

Utilisation of Institutional Repositories for Searching Information Sources, Self-Archiving and Preservation of Research Publications in Selected Nigerian Universities

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Abstract

This study surveyed the use of institutional repositories (IRs) for searching information resources, self-archiving and preservation of research publications of academics in five Nigerian universities. The descriptive survey research method was adopted for the study. The population consisted of 491 academics and five repository librarians from the five universities that have their IR in Open DOAR. Questionnaire and interview were used for data collection. Data collected from the questionnaire were analysed using percentages. The findings showed that the most archived documents were journal articles. The information contents were utilised to a large extent; the submission of content for archiving on IR was very low; journal articles, conference/seminar papers were the materials mostly submitted for archiving in IR. The implication of the study is that since the academics utilise the content of IR to a large extent but the rate of their submission is very low, there is need for sensitisation and creating awareness on the importance and use of IR.

Keywords: Institutional Repositories, Self-Archiving, Preservation, Information Resources, Research

Introduction

Institutional Repository (IR) is an online platform for preserving and disseminating the intellectual output of an institution. Such intellectual output includes journals, theses, dissertations, administrative documents, course notes, etc. IR promotes electronic publishing, enhances indexing of documents, preserves digital materials for the long-term, and provides global access to information (Sivakumaren and Jeyapragash, 2007). Akintunde (2010) further described an institutional repository as an online store for collecting, preserving and disseminating the intellectual output of an institution in digital form.

Self-archiving of the content by authors is a way to ensure self-sustainability and continuous populating of an IR. Most institutions encourage self-archiving because it helps to create awareness and provide appropriate metadata for easy access and retrieval. Self-archiving is defined by Swan (2005) as authors archiving copies of their articles in open access repositories themselves. The author highlighted that it is not an alternative to publishing in learned journals. Academics can archive their publications through self-archiving. Self-archiving is a sustainable way of ensuring that an IR is constantly updated and quality materials are uploaded. Self-archiving also encourages the creation of appropriate metadata for the contents. In a case where an author does not have permission to self-archive the publishers own file (the PDF version), the final draft of the work can be archived by the author. The willingness of academics to use an IR as a platform to archive their

research output, collaborate with colleagues and provide access to their research output is necessary for the sustainability of an IR.

Access to information resources is important because it helps information seekers to know the resources available, especially when they are made public. Christian (2008) is of the opinion that if users are ignorant of what is published, they will continue to 'reinvent the wheel' because they are unaware of research already conducted in their subject areas. Asamoah-Hassan (2010) stated: "anything that prevents access to, or free flow of knowledge is a threat to humanity, because it will hinder innovation, the creation and dissemination of the latest scientific and technical information." Accessing an IR promotes its utilisation, which enhances the visibility of research output and provides a global network for academic scholarship. Noh (2012) opined that investment in e-resources and in university libraries will enhance academic research achievement. Some libraries rely solely on subscription to online databases, paying less attention to creating databases of research outputs produced within the institution.

An IR is a platform which libraries adopt for managing research outputs for easy accessibility and to support teaching, learning and research. It is therefore important that academics are involved both in archiving and in using the resources as this will help to ensure standards and quality of the contents archived. It was based on this fact that this study was carried out to determine the academics' use of institutional repository for accessing information resources and as a platform for preservation of their research publications in selected universities.

Research Questions

The following research questions were formulated to guide the study.

- i. What are the most common materials academics submit for archiving in institutional repositories in Nigerian universities?
- ii. To what extent do academics use the content of an IR?
- iii. What benefits are derived from using institutional repositories in Nigerian universities?

Literature Review

Accessibility of the content of institutional repository entails making the contents searchable and visible for information users to read and download. Accessibility of the contents enhances utilisation, which involves using IR as a platform to archive and preserve articles or research materials for easy accessibility and use. It also involves downloading the contents and using them for teaching and research. Ochogwu (1992) opined that "availability of resources is not coterminous with accessibility to resources, even when these resources are available empirical evidence has shown that it does not necessarily guarantee having access to such resources." An information resource may be available and users are not aware of it because no access points were provided for it. For material to be accessible, it should be indexed with terms that users can easily identify with the documents. That is why knowledge of the subject area of the materials is important to ensure that proper subjects/index terms are assigned to the materials.

