uploading, and PDF resources. However, they lacked skill in use of Spreadsheet packages thus posing a challenge to their data analysis skills. Among other, it shows that the benefits accruing from lecturers' productivity includes: impartation of knowledge on students, impartation of knowledge on researchers, contribution to existing knowledge, updating knowledge, increasing the academic standard of institutions, creation of new knowledge, provision of research materials, provision of research papers in open access databases, improvement of students' reading culture, and filling gaps in knowledge. Moreover, study reveals that network problems, poor electricity supply constitute technological hindrances to lecturers' access to open access resources. Furthermore, findings revealed that there is no significant relationship between the use of Open Access (OA) publications and lecturers' productivity in polytechnics in South-South, Nigeria. The findings further conclude that there is a significant relationship between lecturers' levels of ICTs skills for use of open access (OA) and their productivity in polytechnics in South-South, Nigeria.

Keywords

Open access, research productivity, south-south, polytechnics

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Introduction

Polytechnics are involved in teaching, research and publication. According to Akintayo and Oghenekohwo (2008), polytechnic university education has attracted significant interest as it serves as one of the ways of ensuring immediate changes and transformation in human and technological advancement. One of the preoccupations of any lecturer is research. Research, as pointed out by Ntiamoah-Baidu (2008), is the engine that generates new knowledge and provides ideas for national development. The outcome of research is usually published peer reviewed journals and productivity is the quintessential indicator of efficiency in any production system most importantly education. It seems it has become a norm in bibliometric to define research productivity as the number of publications per researcher, distinguishing it from impact (Abramo and D'angelo, 2014; 2015).

The use of open access publications is noticeable in society because of the influx of modern technology has paved the way for the 21st century "information explosive" society. Majority of researchers, students, workers and lecturers in tertiary institutions depend on information resources to help build their knowledge in research, classroom routines, to mention a few. In this era of information explosion, there is persistent increase in the prices of goods and services especially books and other publications. This has led to lecturers in polytechnics buckling up and working so hard to ensure that they deliver their services at an optimal level by developing themselves academically. This is noticeable in the area of purchase of expensive books, journals, and other publication types despite their dwindling financial situation. Therefore, majority of the lecturers in polytechnics may not have other choices than to resort to open access resources.

There are different definitions of open access that are broadly understood to mean making materials accessible to users at no cost. Specifically, Giarlo (2006) explained that open access is used to describe a model of scholarly communication in which users may freely view, download, copy, and print scholarly articles, books, conferences proceedings, squibs and so forth. This implies that the users is able to freely access scholarly materials because the price of publication has been assumed by another party, usually the author, the author's institution or grant which funded the research. "Open access" is the term used to describe literature that is available to any reader at no cost on the Internet. The copyright owner—usually the author—allows the user to freely read, download, copy, print, distribute, search, link to the full text of the article, crawl it for indexing, and use the article for lawful purposes (Kwan, 2003). Open access materials as online research outputs in the academic publication format, free of all limitations on access such as membership fees and free of many restrictions on usage such as copyrights and licensing constraints (Suber, 2008; 2019). In reality, open access is a step ahead of free access which just removes pricing barriers by offering free access to end users. Open access eliminates the requirement for authorization. In other words, under open access, the end-user not only has free access to the content but also the right to broadcast it further.

In open access journals, authors either retain copyright or are asked to transfer the copyright to the publisher. The only role of copyright in open-access literature is to give authors control of the integrity of their work and the right to be properly acknowledged and cited (Kwan, 2003). Although open access is a concept that is most often applied to online publication, it is nonetheless compatible with print for those journals that also have a printed version. Open access is free of charge for readers of the online version, but does not exclude priced access to print versions of the same work (Ricardo and Mercè, 2004). The revolution of open access since early 1990s has liberated libraries and information centers all over the world. More than ever, librarians are experiencing a rise in prestige because of their ability to contribute to the digital management of information, which somewhat was being threatened by commercial information providers of the Internet era (Swan and Chan, 2010).

