Academic Librarians Research Productivity amidst Open Access Resources: Issues and Challenges

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Abstract

This study explores the factor that influencing the use of open access resources for research productivity by academic librarians in federal universities in Northwestern States of Nigeria. Two research questions and one hypothesis were formulated and tested. Out of 200 copies of questionnaire distributed to academic librarians in federal universities in Northwestern States of Nigeria, a total of 174 (87%) copies were returned duly completed and found useable for the study. The data collected were analyzed using frequency distribution tables and percentages, while the hypothesis was tested using Pearson Product Moment Correlation (PPMC). The results indicated that factors such as access policy, accessibility to scholarly literature at no cost, visibility and increased citation rate among others were considered as important factors resolving to use open access resources. On research productivity of academic librarians there are lack of enabling environment, positive working area and good facilities, low level of education, skills, training and low level of motivation. In view of the above challenges the study therefore, concludes that not scarcity of information resources, neither lack of awareness of myriad benefits of Open Access information resource hindered research productivity among academic librarians in the area covered by the study, since most of the respondents attested to the various benefit attached to the utilization of Open Access Resources. Hence, while measures should be taken to strengthen the facilitating condition and policies to improve effective use of open access resources for better research productivity, much more emphasis should be focused toward ameliorating inhibiting challenges on research productivity such as enabling environment, cordial relationship and collaboration, positive attitude towards conducting research, motivation, overloading teaching schedule and tenure, education and training of academic librarians need to be given adequate attention.

Key words: Open Access, Research Productivity, Academic Librarians, Federal Universities in Nigeria

Introduction

The emergence of information and communication technology is imperative not only for scholars and researchers doing scientific research. Billions of dollars is invested worldwide in research and development in order to solve scientific, technological and social problems and to advance our understanding of the present and the past (Moller, 2006). Most of these research findings are communicated in scholarly journal that is rather becoming very expensive to disseminate because it is based on subscriptions or licenses. In the US alone, the scientific, technical and medical publishing market is estimated at between $7-11 billion (OECD, 2004; as cited in Moller, 2006).

Open Access (OA) is a recent movement in communication of scholarly research, wherein neither readers nor a reader's institution are charged for access to articles or other resources. Opportunity provide by Open Access (OA) include, enhanced access and utilization of information resources, manage costs and optimize collaborative research and increased productivity. According to Möller (2006), open access model of scholarly publishing provides both economic relief and a promise of better quality teaching and learning.

The importance of publication in the growth and development of the library profession, and academic librarians in particular cannot be over emphasized because it ensures problem-solving, knowledge sharing and services as a response to changing times and environment (Ogbomo, 2010). However, in recent times the challenge for the libraries is the escalating cost of the journals and the stringent library budget. This has led to a phenomenon called "Scholarly Crisis", because the libraries are failing to meet the users growing demands and journal prices (be it print or electronic) are shooting up.

Recognition and adoption of open access practices in resolving "Scholarly Crisis", is growing, including new policies that increase public access to the academic literature (Bjo¨rk et al., 2014; Swan et al., 2015). Yet, there is persistent decline in the research productivity of academic librarians in Federal Universities in Nigerian with all the abundance information resources offering access at no cost (Okoye and Ejikeme, 2011). At this point the question that needs to be answered is that, do access barriers really hindering research productivity of academic librarian? Or is it the changing research environment/infrastructure in Nigerian Universities need more attention than access issues? The paper investigates the issues resolving to the utilization of Open Access Resources (OAR) and challenges hindering research productivity of academic librarians in federal universities in Northwestern States of Nigeria.