Providing access to the intellectual products generated by the institution increases awareness of research contributions (Johnson, 2002). The IR system must be able to support interoperability and have a standard metadata in order to provide access through multiple search engines. An IR provides detailed information of research done in different subject areas in an institution in order to avoid duplication of research. Hixson (2011) stressed that capturing the wealth of literature or research output produced or needed by academics is a unique service that many libraries should provide through institutional repositories.

Despite the requirement for IR to support open access, decisions need to be made on the categories of content to be restricted (Genoni, 2004). Such documents, according to Genoni, may include draft documents that are available in a later or complete version; contents that might have temporary copyright restrictions; and items that may have restricted access due to the fact that they may cause offence or affect cultural sensitivity. The use of information has permeated all segments of human endeavours (Aliyu, 2010). Since IR is globally accessible and contains scholarly works, it becomes very useful to researchers because it contains original research works.

When research works or publications are published and archived in an IR, they are accessed by researchers, and this enhances the authors' visibility and citations, as well as ranking of the institution. The researcher, on the other hand, uses the materials for his research and development, as well as collaboration with colleagues. The result of their collaboration is the research output, which is archived on the IR for others to access.

Self-Archiving and Preservation of Research Publications

Self-archiving is important in building an IR to ensure sustainability, and long-term preservation of research output. Erturk and Sengul, cited in Ebrahim et al, (2014) defined author self-archiving "as storing the scientific research outputs in researchers' own web or institutional repository." The authors further stated that in self-archiving, authors can add additional information related to the published article. Support from faculty members is essential to ensure that the IR enhances the sharing of scholarly materials and for long-term digital preservation of the works (Betz and Hall, 2015). According to Grundmann (2009), faculty support open access but it is held back by the perception that self-archiving of their publication creates extra work for them.

It has been well documented that repository managers work hard to ensure that academics self-archive their works (Davis and Connolly, cited in Betz and Hall, 2015). Most times, academics find the process of self-archiving their publications difficult because they need to provide the metadata, check the copyright agreement and file format. These are procedures that are laborious for them and discourage them from self-archiving (Betz and Hall 2015). Self-archiving of articles immensely improves the visibility and citation impact of the articles (Ebrahim et al. 2014). According to Joint (2006), librarians' mediating deposit rather than pure self-archiving is the future of building institutional repositories. The author further stated that libraries and librarians are well placed to give input to the metadata and digital preservation activities inherent in building an institutional repository. Grundmann (2009) suggested that the challenge of academics being held back from self-archiving can be tackled by making self-archiving as easy as possible.

Abrizah, cited in Abrizah et al. (2010) observed that self-archiving is still seen as a major concern among authors. Self-archiving helps to ensure the authenticity of the works archived in IR, and the creation of appropriate subject terms for the articles for easy accessibility. Most times, works may be online but the proper subject (metadata) that will enable retrieval may not be assigned to it, and this makes such works inaccessible. Self-archiving by faculty members enhances the sustainability of IR. Thus, it is important to work with faculty members for successful implementation of the IR.

Research dissemination is a core mission for all universities (Armstrong, 2014). Thus, preservation of research output for posterity and visibility is the main focus of many institutions such that many institutions in developed countries have gone far in digitising and uploading their research outputs. However, the case is different for developing countries. Manjunatha and Thandavamoorthy (2011) opined that the unwillingness of authors to submit their publications was as a result of lack of information, and not being aware of what to deposit. Some are afraid that other people will copy their work without permission. Akpokodje and Akpokodje (2015) in their study, found that although 50 academics out of 51 academics that responded to the questionnaire have published from 0-2 articles and above 9 articles, majority of the respondents (47 academics) did not have their articles in the IR. In another study, Bamigbola (2014) discovered that only 7.8% of faculty had submitted their scholarly works in their university IR and had searched it as information source; 58.8% had not submitted but had searched it as information source; while 33.4% had neither submitted their scholarly publications nor searched the IR. This low participation, the author highlighted, has been of great concern because it has not allowed the potential benefits of IR to be achieved. Akpokodje and Akpokodje (2015) identified a number of factors contributing to the low use of IR to include lack of interest, lack of equipment to scan and upload documents, inaccessibility of servers, lack of technical knowhow, frustrating internet service, fear of plagiarism and ignorance of the existence of IR and its functionalities.