Use of open access publications requires one to ask questions on the frequency of use of these publications by polytechnics lecturers. This will enable one to establish the relationship between the frequency of use of open access publications and lecturers' productivity. Kurata, Morioka, Yokoi and Matsubayashi (2013) clarified the trends observed in open access in the biomedical field between 2006 and 2010 and explored the possible explanations for the differences in open access rates revealed in recent surveys. The survey found that the open access rates increased significantly between 2006 and 2010. Notably, the open access rate in 2010 (50.2%) was twice than that in 2006 (26.3%). Further, majority of the open access articles were available from Open Access Journal (OAJ) websites, indicating that open access journals have consistently been a significant contributor to open access throughout the period. Kurata, Morioka, Yokoi and Matsubayashi further found that open access publications were frequently used by polytechnics academics between the periods studied. Their finding shows that more than 80% of the lecturers used open access articles on a regular bases.

Aside the frequency of use, it is also imperative to ascertain polytechnics lecturers' access points to open access publications. This way it will be possible to establish a link between access to open access publications and the lecturers' productivity. Emojorho, Ivwighregweta and Onoriode (2012) investigated the awareness of open access scholarly publications among Lecturers in the polytechnics in Edo State, Nigeria. This study found that the majority of lecturers of the polytechnics became aware of open access scholarly publications through their colleagues. Although the increased impact and free online access were reported as some of the advantages of open access, however like other developing countries, the erratic power supply and insufficient Internet facilities were some of the major challenges in the awareness of open access. Emojorho, Ivwighregweta and Onoriode, however suggested a constant power supply and the establishment of institutional repositories (IRs) as some of the strategies to enhance open access for scholarly publications.

Open access brings benefits for a variety of constituencies. Lecturers gain from the increased usage and impact of their work. Their institutions benefit from the aggregated usage and impact of their researches and the increased presence that open access brings. Society benefits from better technology transfer, better diffusion of know-

how and a better-informed populace. Open access helps research to be carried out more efficiently by reducing duplication and blind alley research, by enabling lecturers to find what they need more quickly and without cost and by helping lecturers develop and diffuse the use of open standards. It makes possible better peer review and other methods of upholding academic rigor because lecturers can easily see and judge the work of their peers and can access data for re-analysis and independent confirmation of findings. It also encourages collaborative endeavors by making research visible to new communities, including the general population (Swan, 2014).

The use of open access publications is common in the educational sector of every economy across the globe. Information flow has increased especially with the advent of the World Wide Web (WWW). Lecturers in polytechnics should be exposed to these wide arrays of information and are expected to use them for academic productivity and development. Thus, this study sought to examine the lecturers' use of these free publications in relation to their research productivity in polytechnics.

Statement of the Problem

The use of information resources in Nigerian polytechnics in general and South-south in particular has captured the interest of researchers in recent times. Open access collections are made available for use by students, lecturers, libraries, online and other information centers. These resources in their varied formats are available to boost lecturers' productivity and enhance their knowledge in their various fields of endeavor. To this end, it is expected that polytechnic lecturers in particular, in order to be highly productive use these resources to enhance their publication output. In reality, scholarly research materials appear in both closed and open access; the onus is on the lecturer to decide which of these best meets his/her research needs. This also could be tied to the availability of funds to pay for materials in closed access. However, the rate at which publications are expensive has left lecturers in a dilemma of inability to procure such most sought after publications because of the dwindling economic state of the nation. Books and journals are expensive, and for lecturers to update their knowledge, they need these publications for research productivity.

The use of open access is now the option for lecturers so as to avail information seekers the opportunity to gain access to quality research and minimize the burden of accessibility to information resources. Hence, attention is now drawn to the use of open access publications. The problem of this study in question form is, since much attention is now drawn to the availability of materials that are in open access, are the available open access publications being used by lecturers to enhance their research productivity in polytechnics in South-South Nigeria?

Research Questions

The following research questions were formulated to guide the study:

- i. To what extent does use of open access publications improve productivity of polytechnic lecturers in South-South, Nigeria?
- ii. What is the extent of polytechnic lecturers' productivity to research and development in South-South, Nigeria?

- iii. What are the benefits of polytechnic lecturers' productivity with the use of open access publications?
- iv. What are the hindrances to polytechnic lecturers' use of open access publications?