Statement of the Problem

In the last fifteen years Open Access publishing has become an issue of important concern and also forms part of the academic publishing landscape. According to Anbu (2006) access to scholarly information is the biggest problem in African universities. The dearth of research and development program in African universities, is attributed to access barriers to high priced scholarly literature and lack of quality research infrastructures have dampened the research spirit in African universities. The west-centered scholarly paradigm and the high costs of scholarly literature, such as journals and books, have kept the intellectual output of Africa under constant check. Dulle et al, (2001) and Chailla (2001) also reported an instance where researchers are unable to gain access to recent subscription based scholarly content due to limited university funding and libraries in particular. Bothma (2011) reported that in the last decade, there has been a number of high-profile disagreement between publishing companies and university libraries over licensing fees for subscription-based journals.

He cited an example in 2010; where University of California was demanded to pay well over a million dollars— four times what they were already paying—for access to a subset of the journals published by the Nature Publishing Group (NPG). The dispute, "highlighted for both sides the serious need to find sustainable paths for scholarly publishing and scholarly communications, because clearly we are not on a sustainable path," says Ivy Anderson, Director of Collection Development and Management at the California Digital Library (CDL).

Lawrence (2001) and Harnad and Brody (2004) opined that open access increases the research impact of the publicly funded research, which creates opportunity for more research thereby increasing the return on investment. Okoye and Ejikeme (2011) lamented on low research productivity of academic librarians despite the abundance of OA publications. Many academic librarians are neither familiar nor have assimilated the new culture in their scholarly publishing, nor have known the advantages derivable from them in order to maximize their research productivity. There is no doubt that research productivity has attracted a lot of attention and debates among academics resulting from a decline in research productivity among academics in Nigerian Federal Universities despite the concerted put in place by international community in ensuring global access to literature at no cost. Therefore, this research attempted to out- line the factors resolving to utilization of Open Access Resources (OAR) on one hand, and on the other hand the likely challenges that could affect research productivity of academic librarians in Federal Universities in Northwestern States of Nigeria.

Review of Related Literature

Scholars across the globe make use of OA publication and sometimes publish through the same medium for other benefit equally, saving cost of subscription, improve research visibility, and increased citation rate. According to Frandsen (2009) as scholars from developing countries have limited access to research publications due to expensive subscription costs, open access has emerged in response to this subscription cost by challenging the constraint to access. According to International Scholars Journals (2013), less cost of OA has been one of the purpose of many scholars using OA as the cost of editorial processing and editing fee of each accepted paper is charged to authors' institutes or research funding agency. The cost of processing and the publication of an article are covered through the one-time payment of an Article Processing Fee (APF) for each accepted article.

Thus, traditional publishing method inhibits potential scholars and researcher's access to an adequate/sufficient amount of research material which is useful for their research programme. A study by Kumar and Bansal (2008) indicated that OA articles are being used and cited in research by authors in their respective fields. The study further indicates that OA articles are receiving more citations than print articles, there after helps to increase prestige and recognition of research articles and its authors, decreases the time lag between publication and the first citation. Affirming the above statement, Canadian Association of Research Libraries (2013) stressed that Open Access enables cost-effective, unrestricted flow of ideas and information and underpins excellence in research while also bringing down barriers to learning, building informed communities, and fostering international collaboration and understanding.

Jain (2012) stated that one of the factors that facilitate researchers' use of open access is in the area of research visibility of publications. As research finding were made available online, they have significantly larger and more diverse audience because connected with the global society. International Scholars Journal (2013) opined that OA publications have

high visibility, availability and ensure free and unlimited accessibility of the publication over the Internet without any restrictions. Journals and publishers of OA are more visible, discoverable, retrievable, and useful. If a journal is OA, then it can use this superior visibility to attract submissions and advertisement, not to mention readers and citations. (Willinsky 2010; Frandsen, 2009).