Digital publishing expands the number of research that can be made available for review. Thus, institutional repository is an avenue for more

researchers to register their works in a reorganised and more accessible medium (Crow, 2002). Chen and Hisang (2009) stated that “open access institutional repositories can disseminate scholarly information of universities and research institutes in an efficient way. They will also reinforce, influence and magnify the reputation of universities and research institutes.” The authors added that IR system is the appropriate platform to preserve research output, record research history, and provide access to research reports.

Benefits of Utilising Institutional Repository

One of the benefits of using institutional repository is for the promotion of research and development. Sivakumaren and Jeyapragash (2007) highlighted the benefits of institutional repository as dissemination of information, storing of learning materials and coursework, promotion of electronic publishing, management of the collections of research documents, preservation of digital materials, exhibition of the academic activities of an institution, and promotion of leadership role for the library. Armstrong (2014) opined that IR service is a core component for fulfilling an important university mission. This mission comprises teaching, learning, and research. IR is very useful in disseminating research outputs from institutions to users because it is searchable and enhances metadata harvesting by other search engines. Momin and Gaonkar (2016) stated that IR helps to organise the intellectual output of an academic in one place; creates a knowledge bank; improves the visibility of the institutions, and provides global access to the enduring heritage of an institution.

For authors and readers, the IR promotes open access (OA) of information (Pinfield, 2005). For authors, it lowers access barriers and disseminates research quickly. For readers, access is also quick and easy from their desktop via common search tools or even from some repositories’ email alerts. Furthermore, according to Harnad (2003), if such open access archiving were mandatory, further benefits to institutions would accrue, such as keeping track of research output, research reporting, and eventual online global access to all researches.

Open access IR is an important platform for universities and faculties to archive their works in

order to make them searchable, readable and accessible. Writing on the significant benefits of institutional repository, Arif and Kanwal (2009) stated that it stores resources in digital format, which allows for easy access by online users at multiple sites around the globe. Besides that, Crow (2002) noted that IR enhances the professional visibility of authors and also serve as a resource supporting classroom teaching. Further, Campbell, Blinco and Mason (2004) opined that institutional repository facilitates more efficient storage and management of resource. It enables users to share their resources and to discover resources shared by others.

Tate (2010) stated that global visibility and an increase in the citation of the universities’ scholarship are the common benefits of using an IR. Researchers can be better known and connected to the global network through their publications. Markey, Rieh, Yakel, St. Jean, and Kim (2007) identified the major benefits of IR as “capturing the intellectual output of the institutions, providing better services to contributors, exposing the institutions’ intellectual output to researchers around the world, increasing the library’s role as a viable partner in research enterprise, providing long-term preservation of institutions’ digital output, providing better services to the institutions’ learning community, and providing solution to the preservation of the institutions’ intellectual output.”

Research Methodology

The study adopted a descriptive survey research design. The population of the study consisted of five repository librarians from the five selected universities in Nigeria that have institutional repositories. From the information gathered from the Directory of Open Access Repository (OpenDOAR), out of the one hundred and twenty-six universities in the country, five universities had institutional repositories that were available on OpenDOAR database. The universities are: University of Jos, (UNIJOS); Covenant University (CU), Ota; University of Nigeria, Nsukka, (UNN); Federal University of Technology, Akure; (FUTA), and Ahmadu Bello University (ABU), Zaria (OpenDOAR, 2013).

The sample size for the study was made up of five repository librarians in charge of institutional

repository projects from each of the five institutions and 491 academics. The population of academics in the universities is as follows: University of Jos, (UNIJOS), 950; Covenant University Otta, (CU), 400; University of Nigeria, Nsukka (UNN), 1515; Federal University of Technology, Akure (FUTA), 635 and Ahmadu Bello University Zaria (ABU), 1405 academics (OpenDOAR, 2013).

The researcher used multi-stage sampling to arrive at the number of respondents for academics. The first stage was purposive sampling technique to select the universities that had their IR available in OpenDOAR. The total number of academics in the five universities at the time of study was 4,906.