Research Hypothesis

The following null hypothesis were formulated to guide the study

- i. There is no significant relationship between the use of open access publications and lecturers' productivity in polytechnics in South-South, Nigeria.

Review of Related Literature

The importance and wide ranging scope of open access resources for general communication, information retrieval and instructional delivery to support teaching and research activities in tertiary educational institutions is acknowledged globally. Ezeani (2011) in her study found that a total of 16 lecturers of polytechnics (32%) responded that they surf the Internet daily for open access publications; while 17(34%) lecturers affirmed that they use open access publications weekly; 13(26%) responded that they use the Internet monthly to search for free resources and 3(6%) acknowledged the quarterly use of the Internet's search engine to search for open access publications. However 1(2%) person has never used the Internet for open access resources rather, they affirmed that they made use of library materials that are available in open access. Ngulumbé (2009) found that the frequency of use of open access publications varies among lecturers in polytechnics.

Omotayo (2010) conclude that the frequency of use of open access publications by lecturers in polytechnics is an indication that all the lecturers affirmed that they need open access resources to boost their publication output. He added when asked the period which they would love to utilize the publications, they stated that they need it every day. The frequency of use of open access publications has become a source of concern to researchers in recent years. Bashorun, Isah and Adisa (2011) found that 22 (8.98%), 67 (37.35%), 102 (41.63%), 34 (13.88%) and 20 (8.16%) of the total population of 245 polytechnic lecturers used free electronic journals daily, weekly, monthly, bi-monthly and occasionally respectively. They further established that lecturers use electronic journals exclusively or mainly. Most used e-resources were e-journals from free databases with a frequency of 175 (77.8%) online reference works with a frequency of 138 (61.3%) virtual library with a frequency of 55.6%), full-text articles at a frequency of 111 (49.3%), the online catalogue at a frequency of 105 (46.7%) , use of e-books at a frequency of 86 (38.2%) with less use reported for bibliographic databases with a frequency of 57 (25.3%) and library website is under construction.

The investigation of Kotso (2010) on assessment of library use by the lecturers of college of education Akwanga demonstrate that no lecturer visits the library very frequently while only 16.6% visit the library frequently. The study further proven that most of the sampled lecturers representing 81.5% rarely visit the library. The respondents were provided with a list of activities they can perform in the library and were asked to indicate as many activities as possible which they use the library for

during their visits. The study concluded that only few of study population visit the library to access resources that were available in open access. This shows that most of the lecturers in polytechnics do not see the need to use the library for retrieval of open access publications to aid their academic productivity. Shokeen and Kushik (2002) studied information seeking behaviour of social scientists working in the universities located in Haryana. They reported most of the social scientists visit the library daily. The first preferred method of searching the required information by the social scientists followed by searching through indexing and abstracting periodicals, and citations in articles respectively. The social scientists use current journals followed by books.

Universities lecturers who make use of open access publications acknowledged the rationale as to why they need them. No one uses a device, something or piece of write-up for no reason. Lecturers in polytechnics are expected to make use of open access publications to improve on their productivity. A number of relevant studies have been carried out on the use of e-resources by teachers, students and research scholars of universities and research organizations. Seventy-eight percent of the respondents feel that the use of the UGC-Internet e-journals has created high dependency value on their research work and they needed current article alert services and electronic document supply services (Madhusudhan, 2008). Also, 67.64% of research scholars of faculty of science and 69.23% of research scholars of engineering use e-journals for research work whereas 35.29% of sciences use e-journals to update knowledge and 23.70% of engineering use these for study. Navjyoti (2007) finds that speedy publication and availability on the desktop are the key advantages that attract research scholars. Lack of training is a major de-motivating factor in the usage of e-journals, so that needs to be improved. Kennedy proposes the inclusion of Web pages to the library catalogue as a solution to the maintenance of increasing web site links.

Aliyu (2013) examines the use and access of various open access e-resource databases polytechnics in Yola, Nigeria. The study specifically highlights the preferences and importance of online resources among the lecturers and students of the School of Management and Information Technology of the polytechnic. A total of 120 respondents, which represents the sample size of the study, were used to collect data for the purpose of analysis. The study found that the polytechnics in Yola does not have sound ICT (Information and Communication Technology) infrastructural facilities and only the well-known open access e-resources are preferably used by the students and lecturers, the rest of the e-resources that is, e-bibliography, e-maps, e-thesis, e-books are comparatively less used.

