

Full Length Research Paper

Scholarly communication of academics in science and engineering in Nigerian university libraries

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Accepted 7 March, 2011

The study investigated the availability of online and printed journals where academics in science and engineering faculties in Southern Nigerian University publish their articles in their university libraries. Descriptive survey method was used for the study. Questionnaire addressing the availability, rate of acquisition and currency of 57 journals where the aforementioned academics publish, were given to the University serial librarians, two universities from each geopolitical zone. The result of the findings shows that university of Lagos has the highest availability of 63% of the journals online and 46% in printed form. This is followed Niger Delta University (UDU) with 43.9% online and 75.4% in printed form. Other universities do not have them online while all the universities do not have them in CD-Rom. Only University of Lagos has the highest rate of acquisition 90 and 88% of current available journals, this is followed by Niger Delta University with 73.2%. The paper recommends regular acquisition of journals where Nigerian academics publish and also to have a guiding acquisition policy, building of institutional repository and publishing in open access journals.

Key words: Scholarly communication, academics, science, engineering, institutional repository, Nigerian Universities.

INTRODUCTION

Research is human activity based on intellectual application in the investigation of matters. The aim of research is to discover and develop methods and systems for advancement of human knowledge, the results of which are reported in journals. Journal publication is an instrument for dissemination of various aspects of information and knowledge. Oppenheim (2004) opined that journals are vehicles of scholarly communication where the latest thinking and research can be disseminated, discussed and reviewed by others in the same field. The importance of journals in science and engineering as information source is hinged to the fact that journal reports carry research development and they are peer-reviewed to ensure that they contain new research findings. Researchers interact using formal communication channels by publishing papers in journals and presenting papers at

national and international conferences. The outcome of any research must be published as a form of information. Information is crucial to the performance of academics, who are both consumers and producers of information. According to Rauch (1979) information is the main input and output of every scientific activity. Information and documentation including printed and online materials are the most important means to control and access scientific results. In general, scientific documentation is a central element of human knowledge. Therefore, scientific researchers are being looked upon as the major contributors to the pool of knowledge to be accessed by others.

Ogundipe (2005) emphasized that journals contain and provide current and latest expository thoughts on any chosen aspect of knowledge. He went further to say that the content of journal is comprehensive in its focus or chosen topic, providing basic, deep or standard knowledge through which conclusions could be modified and repeated in parts. University libraries have played an

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important part in scholarly communication, gradually migrating from periodical subscriptions of hard copies to digital copies or parallel provision of printed and digital resources in electronic access.

Academics engage in research in order to make contributions to the body of knowledge, therefore they must select appropriate publication outlets that will enable them achieve this goal. In other words the ultimate objective of academics is that she/he be read in a reputable journal. Through this means she/he could be cited by other academics. The more acknowledgements he/she receives through citations, the more credit she/he earns. However, studies have shown that academics in developing countries publish in both international and local journals. They publish more in their local journals to meet the local interest of the people and most of these journals are not in the web (online) because they are not abstracted or indexed by Science Citation Index (SCI) or other databases. Therefore, the only way to access them is in the form of hard copies that are available in their university library or through their institutional repositories. This is an important source through which they can be accessed. This helps to avoid repetition of the same studies in the same environment. Its values are important that NUC, during accreditation now ask of local collections. Ashoor (1993) emphasized that journals in which scientists publish their papers are expected to be consulted more frequently by these authors and their colleagues. The journals should be preferably available in local libraries in the country. Apart from that, Oppenheim (2004) emphasized that many people especially new researchers or junior academics need to locate these journals mostly for background information. Non availability of these journals where the academics publish in the university library will mean lack of access to valuable information that researchers have discovered and this may lead to replication of the research and therefore duplication of information. This lack of citation is not due to lack of quality but due to lack of exposure, as local journals are often chosen for publication in order to reach the local audience. The study was conducted to find out the extent of availability of scholarly communication (Journal Publications) in Nigerian University Libraries.