The world is fast changing and academic institutions are now responding to these global changes by adopting Institutional digital repositories as open access model in their various institutions. This has supported faculty and researchers by offering greater, more immediate access to peer research that could improve the caliber of scholarship in their institution. In Japan, the Ministry of Education, Culture, Sports, Science and Technology has encouraged Japanese University libraries to develop institutional repositories to promote sharing of knowledge throughout Japan and internationally (Cullen, 2009), Jain (2012) asserts that OA helps in the area of uplifting universities profile, increased impact and increase their visibility, OA reduces their journal expenses and advances their mission to share knowledge. It solves the pricing and permission crisis for scholarly journals and also serves library interests in other indirect ways. Librarians want to help users find the information they need, regardless of the budget-enforced limits on the library's own collection. Academic librarians want to help faculties increase their audience and impact, and help the university raise its research profile (Suber, 2010). Canadian Association of Research Libraries (2013) observed that not only does OA help advance science, but it brings the potential to accelerate the speed at which it progresses. Open access is good for education and good for research; by broadening the dissemination of the results of scientific inquiry and discourse, it supports the core mission of the higher education enterprise – its ongoing commitment to the advancement of knowledge. Open access incorporates local research into all interoperable network of global knowledge; increases impact of local research, providing new contacts and research partnerships for authors; removes professional isolation and strengthens economies through developing a strong and independent national science base (Antelman, 2004; Rowlands & Nicholas 2005; Giarlo, 2005, Canada, 2009; Willinsky, 2010; and Suber, 2010).

The creation of new knowledge lies at the heart of a University and results from tremendous investments on research and researchers by universities aimed at improving and benefiting the society. In the process, those products also advance further research and scholarship, along with the teaching and service missions of the university. Ocholla, Ocholla and Onyancha (2012), defined research to be a way of finding answers to unknown problems emerging from natural and artificial phenomena, within our environment, through a systematic, logical and verifiable process. What motivates individuals and organizations to conduct research across the board is not uniform. The ideal and, perhaps, main reasons are to find solutions to challenges or problems affecting humanity that stem from natural and artificial phenomena, confirm or contest or refute theories or hypotheses, develop scientific and professional practices, and to develop creative, analytical and rational thinking for informed decision making. Human beings conduct research every day. They do so in various ways, different theme and in many different settings. One important area is education. Conducting research in an educational setting should be a significant aspect of every educator's professional life and activities. On a more practical basis, research is done to fulfill learning, domestic and career needs; to satisfy curiosity; for egoistic reasons, such as recognition and visibility; for career related rewards, such as promotion, securing tenure or

permanent appointment; and for self development or growth, among others (Ocholla, Ocholla and Onyancha, 2012).

Study of research productivity has attracted growing attention in the library field for more than fifty years and especially since issues of academic tenure have come to the fore (Schwartz, 1991). Print and Hattie (1997) define research productivity as 'the totality of research performed by academics in universities and related contents within a given time period' Alzahrani (2011) highlighted that academic research represents the backbone of human activity in the way that it improves our quality of life through expanding frontiers of academic knowledge and making further research possible throughout the world. Academic researchers publish to establish their claim to a specific result at a specific point in time. When researchers publish their academic studies, it is an opportunity for their peers to access their research and communicate with other academics interested in a similar subject area Hunter (1998); Besimoglu, 2007; Hunter, 1998) Besimoglu (2007) agree that the publication of research results is a significant link between the areas of communication and academic awards.

Research productivity of academic librarian in any university is a major index of a librarian's quality and the determinant of advancement in terms of prestige, recognition for creative thinking, promotion, salary increase and acceptability in the university setting (Edem, 1995; Ochai and Nedosa, 1998; Salaam and Agboola, 2002; Alemna, 1993; Bassey, et al 2007). In addition, research output provides a good justification for librarians to become successful academics. This is so because research activity develops academic knowledge and reinforces the skills for effective knowledge transfer.