Egberongbe (2011) revealed that majority of lecturers preferred to use open access e-resources in comparison to traditional open access resources 77(66%) of them consider e-resources as time-saving, 70(59.1%) considered it easy to use, whereas 52 (46.5%) considered it more useful. 20(28.5%) research scholars preferred to use e-resources because they were more useful and time saving, 28(40%) of research scholars preferred to use e-resources because they are easy to use. However, 20(28.6%) use them because they are time saving and 20(28.65) use them because they are more informative. Also, 36 (52.35%) use e-resources because they are more useful, 24(34.25%) scholars also

use them because they are less expensive. The results from the study revealed that e-resources were preferred by respondents because they were more useful, time saving, easy to use, more informative and less expensive.

According to Aforo and Lamptey (2012) the primary purpose for seeking open access information by these Lecturers was to obtain materials that might be useful for their research work (75%), to obtain materials for background reading (62.5%), and to keep up with new knowledge in their field of specialization (56.3%). Only 12.5% saw gathering information for lectures and references for student as a primary purpose for seeking information. All the lecturers saw Law Reports as the most useful source of information, 15 (93.8%; $p < 0.0001$) and 13 (81.3%; $p < 0.0001$) also saw law journals and textbooks respectively, as very important sources of information. These information sources were deemed important because they provided information that was current and relevant to their needs and were easily available and accessible (Table 3). Eleven (68.8%) lecturers search for information daily, 3 (18.8%) weekly, and 3 (18.8%) monthly from Libraries (81.3%) and online databases (87.5%) from libraries. Preference for information access for lecturers was mainly electronic resources.

Methodology

This study is a descriptive research adopted to describe the use of Open Access Publications and Lecturers' Research Productivity. A study by Anie (2007) revealed that a descriptive research be applied to the study of specific population to determine the proportion of people having a certain view or contradictory view on a given topic. The study adopted this design to allow for a wide range of scope to be covered which will in turn provide a great deal of information to enrich the study.

The population of this study is 1,140 lecturers of the entire government owned polytechnics in South-South, Nigeria.

Polytechnic	State	No of Lecturers
Akwa-Ibom State Polytechnic, Ikot Ekpene.	Akwa-Ibom	105
The Polytechnic, Calabar.	Cross River	80
Delta State Polytechnic, Oghara.	Delta	151
Delta State Polytechnic, Ozoro.	Delta	179
Delta State Polytechnic, Ogwash-uku.	Delta	162
Federal Polytechnic, Auchi.	Edo State	252
Rivers State College of Arts and Science, Port-Harcourt.	Rivers	68
Rivers State Polytechnic, Bori.	Rivers	143
	Total	1,140

Source: The handbook of the various polytechnics (2014).

The researcher made use of a sample of 291 lecturers for the study. The technique adopted to select the sample was based on the recommendations of Krejcie and Morgan (1970) that statistically proved that for a population of 1200, a sample of 291 is adequate. For even distribution of the respondents across the polytechnics, the total number of lecturers in a polytechnics is divided by population figure then multiplied by 291 which is the actual sample size. Thus: (polytechnics population/total population) X 291. Hence, a proportionate stratified sampling technique was adopted for this study as illustrated in the table below.

Name of University	No. of Lecturers	Sample
Akwalbom State Polytechnic, Ikot Ekpene.	105	27
The Polytechnic, Calabar.	80	20
Delta State Polytechnic, Oghara.	151	39
Delta State Polytechnic, Ozoro.	179	46
Delta State Polytechnic, Ogwash-uku.	162	41
Federal Polytechnic, Auchi.	252	64
Rivers State College of Arts and Science, Port-Harcourt.	68	17
Rivers State Polytechnic, Bori.	143	37
	1,140	291

The instrument for data collection in the study was structured questionnaire tagged "Use of Open Access Publications and Lecturer's Productivity" (UOAPLP). It contains five (5) sections. Section I is the Respondents' Biodata, Section II is Use of Open Access Publications and Lecturers' Productivity, Section III is Lecturers' Productivity and Research and Development, and Section IV pertains to Benefits of Lecturers' Productivity. The Questionnaire was constructed with a four-point scale. However, the questionnaire was self-designed by the researchers and validated by three lecturers in the Department of Library and Information Science, Delta State University, Abraka to ensure the instrument meets the rudiments of face and content validity. The same instrument was also given to two lecturers in the Department of Measurement and Evaluation, Delta State University, Abraka for scrutiny. These lecturers ensured that items in the instrument are capable of providing answers to the research questions and the hypothesis.