Statement of problem

In recent times during accreditation, the NUC accreditation team usually asks for local journals available in the library, this is in realization of the role these resources play in promoting knowledge. It is therefore necessary that these journals need to be acquired in our libraries and the information content in them be preserved. This could be achieved through digitization effort which is one veritable means of preserving our cultural heritage. Journals are part of our cultural heritage, Ezeani and Ezema (2009) pointed out in their work that journals, theses and publications are part of the resources to be

preserved in our effort of digital preservation of cultural heritage in University of Nigeria Nsukka. However, Olatokun (2008) discovered that most University libraries in Nigeria have not digitized their documents. As a result of these it is necessary to assess the availability of the journals where the academics publish their articles in their university libraries. Hence this study is to find out the availability of journals where the academics publish in their university library.

Research questions

The following research questions were formulated to guide this study:

Are these journals where the academics in science and engineering published their articles available in your university library in any of these format (printed, CD-ROM or online)?

What is the frequency of acquisitions of these journals that are in your serial collections?

What is the extent of currency of the available journals?

Literature review

Scholarly journals in most fields of study particularly in science and engineering are the key element in knowledge accumulation and dissemination network both in printed copies and electronic formats. Journals provide the current and latest thoughts on any chosen area of knowledge. Ebong (2004) commented that whereas the university was seen as an institution primarily concerned with the search for truth and the pursuit and preservation of knowledge, today universities are also involved in search for solutions and problem solving and in adoption and application for national development. Universities all over the world are responding to these new challenges by establishing links with government, agriculture, commerce and industry. University libraries are therefore, supposed to be the first point of call for on-going research in any topic. Altbach opted that in this age of computer-based data networks journals are the standard means of communicating the latest knowledge in the academic fields (Teferra, 2004). Teferra (2004), in his survey study of African scientists, used e-mail based open-ended and self-administered questionnaire and found out that journals are the single most important medium of knowledge communication and information access. Seven out of ten respondents indicated journals as their major avenue for scientific communication. In similar survey study, Okafor and Ukwoma (2007) using questionnaire found out that academics in science and engineering in Southern Nigerian Federal Universities frequently use journals with mean score of 4.28 out of 5 point scale.

Teferra (2004) emphasized that journal prominence a redverse which are accessibility, regularity, reliability,

simplicity, availability and relative cost. Journals remain relatively and comparatively the most affordable, easily accessible, simpler and cheaper medium upon which knowledge is communicated in African Universities compared to other existing avenues of scientific communication. Oppenheim (2004) was of the opinion that availability of journals where academics publish in their university library will provide quantitative tools for ranking and comparing journals. This helps scholars target their output and aid in decision-making within the departments. Ashoor and Chaudhry (1993), contacted the major research libraries in Saudi Arabia to verify the physical availability of the 37 journals listed where their scientists publish, the majority of the titles were reported to be available in major Saudi libraries.

Teferra (2004) opted that 9 out of 10 replied that they enjoy access to international journals. In a follow-up question on access to regional journals, half of the respondents stated that they had access to them. He went further to say that this supports the widely held view that regional journals have limited distribution across the content. Okafor and Ukwoma (2007) found out that academics in science and engineering scored a mean of 3.46 out of 5.00 point scale in terms of availability of journals in the university libraries.

However, Teferra (2004) in a comparative study of the scientists' opinions on importance and relevance of regional journals to international ones, 70% of the respondents affirmatively stated that regional journals were as important and relevant as other similar and or related international scientific journals. The respondents expressed the importance of regional journals as follows:

Regional journals address local and regional issues of common significance.

They are more applied and display better understanding of local problems.

They provide an opportunity to have information on related works and help to track the names and addresses of people who are working in the same field.

They are more practical and more relevant and also constituting important scientific communication media that can help develop and promote common regional agendas and research interests.

In spite of the importance of scientific journals, both international and local, it is evidence that there is non subscription of journals in the University libraries in Nigeria. Levy emphasized that University of Nigeria libraries had virtually no subscriptions except those 80 journals title that were acquired from the American Association of Advancement of Science (AAAS) (Teferra, 2004). More than half of the libraries concerned in this study do not subscribe to more than 100 journals through their internal fund. Teferra (2004) emphasized that the most prevalent reasons for not subscribing was attributed to financial constraints, restrictions regarding foreign currency. Non-subscription is also due to irregularity and

unreliability of local journals. The manuscripts are often lacking in current information and this may lead to their rejection by international journals. Olukoju (2004) revealed that those who are not willing to publish in overseas journals decided to take some steps. Journals sprouted in departments and faculties in universities across the country, but some did not go beyond the first few issues before they collapsed, either because of poor subscription and funding or because of their internal contradictions. Moreover, once scholars get the immediate aim, which was promotion, they lost interest in the journal.