Indeed, there are various ways of measuring academic productivity, this include the use of citation analysis for evaluating or ranking the research performance or productivity of scholars (Cole and Cole, 1967, 1968). While on the other hand rankings based on lists of publications range from simple evaluation systems such as publication counts, to systems that devise certain evaluative or weighting scales for different kinds of publications—books, chapters in books, articles in referred and non referred journals, conference papers, and soon. In some cases, publication length and the reputation or rank of the publisher or journal are taken into consideration. The rationale for using lists of publications for ranking Library and Information Science (LIS) schools and faculty is based on claims that scholarly publications produce new knowledge, confer prestige on the university and to the individual researcher, attract better faculty and students, produce better teaching as new knowledge is integrated in to the preparation of students, develop the faculty member intellectually and professionally, and attract research funds (Blake & Tjoumas, 1990; Boyce & Hendren, 1996; Garland, 1991; Wilson,1979).

Okiy, (2000); Salaam and Agboola (2002) stated that most of the research productivity in Nigeria occurs in the university. Indeed, research productivity has become essential for university success and academic's employment and promotion prospects for academic staff including librarians (Okiki, 2011). This is true for librarians in the academic libraries because their promotion is tied to publishing and research (Okonedo and Popoola, 2012). According to Kennedy and Brancolini (2012) librarians in an academic setting are integrally involved with providing research services to faculty, students, and staff of higher education institutions. Okonedo and Popoola (2012) reported that research productivity of librarians in public universities in Nigeria, research productivity of librarians in Nigeria rest largely upon the quality, and often the quantity of research in form of books, journal articles,

technical reports, etc. (Alemna, 1993; Nwakanma, 2003; Ochai and Nedosa, 1998).

The level of education, skills, motivation and self perception of academics play an important role in their research productivity. Utulu (2005) affirmed that education and skills acquired in the early days of professional practice also determine the ability to produce scholarly papers. He added that one of the motivating factors for scholarly publications by librarians is the availability of other publications which contain the needed language for publication and how to use them. According to Kennedy and Brancolini (2012), motivation by a desire to help academic librarians improve their research skills and, thus, the quantity and quality of their research is of paramount importance. Ochai and Nedosa (1998) asserted that publication is motivated by eagerness or enthusiasm to publish, presence of enabling environment, self perception of individual librarians with respect to their role, the will power on individual librarian to succeed and the determination not to "perish" in the academic high seas.

Powell (1997) remarked that despite the benefits of publications to librarians, they do not conduct enough research and publication. Cullen (1998) and Molholt (1998) also noted that lack of interest and motivation hinders librarians' scholarly publication. Several studies have shown that librarians in their first 2-3 years of professional life are potentially non-productive years for scholarly publications. Okonedo and Popoola (2012) acknowledged that regardless of some of the motivating factors, librarians do not generally engage in adequate research and publication. Kennedy and Brancolini (2012) observed that despite with the benefits of conducting research and the desire of librarians to conduct research, the reasons that librarians may not conduct research are diverse. One of those reasons in particular has been examined in the literature quite a bit: uneven training in research design. Research training at the master's level is especially varied, leading to an uneven skill set among librarians.

However, a study conducted by Hildreth and Aytac (2007) in a study argued that librarian conduct research. They found, from a sample of 206 articles out of 401 published between 2003 and 2005 in 23 Library and Information Science (LIS) journals, that 47.1 percent of the articles were written by librarians ("practitioner-researchers") alone, 43.2 percent by academics ("academic-researchers") who teach in schools of Library and Information Science), and 9.71 percent by mixed research teams. With regard to quality, Hildreth and Aytac found "little difference in the quality and organization of published reports," but there is room for improvement on the part of both practitioners and academic researchers.

Lertputtarak (2008) observed that there is still an unacceptably low level of research productivity, especially in public universities. Suwanwala (1991); Aina (1997); Oshagbemi (1997); Ochai & Nedosa (1998); Cullen (1998); Molholt (1998) Powell et al. (2002); Sedikadiwa (2005); Utulu (2005); Onohwakpor & Tiemo (2006); Moahi (2008); and Ogbomo (2010) have reported on some other reasons for low research productivity of librarians. These include "failing to understand the purpose of publication, its limitation or how it might be effectively used; lack of time to spending more time in their daily routine jobs than in publishing; ignorance about where to publish; lack of interest; lack of funds; poor education which hinders the acquisition of adequate skills in research and identification of research problems; insufficient knowledge, skills and experience as well as not realizing the importance of conducting research and perhaps their self-concept in the academic community.