Furthermore, to ascertain the internal consistency of the items, the Cronbach's alpha method was applied to determine the reliability of the research instrument. The researcher administered the instrument to forty (40) polytechnic lecturers in Dorben polytechnic, Wuse, Abuja. The researcher coded the raw scores and did the analysis with the aid of SPSS version 20. The result showed a reliability index of .870 which is adequate for the study. More so, all 291 copies of the instrument distributed to the respondents fully completed the exercise, this give return rate of 100% which is found usable for data analyses in this study. Data collected were analyzed using descriptive and inferential statistics.

The descriptive statistics which included frequency counts, was used to analyze the respondents' biodata and research questions 1-5, while the inferential statistics that was used for the testing the research hypothesis is Pearson Product Moment Correlation coefficient. The reason for the use of descriptive statistics is that descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures, while the inferential statistics is used to try to infer from the sample data what the population might think.

Results and Discussion

Questionnaire Response Rate

Questionnaire Distributed	Frequency	Percentage (%)
Number Distributed	291	100%
Number Returned	291	100%

The above table revealed that a total of 291 (100%) questionnaires were distributed, and all of them were returned.

Characteristics of the Respondents

Characteristics of the respondents according to their status, gender, and level of experience

Status	Gender		Experience		
	Male	Female	0-5 Years	6-10 Years	11 Years & above
LECTURERS	189 (65%)	102 (35%)	61 (21%)	123 (42%)	107 (37%)

The data on the above table displayed that 189 (65%) of the respondents are males while 102 (35%) of them are female lecturers. Furthermore, 61 (21%) of the respondents have 0-5 years' experience, 107 (37%) of them have 11 years and above experience, while 123 (42%) of them have experience range of 6-10 years.

Answering of Research Questions

Research Question One

To what extent does use of Open Access publications improve productivity of university lecturers in South-South, Nigeria?

The table below elucidates the areas to which use of open access publications improve productivity of university lecturers

S/N	Open Access Resources	Very High (%)	High (%)	Low (%)	Very Low (%)
1.	Electronic journals.	291(100)	-	-	-
2.	E-Books	178 (61)	82 (28)	31 (11)	-
3.	Library Textbooks.	276 (95)	-	-	15 (5)
4.	Web pages.	200 (69)	50 (17)	41 (14)	
5.	Library Print journals.	291(100)	-	-	-
6.	CD-ROM (Compact Disc Read Only Memory) content.	-	-	-	291(100)

7.	Directories of open access journals.	122 (42)	169(58)	-	-
8.	PDF (Portable Document Format) resources.	291(100)	-	-	-
9.	Wiki articles.	291(100)	-	-	-
10.	Resources in blogs.	148(51)		-	143(49)

The data in the above table revealed that all the respondents make very high use of electronic journals, library print journals, PDFs, and Wiki articles. However, 178 (61%) of the respondents also use eBooks, 276 (95%) use library textbooks, 200 (69%) use webpage resources, 122 (42%) and 169 (58%) use Directory of Open Access Journals (DOAJ), while all the respondents have very low usage of CD-ROM content. Also, 148 (51%) of the respondents use blogs while 143 (49%) of them does not.

Research Question Two

What is the extent of lecturers' productivity to research and development?