The most important danger that could occur if information and documentation do not fulfill their aims is duplication of research. Equally dangerous and probable is an even greater dependency on foreign countries for information. Kerwin et al. emphasized that failure to get access to information has numerous consequences, such as ignorance which is likely to result in considerable inefficiencies in organizational operations due to misunderstanding, the duplication of effort, working at cross purposes and time delays (Johnson and Donohue, 1995). These inefficiencies and more dramatic outcomes are likely to have impact on workers, leading to feeling of stress, tension, frustration, low morale and turnover. It can lead to low productivity and lack of integration of individuals into the organization cultures, this can be applied to academic institutions. Inadequate information leads to rejection of articles and also duplication of what others have done.

METHODOLOGY

Descriptive survey method was used for the study. The study was conducted in southern Nigeria. Southern Nigeria is made of 3 geopolitical zones. Six universities were selected from these 3 geopolitical zones, two from each zone which comprises of one federal and one state university from each zone. These include University of Nigeria, Nsukka (UNN), Anambra State University, Uli (ASU) (South-East), University of Lagos (UNILAG), and Lagos State University (LASU) (South-West), University of Calabar (UNICAL) and Niger Delta University Bayelsa (NDU) (South-South). Serial librarians in these Universities were used for the study. This was chosen because of the nature of information needed, and it requires the serials librarian to tick out journals from the list of 57 journal titles that were selected. These journals were ranked based on a previous study carried out using academics in science and engineering faculties in Southern Nigeria Federal Universities on which they were asked to list the journals where they publish. Based on the list of journals, 57 of the journals (which have more than 3 academics that published) were taken. The list was used to develop a questionnaire that was sent to serial librarians of these six universities in Nigeria.

ANALYSIS OF DATA

Availability of the journals where the academics publish in the university libraries

Table 1 shows the extent of availability of these journals

Table 1. Extent of availability of the journals.

University	Printed (%)	CD-ROM	On-line (%)
University of Lagos (UL)	46	-	63
Lagos State University (LASU)	28.9	-	-
University of Nigeria, Nsukka (UNN)	30	-	-
Anambra State University, Uli (ASU)	16	-	-
University of Calabar (UNICAL)	33.3	-	-
Niger Delta University Bayelsa (NDU)	75.4	-	43.9

Table 2. Rate of acquisition of the available journals.

University	Regularly (%)	At times (%)	Rarely (%)
University of Lagos	90	6	4
Lagos State University	11.8	-	88.2
University of Nigeria, Nsukka	12	-	78
Anambra State University, Uli	11	89	-
University of Calabar	27.3	31.8	40.9
Niger Delta University Bayelsa	2.4	11.9	85.7

Table 3. Level of currency of the available journals.

Universities	Up-to-date (%)	1 to 5 (%)	6 to 10 (%)	Over ten years (%)
University of Lagos	88	9	3	-
Lagos State University	28.6	71.4	-	-
University of Nigeria, Nsukka	27	-	6	54.6
Anambra State University, Uli	11	89	-	-
University of Calabar	20	20	20	40
Niger Delta University, Bayelsa	73.2	-	-	26.8

in different formats, University of Lagos has the highest availability of the journals in on-line format with 63 and 46% in printed form. Niger Delta University Bayelsa has 43.9% in online format and 75.4% in printed form. University of Calabar has 33.3% in printed format, University of Nigeria, Nsukka has 30% availability of the journals in printed form. While Lagos State University has 28.9% in printed form and Anambra State University Uli have only 16% of journals in printed form. None of the universities had the journals in CD-ROM.