Research Question

1-What are the factors that resolve to the use of open access resources by academic

librarians in Federal Universities in Northwestern States of Nigeria?

2-What are the factors influencing the level of use of Open Access of academic librarian in relation to their research productivity in federal universities in Northwestern States of Nigeria?

Hypothesis

There is no significant perceived relationship of utilization open access resources on research productivity of academic librarians in federal Universities in Northwestern States of Nigerian.

Methodology

Quantitative research approach was adopted for the study, using survey research design. The study used questionnaire as an instrument for data collection. A total of 200 academic librarians in seven (7) Federal Universities in Northwestern state of Nigerian formed the populations for the study. This comprises Ahmadu Bello University Zaria, Bayero University Kano, Usmanu Danfodiyo University Sokoto, Federal University Dutse, Federal University Dutsinma, Federal University Birnin Kebbi and Federal University, Gusau. A simple random-sampling technique was adopted to select the seven Universities covered by the study. Out of 200 copies of questionnaire distributed to academic librarians in federal universities in Northwestern States of Nigeria, a total of 174 (87%) copies were returned duly completed and found useable for this study. the data collected for the study from the research question was presented and analyzed using descriptive statistics and the findings were presented in tables, showing frequencies of responses and their corresponding percentages. while the hypothesis was tested using Pearson Product Moment Correlation (PPMC). Statistical Package for Social Sciences (SPSS) version 16 was used for the analysis. The choice of this software was based on its high descriptive and multivariate statistical power for quantitative data analysis (Dulle, 2010).

Results and Discussions

Out of 200 copies of questionnaire distributed to academic librarians in federal universities in Northwestern States of Nigeria, a total of 174 (87%) copies were returned duly completed and found useable for this study. The findings are as presented as follows.

Factors Resolving the Use of Open Access Resources by the Academic Librarians

The respondents were provided with a number of statements to indicate the factors that resolve them to use open access resources during research activities is presented in Table 1.

Table 1: Factors Resolving to the Use of Open Access Resources by the Academic Librarians

Factors Resolving the Use of OA Resources by Academic Librarian	**Ratings (Number and Percentage)**				
	Very Important	Important	Somewhat Important	Less Important	Not Important at all.
Support for access policy	61 **(35.1%)**	70 **(40.2%)**	36 **(20.7%)**	4 **(2.3%)**	3 **(1.7%)**
Satisfying my need for creativity /curiosity	38 **(21.8%)**	90 **(51.7%)**	32 **(18.4%)**	11(6.3%)	3 **(1.7%)**
Access to publication at no cost	67 **(38.5%)**	68 **(39.1%)**	27 **(15.5%)**	3 **(1.7%)**	9 (**5.2%)**
Getting informed to stay current in the field	68 **(39.1%)**	74**(42.5%)**	28 **(16.1%)**	1 **(.6%)**	1 **(1.7%)**
Achieving peer recognition and Prestige	55 **(32.6%)**	49 **(28.2%)**	59 **(33.9%)**	3 **(1.7%)**	8 **(4.6%)**