The table below exemplify the areas of lecturers' productivity to research and development

S/ N	Lecturers' Productivity	Very Hi (%)	H (%)	L (%)	VL (%)
1.	Lecturing	198(68)	93(32)	-	-
2.	Online publishing	285(98)	6 (2)	-	-
3.	Offline publishing	291(100)	-	-	-
4.	Publishing locally	291(100)	-	-	-
5.	Publishing internationally	279 (96)	12 (4)	-	-
6.	Frequency of publications	154 (53)	137(47)	-	-
7.	Use of open access publications	291(100)	-	-	-
8.	Use of scholarly research papers (peer reviewed)	291(100)	-	-	-
9.	Use of subscription-based publications	180(62)	24 (8)	-	87 (30)
10.	Use of library resources for research purpose	177(61)	114(39)	-	-

The data in the above demonstrate the extent of lecturers' productivity to research and development. From the data obtained, the respondents indicated a very high extent of productivity in lecturing [198(68%)], online publishing [285(98%)], offline publishing [291(100%)], publishing locally [291(100%)], publishing internationally [279(96%)], use of open access publications and use of scholarly research papers (peer reviewed) [291(100%)]. Also, 180 (62%) of the respondents indicated a very high extent of use of subscription-based publications, while 87 (30%) indicated a very low extent of productivity in use of subscription-based publications. Furthermore, 177 (61%) of the respondents indicated a very high use of library resources for research purpose, while 114 (39%) indicated high use of library resources for research purpose.

Research Question Three

What are the benefits of lecturers' productivity?

The table below illustrate the benefits of lecturers' productivity

S/ N	Benefits	Very High (%)	High (%)	Low (%)	Very Low (%)
1.	Impartation of knowledge on students	291 (100)	-	-	-
2.	Impartation of knowledge on researchers	291 (100)	-	-	-
3.	Contribution to existing knowledge by adding to the stock of existing literature	291 (100)	-	-	-
4.	Updating knowledge	291 (100)	-	-	-
5.	Increasing the academic standard of institutions	291 (100)	-	-	-
6.	Creation of new knowledge, by giving recommendations as to other areas of study reseachers should look into	291 (100)	-	-	-
7.	Provision of research materials	291 (100)	-	-	-
8.	Provision of research papers in open access databases	291 (100)	-	-	-
9.	Improvement of students' reading culture	291 (100)	-	-	-
10.	Filling gaps in knowledge	291 (100)	-	-	-

The data on the table above clearly conveyed that all the respondents indicated a very high level of benefits accruing from lecturers' productivity. However, the benefits of lecturers' productivity include: impartation of knowledge on students, impartation of knowledge on researchers, contribution to existing knowledge, updating knowledge, increasing the academic standard of institutions, creation of new knowledge, provision of research materials, provision of research papers in open access databases, improvement of students' reading culture, and filling gaps in knowledge.

Research Question Four

What are the hindrances to lecturers' use of Open Access publications?

The datum used to answer the above research question are presented in the table below

S/ N	Hindrances	SA (%)	A (%)	D (%)	SD (%)
1.	Network problems to access online resources.	291(100)	-	-	-
2.	Poor electricity supply.	291(100)	-	-	-
3.	Obsolescence of library resources.	223(77)	68 (23)	-	-
4.	Unskilled library staff in ICTs to use the systems.	-	-	198(68)	93(32)
5.	Poor skill in ICTs by polytechnic lecturers	154(53)	137(47)	-	-
6.	Lackadaisical attitude of library staff towards assisting users in need of library access resouses.	-	-	201(69)	90 (31)
7.	Inadequate of reading spaces in the open access	-	-	-	291(100)

	section of the library.				
8.	Poor organization of open access resources in offline/online databases/repository.	68 (23)	34 (12)	100 (34)	89 (31)
9.	Unawareness of the available access points to open access publications.	-	-	-	291(100)
10.	High cost of procuring open access publications as a result of high internet bandwidth.	-	-	-	291(100)

The data on the above table revealed that all the respondents strongly agreed that network problems to access online resources and poor electricity supply are hindrances to lecturers' use of open access publications. Furthermore, 223 (77%) of the respondents identified obsolescence of library resources, while 198 (68%) and 93 (32%) disagreed and strongly disagreed that unskilled library staff in ICTs to use the systems is a hindrance to lecturers' use of open access publications. Poor ICT skills was also cited as a hindrance to use of open access publications [154(53%)] and 137 (47%). Also, 201 (69%) and 90 (31%) of the respondents disagreed and strongly disagreed that lackadaisical attitude of library staff is a hindrance, while all the respondents strongly disagreed that unavailability of reading spaces in the open access section of the library is a hindrance. Furthermore, 68 (23%) of the respondents strongly agreed that poor shelving of library resources is a hindrance, 34 (12%) agreed, while 100 (34%) and 89 (31%) respectively disagreed and strongly disagreed that poor shelving of library resources is a hindrance. All the respondents strongly disagreed that unawareness of the available access points to open access publications and high cost of procuring open access publications is are hindrances to lecturers' use of open access publications.