Rate of acquisition of available journals

Table 2 presents the rate of acquisitions of the available journals, the rate of acquisition shows that University of Lagos acquire these journals regularly at the rate of 90, 60% at times and 4% rarely. On the other hand University of Calabar acquires 27.3% of these journals regularly 31.8% at times and 40.9% rarely available. University of Nigeria Nsukka has only 12% regularity of the available journals and 78% of rarely available while Lagos State

University has 11.8% of these journals regularly and 88.2% rarely available. Anambra State University, Uli has 11% of regular journals and at times 89% availability, and Niger Delta University Bayelsa has its rate of acquisition as follows 2.4% regularly, 11.9% at times and 85.7% rarely available.

Currency of the available journals

Table 3 shows the level of currency of the available journals. University of Lagos has those journals 88% up-to-date, Niger Delta University Bayelsa has 73.2% up-to-date while Lagos State University has up to date 28.6%, University of Nigeria, Nsukka, University of Calabar and Anambra State University, Uli, has 27, 20 and 11% respectively.

DISCUSSION

Findings from the study revealed that University of Lagos

has 63% of journals online and 46% in printed form and Niger Delta University Bayelsa has 43.9% of these online and 75.4% in printed form where academics publish. This is in line with Ashoor and Chaudhry (1993) who contacted the major research libraries in Saudi Arabia had physical availability of the 37 journals where most of their scientists publish in the major Saudi Libraries. On the other hand University of Calabar has 33.3% in printed form, while University Nigeria Nsukka, Lagos State University and Anambra State University Uli had 30, 28.9 and 16% availability respectively. It is clear that non availability of these journals in some University libraries could lead to lack of information and dissemination in both printed and electronic formats, which is in line with Kerwin et al that failure to get access to information has numerous consequences, such as ignorance which is likely to result in considerable inefficiencies in organizational operations due to misunderstanding, the duplication of effort, working at cross purposes and time delays (Johnson and Donohue, 1995). Then availability will lead to full utilization of information in journals, as journals are the main information source that researchers use as indicated by Altbach who stated that in this age of computer-based data networks journals are the standard means of communicating the latest knowledge in the academic fields (Teferra, 2004). In similar survey study, Okafor and Ukwoma (2007) using questionnaire found out that academics in science and engineering in Southern Nigerian Federal Universities frequently use journals with mean score of 4.28 out of 5 point scale.

In terms of rate of acquisition, only University of Lagos had 90% of regular acquisition while UNICAL has 27.3%, UNN, LASU, ASU and NDU had 12, 11.8, 11 and 2.4% respectively. Regular acquisition of journals is important in research as Oppenheim (2004) stated that journals are vehicles of scholarly communication where the latest thinking and research can be disseminated, discussed and reviewed by others in the same field. This means that UNN, LASU, UNICAL, NDU and ASU should intensify in their rate of acquisition of journals.

On the other hand UNILAG had 88% and NDU had 73.2% of their available journals up-to-date, while LASU, UNN, UNICAL and ASU had 28.6, 27, 20 and 11% currency respectively. Currency of journals will enable researchers to cite current works as was pointed out by Ogundipe (2005) that journals contain and provide current and latest expository thoughts on any chosen aspect of knowledge.

Conclusions

Scholarly communication has been a veritable means of sharing information among the academics, it's quite interesting that many academics have the interest and zeal to share their knowledge and new discovery through this important medium (journals). The paper highlighted the importance and availability of journals where

academics in science and engineering publish in our University Libraries. From the work it shows that, for UNN and ASU many of these journal titles where their academics publish are not available in their libraries, unlike in University of Lagos where the acquisition of these journals are available and regular. Researches done by Nigerians are for our consumption and use, hence part of our cultural heritage. Acquisition of such journals by our University Library is part of building our cultural heritage and that will help the younger generation to fall back on, for future research.

Recommendations

Based on the findings of this study, the following recommendations were made:

University Libraries should ensure regular acquisition of current journals so as to encourage research in the institutions.

There should be a guiding acquisition policy to ensure that subscriptions of journal titles are sustained, not just introducing new titles each day without considering the ones already being subscribed to. The Library management should allocate greater percentage of their vote to the acquisition of journal titles since they are important to researchers. The Library management should ensure that they acquire most of the journals where their academics publish, they could achieve this by encouraging them to donate copies of their publication to the library. The lecturers should publish in open access journals, so that researchers can have access to their works without restriction and this will also increase the number of journal titles available in their institutions.