Satisfying urge to contribute to knowledge	55 **(31.6%)**	94 **(54.0%)**	17 **(9.8%)**	4 **(2.3%)**	4 **(2.3%)**
Currency and timeliness nature of open access publications	70 **(40.2%)**	57 **(32.8%)**	31 **(17.8%)**	13(7.5%)	3 **(1.7%)**
Getting respect from students	29**(16.6%)**	60 **(34.5%)**	44 **(25.3%)**	21 **(12.1%)**	20 **(11.5%)**
Increase citation rate of your publications	36 **(20.7%)**	77 **(44.3%)**	31 **(17.8%)**	10 **(5.7%)**	4 **(2.3%)**
Limited access to subscription based publications	66 **(37.9%)**	48 **(27.6%)**	41 **(23.6%)**	16 **(9.2%)**	3 **(1.7%)**
Wider visibility of open access publications	67 **(38.5%)**	74 **(42.5%)**	20 **(11.5%)**	10 **(5.7%)**	3 **(1.7%)**
Fostering international collaboration, partnership and sharing	66 **(36.7%)**	68**(39.1%)**	31**(17.8%)**	8**(4.6%)**	3**(1.7%)**
Open access speed research progress and Knowledge sharing	53 **(30.5%)**	72 **(41.4%)**	28 **(16.1%)**	5 **(2.9%)**	16(9.2**%**)
To improve global network and interoperability of Knowledge	47 **(27.0%)**	77 **(44.3%)**	19 **(10.9%)**	6 **(3.4%)**	5 **(2.9%)**

Data analysis from Table 1 indicated that almost all facilitating factors were considered by about three quarters of all the respondents as important or very important determinant factors for using open access resources. The support for access policy was considered very important or important as their main factor for using OA resources with 131 (75.3%) responses. Access to publications at no cost with 135 (77.6%) responses. 142 (81.6%) agreed or strongly agreed with the statement that getting informed to stay current in the field as the factor influencing them to use OA. The respondents further stated that satisfying their urge to contribute to knowledge with 149 (85.6%) responses. Specific questions regarding the properties of open access resources such as increase citation rate as influencing factor with113 (65%) responses. visibility and speed, which exposes OA scholarly works to a large potential readership, were the major factor influencing them to use OA publications with 141 (81%) responses. Speed research progress and knowledge sharing with 125 (71.9) responses. Lastly, usage of open access to improve global network and interoperability of knowledge has 124 (71.3%) responses.

This research finding supported that of International Scholars Journal (2013) which indicated that OA publications have high visibility, availability, ensure free and unlimited accessibility of the publications over the Internet without any restrictions. Suber (2010) asserts that journals and publishers of OA make their articles more visible, discoverable, retrievable, and useful. If a journal is OA, then it can use this superior visibility to attract submissions and advertising, not to mention readers and citations. Corroborating this, Willinsky (2010) and Suber (2010) stated that OA gives authors a worldwide audience larger than that of any subscription based journal, no matter how prestigious or popular, and demonstrably increases the visibility and impact of their work.

From the foregoing discussion, the main factors facilitating scholar to use open access publication was to benefit from varying impact of open access, which includes free access to public funded research publication, research visibility, and increased citation rate and research collaboration

Factors Influencing Research Productivity of Academic Librarians

The respondents were provided with a number of statements to select from and describe the extent to which such factors would influence their use of Open Access Resources for research productivity. The Likert Scale of Measurement: strongly agree, agree, disagree, and strongly disagree was used to rank the choices. The result is presented in table 2.

Issues challenging the Utilization OA by Academic Librarian for Research Productivity Purposes	**Ratings (Number & Percentage %)**			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Gender, have greatly influenced my research productivity.	65 **(37.3%)**	95 **(54.6%)**	6 **(3.4%)**	8 **(4.6%)**
Age, has greatly my research productivity.	95 **(54.6%)**	65 **(37.3%)**	8 **(4.6%)**	6 **(3.4%)**
Marital status has greatly my research productivity	65 **(37.3%)**	95 **(54.6%)**	6 **(3.4%)**	8 **(4.6%)**
Lack of enabling environment such as collegial commitment, cordial relationship have greatly influenced my research	61 **(35%)**	95 **(54.6%)**	15 **(8.6%)**	3 **(1.7%)**
Positive working area and good facilities has greatly influenced my research productivity	95 **(54.6%)**	61 **(35%)**	15 **(8.6%)**	3 **(1.7%)**
Low level of education, skills and training,	36 **(20.7%)**	97 **(55.7%)**	25 **(14.4%)**	16 **(9.2%)**
Lack of interest has greatly influenced my research productivity	34 **(19.5%)**	93 **(53.4%)**	11 (6.3%)	36 **(20.7%)**
Attitude towards conducting research has greatly influenced my research productivity.	34 **(19.5%)**	93 **(53.4%)**	11 (6.3%)	36 **(20.7%)**
self- confidence, significantly influenced my research productivity	93 **(53.4%)**	34 **(19.5%)**	36 **(20.7%)**	11 (6.3%)
Low level of motivation has greatly my research productivity	49 **(28.1%)**	105 **(60.3%)**	12 **(6.9%)**	8 **(4.6%)**
Ignorance on where to publish, greatly my research productivity	49 **(28.1%)**	105 **(60.3%)**	12 **(6.9%)**	8 **(4.6%)**
Lack of time due overloading teaching schedule and tenure influenced has greatly my research productivity	105**(60.3%)**	49 **(28.1%)**	8 **(4.6%)**	12 **(6.9%)**