At the next stage, the researcher used a proportionate stratified sampling technique to select 10% of the total population of academics in each faculty to arrive at the sample size of 491. The researcher based the sample on Gall, Gall and Borg (2007) who state that where a population is in the range of 2000 to 5000, 10% of the population can be used for a study. Using the principle of representation, the sample size for each university

was as follows: UNIJOS (95), UNN (151); FUTA (64); Covenant (41) and ABU (140), giving a total of 491. This comprised academics in different categories (senior and junior) from different faculties, with varied research interest and publishing guidelines.

Questionnaire and interview schedules were the instruments used for data collection. The questionnaire was administered to academic staff while the interview was administered to the repository librarians. The data collected was analysed using percentages for the research questions. The interview responses were analysed qualitatively.

Results and Discussion

Out of 491 copies of questionnaire that were distributed, 415 (84%) were returned, while 369 (75%) were found usable for the study. Some copies of the questionnaire, 46 (9%), were not used for the study, because they did not indicate their ranks and in some questionnaire, the questions were not completed.

Table 1: Questionnaire Distribution and Return Rate

S/N	Institution	No Distributed	No Returned	No properly filled	% of Usable questionnaire
	University of Nigeria	151	143	133	88.1
	Ahmadu Bello University, Zaria	140	115	105	75
	University of Jos	95	75	70	73.6
	Federal University of Technology, Akure	64	48	35	54.6
	Covenant University, Otta	41	33	25	60.9
	Total	491	415	369	75%

Research Question 1: What materials do academics submit most for archiving in IR in the selected Nigerian Universities?

The number of submission of publications by academics for archiving is shown in Figure 1. The figure shows the number of publications submitted by academics in each of the universities on each item. The data was gathered from the academics, as indicated on the questionnaire. The respondents indicated the publications submitted, based on the intervals indicated (e.g. 1-5). The analysis was done

item by item for each university, based on the number of publications submitted.

The result as presented in figure 1 shows that a majority of academics from the institutions studied had not submitted many of their publications for archiving. Some respondents that had not submitted their publications for archiving indicated the reasons for not submitting their publications to include: they had not been able to put their papers together; some of the academics did not know that they were expected to do so (lack of awareness); and some of the academics were not aware of any known avenues

or channels for doing so. Some academics argued that the institutions did not support their publications and therefore would not make their publications available for archiving. Others were scared of violating copyright and intellectual property laws, while others cited poor internet facilities. On the

other hand, some of them seemed not to have publications to submit, especially the junior academics. During interview with the repository librarians, they responded that content submission was one of the major challenges as many academics found it difficult to submit their publications.

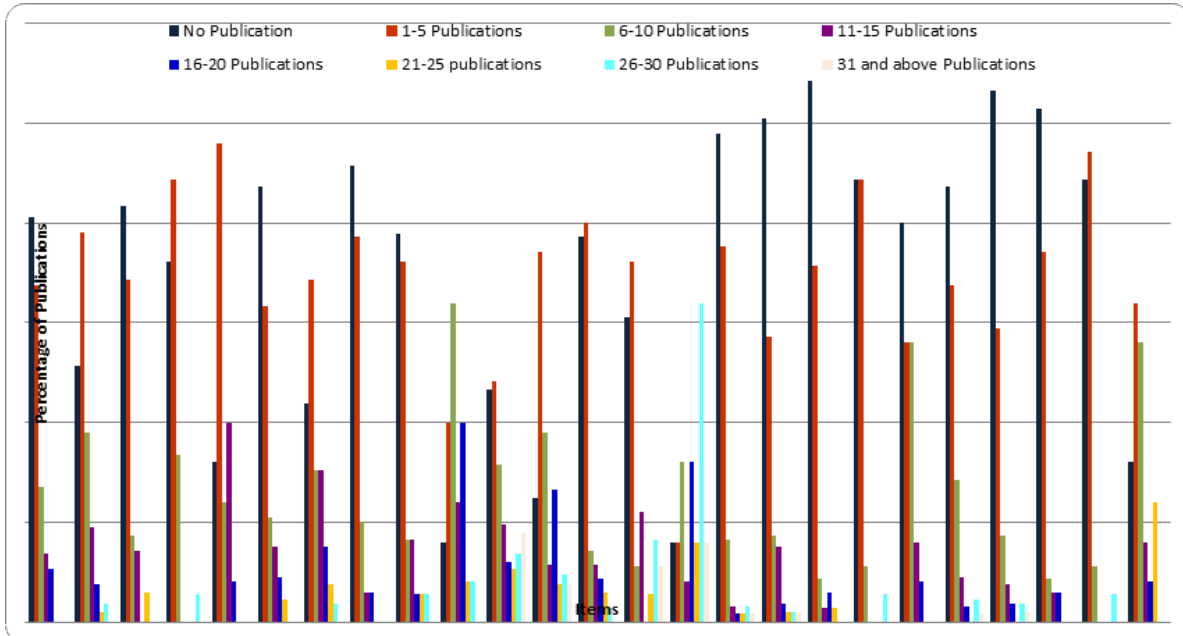


Figure 1: Number of Academics that have Submitted their Publications from each University for Archiving in the Institutional Repository