Testing the Research Hypothesis

The hypothesis formulated for this study was tested using Pearson Product Moment Correlation Coefficient (PPMCC). Thus:

H₀₁ There is no significant relationship between the use of open access publications and lecturers' productivity in polytechnics in South-South, Nigeria

The data used to test the hypothesis is presented in the table below on SPSS output of relationship between the use of Open Access publications and lecturers' productivity in polytechnics in South-South, Nigeria.

Correlations

		Use_of_Open Access	Lecturers_ Productivity
Use_of_Open_Access	Pearson Correlation	1	-.104
	Sig. (2-tailed)		.075
	N	291	291
Lecturers_Productivity	Pearson Correlation	-.104	1
	Sig. (2-tailed)	.075	
	N	291	291

**Not Significant

The data on the table above clearly demonstrate that the Pearson Correlation coefficient, $r=-0.104$ and that it is statistically not significant ($p=0.075$). This means that the null hypothesis is accepted. Therefore, there is no significant relationship between the use of open access publications and lecturers' productivity in polytechnics in South-South, Nigeria.

Discussion of Findings

From the data collected, lecturers make very high use of electronic journals, library print journals, PDFs, and Wiki articles. They also use eBooks, library textbooks, webpage resources, blogs and Directory of Open Access Journals. This finding agrees with those of Ezeani (2011); Ngulumbe (2009) and Omotayo (2010) that, even though the frequency of use of open access resources varies among lecturers, the lecturers make regular use of eBooks, free journals databases like Directory of Open Access Journals and PDFs. This means that in their study, Ngulumbe (2009) and Omotayo (2010) found that lecturers' frequency of use of open access resources vary, but those who made use of the resources usually preferred using Directory of Open Access Journals and documents in PDFs.

The result of the analyzed data shows that open access resources improves lecturers' productivity in lecturing online publishing, offline publishing, publishing locally, publishing internationally, and publishing scholarly research papers (peer reviewed). Bashorun, Isah and Adisa (2011) in their study also found that open access resources improves lecturers' productivity in lecturing and boosts their research output. The lecturers make very high use of subscription-based publications and library resources. Kotso (2010) also found that library resources and open access databases (DOAJ) constitutes the bulk of resources lecturers make use of.

The result displayed that the benefits accruing from lecturers' productivity includes: impartation of knowledge on students, impartation of knowledge on researchers, contribution to existing knowledge, updating knowledge, increasing the academic standard of institutions, creation of new knowledge, provision of research materials, provision of research papers in open access databases, improvement of

students' reading culture, and filling gaps in knowledge. This finding is in line with those of Shokeen and Kushik (2002), Madhusudhan (2008), Aliyu (2013) and Navjyoti (2007). The authors found that the indices of lecturers' productivity includes but are not limited to contributions to knowledge through research, teaching and propelling students' career developments.

The results of the study reveal that network problems, poor electricity supply constitute technological hindrances to lecturers' access to open access resources. Aliyu (2013) identified erratic power supply and poor Internet connectivity as challenges to the use of open access online resources. The findings of this study further revealed that obsolescence of library resources, poor ICT skills, and unawareness of the available access points to open access publications and high cost of procuring open access publications are hindrances to lecturers' use of open access publications. This finding is in agreement with those of Akintayo and Oghenekohwo (2008) that out-of-datedness of library resources are constraint to access to open access resources; Okiki (2014) who identified financial constraint as a challenge and Kurata, Morioka, Yokoi and Matsubayashi (2013) who identified poor ICT skills and lack of current library resources as challenges to use of open access resources.