Institutions should make effort to build and manage their own repository so that publications of academics in each university can be digitized and uploaded to the internet and made accessible to other people.

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Appendix 1.**Questionnaire on availability of core journals where the academics in Science and Engineering published their articles****Section A.** Personal data.

1. Name of University
 2. Rank: Librarian 11 [] Librarian 1 [] Senior librarian [] Principal Librarian [] Professor []
 3. Highest academic or professional qualification obtained:
PhD [] M.LS [] M.Sc [] Bachelors Degree []
- Any other (please specify)

Section B. Are these journals available in your serial collections?

A				
S/N	Indicate the format of these journals if they are available in your serial collections	Printed	CD-ROM	On-line
1	Journal of Mathematics Society of Nigeria			
2	Nigeria Journal of Microbiology			
3	Journal of Bioresearch			
4	Global Journal of Mathematical Engineering			
5	Journal of Mining and Geology			
6	Journal of Nigeria Statistical Association			
7	Nigerian Journal of Mathematical Physics			
8	Nigeria Journal of Botany			
9	Nigeria Journal of Science			
10	Journal of Science and Technological Research			
11	Journal of Chemical Society of Nigeria			
12	Nigeria Journal of Applied Science			
13	Bioscience Research Communication			
14	Global Journal of Pure and Applied Science			
15	African Journal of Biotechnology			
16	Nigeria Journal of Solar Energy			
17	Global Journal of Mathematical Science			
18	Journal of Science, Engineering and Technology			
19	Nigerian Journal of Physics			
20	Nigeria Journal of Biotechnology			
21	Nigerian Food Journal			
22	Nigeria Journal of Natural Product and Medicine			
23	Science Focus			
24	The Nigerian Statistician			
25	Nigeria Journal of Technology			
26	Journal of Mathematical Association of Nigeria			
27	Global Journal of Science			
28	Journal of Applied Science			
29	Environmental Geology			
30	Tropical Freshwater Biology			
31	Journal of Tropical Science			
32	World Journal of Biotechnology and Microbiology			
33	Journal of Scientific and Industrial Studies			
34	Journal of Applied Polymer			

Section B.**A. Contd.**

- 35 World Journal of Biotechnology
 - 36 The Zoologist
 - 37 IEEE Transactions on Nuclear Science
 - 38 Journal of Engineering Development
 - 39 African Journal of Non-Linear Analysis
 - 40 Animal Research International
 - 41 African Earth science
 - 42 African Journal of Science
 - 43 The Environmentalist
 - 44 The Journal of Applied Science and Environment Management
 - 45 African Scientist
 - 46 African Journal of Electrical Engineer
 - 47 European Polymer Journal
 - 48 African Journal of Environmental Pollution and Health
 - 49 Pakistan Journal of Science and Industrial Research
 - 50 Journal of Aquatic Science
 - 51 Bioresource Technology
 - 52 African Journal of Biomedical Research
 - 53 Plants Products Research Journal
 - 54 African Geo science Review
 - 55 Astrophysical Journal
 - 56 Biometrics
 - 57 ASSET
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B

S/N	Indicate the frequency of acquisition of these journals if they are in your serial collections	Regularly	At times	Rarely regular
1	Journal of Mathematics Society of Nigeria			
2	Nigeria Journal of Microbiology			
3	Journal of Bioresearch			
4	Global Journal of Mathematical Engineering			
5	Journal of Mining and Geology			
6	Journal of Nigeria Statistical Association			
7	Nigerian Journal of Mathematical Physics			
8	Nigeria Journal of Botany			
9	Nigeria Journal of Science			
10	Journal of Science and Technological Research			
11	Journal of Chemical Society of Nigeria			
12	Nigeria Journal of Applied Science			
13	Bioscience Research Communication			
14	Global Journal of Pure and Applied Science			
15	African Journal of Biotechnology			
16	Nigeria Journal of Solar Energy			
17	Global Journal of Mathematical Science			
18	Journal of Science, Engineering and Technology			
19	Nigerian Journal of Physics			
20	Nigeria Journal of Biotechnology			
21	Nigerian Food Journal			
22	Nigeria Journal of Natural Product and Medicine			
23	Science Focus			