Information materials that were archived in the institutional repositories are shown in Figures 2 to 6.

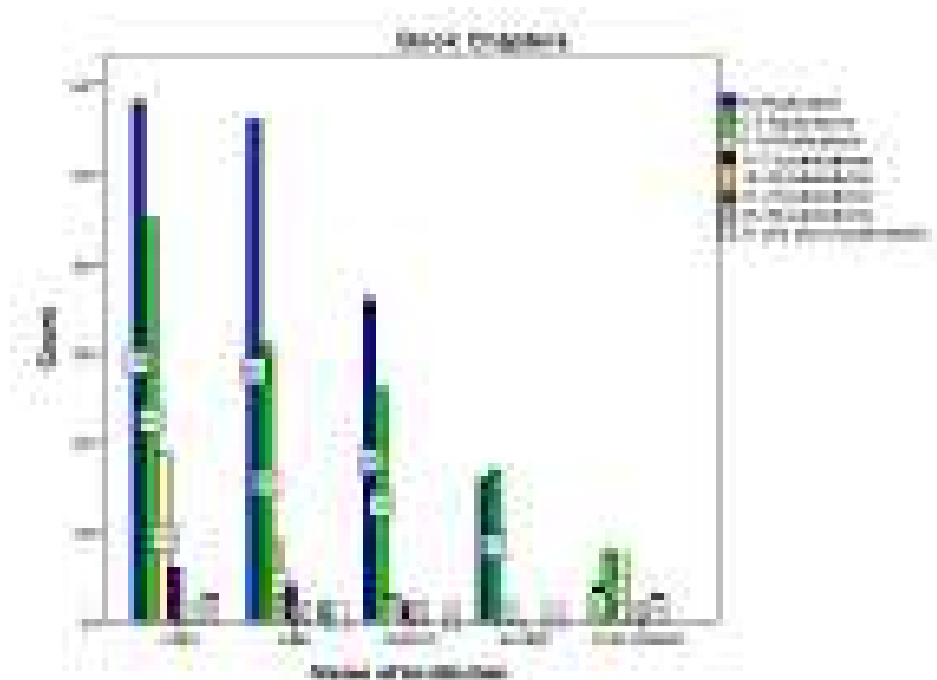


Figure 2 Book Chapter- Number of academics from each University

The breakdown shows that most of the academics at the UNN (58 or 43.6%) had not submitted their publications for archiving. Similar results were obtained for: ABU (56 or 53.3 %), UNIJOS (36 or 51.4%). At FUTA, a minority, (16 or 45.7 %) indicated that they had not submitted their publications for archiving. However, at CU, only (4 or 16%) did not submit their publications for archiving. A substantial majority of the academics had submitted their publications at Covenant University.

At UNN, 75 academics out of 133 (56.4 %) submitted between 1 and 31 and above of their book chapters for archiving. At ABU, 48 academics out of 105 (45.7%) submitted book chapters for archiving. In UNIJOS, 33 academics out of 70 (47.1%) submitted book chapters for archiving. At FUTA, 19 academics out of 35 (54.3%) submitted book chapters, while at CU, 21 academics out of 25 (84%) had submitted book chapters for archiving. Based on the number of academics that responded to the questionnaire in each university, academics

from Covenant University submitted more than academics from other universities.