It can be noted from Table 2 the questionnaire asked for views on the factor influencing research productivity nearly all the opinions have influence on the research productivity of the respondents. The respondents strongly agreed or agreed that issues like gender, age, marital status have greatly influenced their research productivity with 160 (91.9%) responses each. Also, 156 (89.6%) indicated that lack of enabling environment such as collegial commitment, cordial relationship have greatly influenced their research productivity. Low levels of education, skills and training have significantly influenced the research productivity of the respondents with 133 (76.1%) responses. Accordingly, 127 (72.9%) of the respondents agreed or strongly agreed with the fact that lack of interest and attitude towards conducting

research have greatly influenced their research productivity with 154 (88.4%) responses respectively. Lastly, lack of time due overloading teaching schedule and tenure has greatly influenced their research productivity with 154 (88.4%) responses.

The level of education, skills, motivation and self perception of academics play an important role in their research productivity. Utulu (2005) affirmed that education and skills acquired in the early days of professional practice also determine the ability to produce scholarly papers. He added that one of the motivating factors for scholarly publications by librarians is the availability of other publications which contain the needed language for publication and how to use them. According to Kennedy and Brancolini (2012), motivation by a desire to help academic librarians improve their research skills and, thus, the quantity and quality of their research is of paramount importance. Ochai and Nedosa (1998) asserted that publication is motivated by eagerness or enthusiasm to publish, presence of enabling environment, self perception of individual librarians with respect to their role, the will power on individual librarian to succeed and the determination not to "perish" in the academic high seas.

The quality of research output among librarians in any university setting depends largely on quality and quantity of information resources at the university disposals as well as their self-concept (Okonedo and Popoola, 2012).

Testing of Hypotheses

Hypothesis: H_0 There is no significant perceived relationship of utilization open access resources on research productivity of academic librarians in federal Universities in Northwestern States of Nigerian.

Correlations were run on a number of questions based on the hypothesis set for the study, The correlations have the null hypothesis as starting point, which says that there is no relationship between variables i.e. $r = 0$. A 5% significance level ($p < 0.05$) as guideline for determining significant correlations Table in

Table 3: Pearson Product Moment Correlation (PPMC) Statistics to Test the Relationship between Use of Open Access Resources and Research Productivity

Usage of open access publications	N	P-Value	Calculated Value
I often use OA publications in my research	170	.000	1
I usually retrieve scholarly content from OA	166	.000	.603**
I have submitted many papers to open access journals	152	.022	.186*
I usually self-archive my works on the internet	161	.223	.096
I only cite and not publish in OA publications	157	.825	.018
OA is usually my first priority when sourcing for materials for my work	167	.000	.341**
OA is usually my first priority when deciding on where to publish my work	163	.000	.401**
I have some publications in open access outlets	150	.018	.193*
Research Productivity Of Academic Librarians			
Issues like gender, has greatly influenced my research productivity.	161	.000	.301**
Age has greatly influenced my research productivity.	172	.000	1