The result of the study illustrate that, there is no significant relationship between the use of open access publications and lecturers' productivity in polytechnics in South-South, Nigeria. The implication of this is that, availability of open access publications does not contribute lecturers' productivity. This finding is rejected because majority of the lecturers indicated the open access resources they make use of. Also, the findings of Swan (2014); Omotayo (2010); Egberongbe (2011); Aforo and Lamptey (2012) all found a strong positive correlation between use of open access publications and lecturers' productivity.

Summary of Findings

From the data analyses, the findings of the study revealed that:

- i. There is a significant relationship between the use of open access publications and lecturers' productivity.
- ii. Open access resources improves lecturers' productivity in lecturing, online publishing, offline publishing, publishing locally, publishing internationally, and publishing scholarly research papers (peer reviewed)
- iii. Lecturers make use of open access databases like DOAJ, PDFs, library resources, etc.
- iv. The benefits accruing from lecturers' productivity include: impartation of knowledge on students, impartation of knowledge on researchers, contribution to existing knowledge, updating knowledge, increasing the academic standard of institutions, creation of new knowledge, provision of research materials, provision of research papers in open access databases, improvement of students' reading culture, and filling gaps in knowledge.

Conclusion

Lecturers' productivity is crucial to academia to increase knowledge growth. The performance output of a highly productive lecturer will in turn breed the impartation of quality knowledge to students, and a qualitative and quantitative contribution to knowledge. The use of open access resources has proven to be significant to lecturers in the academic endeavors and such lecturers harness them for their academic growth and development.

This study therefore concludes that lecturers make very high use of electronic journals, library print journals, PDFs, and Wiki articles. They also use eBooks, library textbooks, webpage resources, blogs and Directory of Open Access Journals (DOAJ). Open access resources improves lecturers' productivity in lecturing online publishing, offline publishing, publishing locally, publishing internationally, and publishing scholarly research papers (peer reviewed). However, the lecturers lacked skill in use of spreadsheet packages this posing a challenge to their data analysis skills

Conversely, the benefits accruing from lecturers' productivity includes: impartation of knowledge on students, impartation of knowledge on researchers, contribution to existing knowledge, updating knowledge, increasing the academic standard of institutions, creation of new knowledge, provision of research materials, provision of research papers in open access databases, improvement of students' reading culture, and filling gaps in knowledge. Furthermore, network problems, poor electricity supply, obsolescence of library resources, poor ICT skills, unawareness of the available access points to open access publications and high cost of procuring open access publications are hindrances to lecturers' use of open access publications

Additionally, from the tested hypotheses, it was found that there is a significant relationship between the use of open access publications and lecturers' productivity in polytechnics in South-south, Nigeria. The implication of this is that availability of open access publications contributes to lecturers' productivity. There is also a significant relationship between lecturers' levels of ICTs skills for use of open access and their productivity in polytechnics in South-south, Nigeria. This implies that skills in ICTs will help improve lecturers' productivity.

Recommendations

Based on the findings of the study, it is therefore recommended that:

- i. Polytechnics should subscribe to high internet bandwidth to help curtail the Internet connectivity problems in the country. To do this, the management should ensure that allocations meant for internet subscriptions should be made available for the library. The library also in turn should use it for the purpose it is meant for.
- ii. Alternative power sources should be sought for by polytechnics to help curb electricity power problems. Purchasing power generating sets or solar inverter systems as alternative sources of energy can help the library reduce poor electricity challenges.
- iii. The parent institution should see the need to finance the library to allow for the availability of fund to purchase quality books, research materials,

- subscribe to Internet, and meet many other library needs. Finance is the livewire of every organization, management should release the library's allocation to enable the library have substantial funds to cater for her needs.
- iv. Current and reliable library resources should make the bulk of library materials to enable libraries house up-to-date open access collections as part of their holdings. Libraries should make regular contacts with publishers to help them get update on new books published. On the other hand, management should ensure that the book vote meant for purchase of library books should be made available.
 - v. The parent institution should see the need to finance the library to allow for the availability of fund to purchase quality books, research materials, subscribe to Internet, and meet many other library needs. Finance is the livewire of every organization, management should release the library's allocation to enable the library have substantial funds to cater for her needs.

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