B. Contd.

- 24 The Nigerian Statistician
 - 25 Nigeria Journal of Technology
 - 26 Journal of Mathematical Association of Nigeria
 - 27 Global Journal of Science
 - 28 Journal of Applied Science
 - 29 Environmental Geology
 - 30 Tropical Freshwater Biology
 - 31 Journal of Tropical Science
 - 32 World Journal of Biotechnology and Microbiology
 - 33 Journal of Scientific and Industrial Studies
 - 34 Journal of Applied Polymer
 - 35 World Journal of Biotechnology
 - 36 The Zoologist
 - 37 IEEE Transactions on Nuclear Science
 - 38 Journal of Engineering Development
 - 39 African Journal of Non-Linear Analysis
 - 40 Animal Research International
 - 41 African Earth science
 - 42 African Journal of Science
 - 43 The Environmentalist
 - 44 The Journal of Applied Science and Environment Management
 - 45 African Scientist
 - 46 African Journal of Electrical Engineer
 - 47 European Polymer Journal
 - 48 African Journal of Environmental Pollution and Health
 - 49 Pakistan Journal of Science and Industrial Research
 - 50 Journal of Aquatic Science
 - 51 Bioresource Technology
 - 52 African Journal of Biomedical Research
 - 53 Plants Products Research Journal
 - 54 African Geo science Review
 - 55 Astrophysical Journal
 - 56 Biometrics
 - 57 ASSET
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C

S/N	Indicate the level of currency of these journals if they are in your serial collections	Up-to-date	1 to 5	6 to 10	Over ten years
1	Journal of Mathematics Society of Nigeria				
2	Nigeria Journal of Microbiology				
3	Journal of Bioresearch				
4	Global Journal of Mathematical Engineering				
5	Journal of Mining and Geology				
6	Journal of Nigeria Statistical Association				
7	Nigerian Journal of Mathematical Physics				
8	Nigeria Journal of Botany				
9	Nigeria Journal of Science				
10	Journal of Science and Technological Research				
11	Journal of Chemical Society of Nigeria				
12	Nigeria Journal of Applied Science				
13	Bioscience Research Communication				

C. Contd.

- 14 Global Journal of Pure and Applied Science
 - 15 African Journal of Biotechnology
 - 16 Nigeria Journal of Solar Energy
 - 17 Global Journal of Mathematical Science
 - 18 Journal of Science, Engineering and Technology
 - 19 Nigerian Journal of Physics
 - 20 Nigeria Journal of Biotechnology
 - 21 Nigerian Food Journal
 - 22 Nigeria Journal of Natural Product and Medicine
 - 23 Science Focus
 - 24 The Nigerian Statistician
 - 25 Nigeria Journal of Technology
 - 26 Journal of Mathematical Association of Nigeria
 - 27 Global Journal of Science
 - 28 Journal of Applied Science
 - 29 Environmental Geology
 - 30 Tropical Freshwater Biology
 - 31 Journal of Tropical Science
 - 32 World Journal of Biotechnology and Microbiology
 - 33 Journal of Scientific and Industrial Studies
 - 34 Journal of Applied Polymer
 - 35 World Journal of Biotechnology
 - 36 The Zoologist
 - 37 IEEE Transactions on Nuclear Science
 - 38 Journal of Engineering Development
 - 39 African Journal of Non-Linear Analysis
 - 40 Animal Research International
 - 41 African Earth science
 - 42 African Journal of Science
 - 43 The Environmentalist
 - 44 The Journal of Applied Science and Environment Management
 - 45 African Scientist
 - 46 African Journal of Electrical Engineer
 - 47 European Polymer Journal
 - 48 African Journal of Environmental Pollution and Health
 - 49 Pakistan Journal of Science and Industrial Research
 - 50 Journal of Aquatic Science
 - 51 Bioresource Technology
 - 52 African Journal of Biomedical Research
 - 53 Plants Products Research Journal
 - 54 African Geo science Review
 - 55 Astrophysical Journal
 - 56 Biometrics
 - 57 ASSET
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