Marital status has greatly influenced my research productivity.	161	.000	.301**
Lack of enabling environment such as collegial commitment, cordial relationship have greatly influenced my research productivity	159	.000	.365**
Positive working area and good facilities have greatly influenced my research productivity	159	.000	.365**
Low level of education, skills, training, has significantly influenced my research productivity	154	.000	.412**
Lack of interest, has greatly influenced my research productivity	159	.050	.156*
Attitude towards conducting research has greatly influenced my research productivity	149	.003	.243**
Self- confidence has greatly influenced my research productivity	159	.050	.156*
Low level of motivation has greatly influenced my research productivity	154	.000	.367**
Ignorance on where to publish has greatly influenced my research productivity	165	.097	-.130
Lack of time due to overloading teaching schedule and tenure	154	.000	.367**

**correlation is significant at the 0.01 level (2-tailed) *correlation is significant at the 0.05 level (2-tailed

Table 3 revealed that significant established perceived relationship of utilization open access resources on research productivity of academic librarians in federal Universities in Northwestern States of Nigerian was established. This position was confirmed from the details in Table 3 which the calculated significance of 0.000 is less than 0.05 level of tolerance, where in all the items the p-value is less than the significance level, confirming the presence of a significant relationship. Hence the null hypothesis which stated: There is no significant perceived relationship of utilization open access resources on research productivity of academic librarians in Federal Universities in Northwestern States of Nigerian is rejected.

Conclusion

Open access has gained considerable traction in the recent time for its impact in maximizing research productivity. Ironically, academic librarians in Nigerian Federal Universities need to consider this development in order to exploit the benefits and potentials of open access publications for enhanced research productivity. Hence, the present study explored the factors resolving to use of Open Access, hindrances to research productivity and the perceived effects of utilization Open Access Resources (OAR) on research productivity in Federal Universities in North Western States of Nigeria. It was also found that there was a significant perceived positive effect of utilization of Open Access Resources on research productivity at the surveyed Nigerian universities.

Equally, it was found that, the major factors resolving to the use of open access resources were myriads benefits such as access to information resources at no cost, getting informed to stay current in the field, satisfying urge to contribute to knowledge,, other specific questions regarding the properties of open access resources such as increased citation rate, visibility and speed in communicating research ideas; which exposes Open Access Resources scholarly works to a large potential readership were considered to be the major factors resolving to use of OAR. Noteworthy is the fact that, not scarcity of information resources, neither lack of awareness of myriad benefits of Open Access information resource hindered research productivity of academic librarians in the area covered by the study, since most of the respondent attested to the various benefits attached to utilization of Open Access Resources.

Hence, while measures should be taken to strengthen the facilitating condition and policies to improve effective use of open access resources

for better research productivity, much more emphasis should be focused toward ameliorating inhibiting challenges on research productivity such as enabling environment, collegial commitment, cordial relationship and collaboration, positive attitude towards conducting research, motivation, overloading teaching schedule and tenure, education and training of academic librarians need to be given attention.

Recommendation

Based on the findings of the study the following recommendations are made:

(1) There is the need to adopt and adapt to the changing model of scholarly communication with particular reference to Open Access Resources; sensitization campaign in form of seminars and workshops should be organised on regular basis in order to improve the level of awareness of myriad benefits of publishing scholarly output via Open Access outlets. University management should support academic librarians by developing an intrinsic drive for knowledge creation and publishing research output through Open Access outlets likewise, self-archiving practices through institutional repository need to be encouraged. Lastly, university should also consider the possibility of providing research grant with priority to supporting open access scholarly communication models.

(2) The University management should give emphasis on building a better research culture by setting up competitive rewards mechanism for academic librarians. So also, early career academic librarians need to encourage, support and mentored by senior colleagues, this should be complimented by enabling environment; modern research facilities, research grants as well as training. Lastly, academic librarians need to be given more opportunities for collaboration within and across universities in the globe. This would better improve efficiency and research performance among academic librarians in Nigerian Federal Universities.

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