The results in Figure 3 show that in UNN, 65 or 48.9% of the academics had not submitted any book for archiving. Similar results were obtained for other universities: ABU 53 (50.5%); UNIJOS 38 (54.3%); FUTA 16 (45.7%); and Covenant 10 (40%). Thus, 68 academics out of 133 from UNN (51.1%) had submitted between 1 and 31 and above of their books for archiving; 52 academics out of 105, from ABU (49.5%) had submitted between 1 and 31 and above books for archiving; 32 academics out of 70 (45.7%) from UNIJOS had submitted 1 and 31 and above books for archiving; 19 academics out of 35 (54.3%) from FUTA submitted between 1 and 31 and above books for archiving; while 15 academics out of 25 (60%) from Covenant had submitted between 1 and 31 and above. The study reveals that majority academics at Covenant University submitted the highest proportion of their publications, followed by FUTA and UNN in that order.

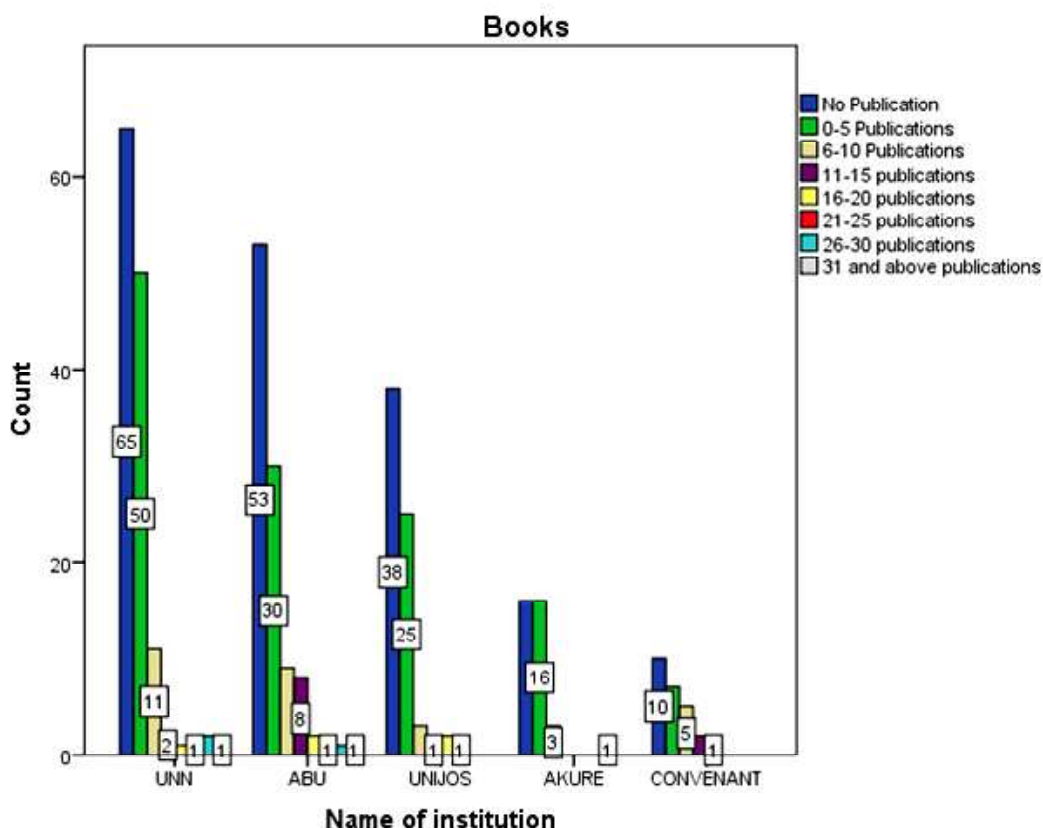


Figure 3: Number of Academics that have submitted their Books for Archiving

For Journal articles as shown in Figure 4, UNN (31 or 23.3%); ABU (13 or 12.4%); UNIJOS (27 or 38.6 %); FUTA (11 or 31.4%); and CU (2 or 8 %) had not submitted their journal articles for archiving. In summary, 102 out of 133 academics (76.7%) from UNN submitted between 1 and 31 and above journal articles for archiving; 92 out of 105 (87.6%) academics from ABU submitted between 1 and 31 and above journal article for

archiving; 43 out of 70 (61.4%) academics from UNIJOS; submitted between 1 and 31 and above journal articles for archiving. At FUTA, 24 out of 35 (68.6%) academics had submitted journal articles, while 23 out of 25 (92%) academics in Covenant submitted journal articles for archiving. Therefore, academics from Covenant submitted more than other universities followed closely were ABU and UNN.

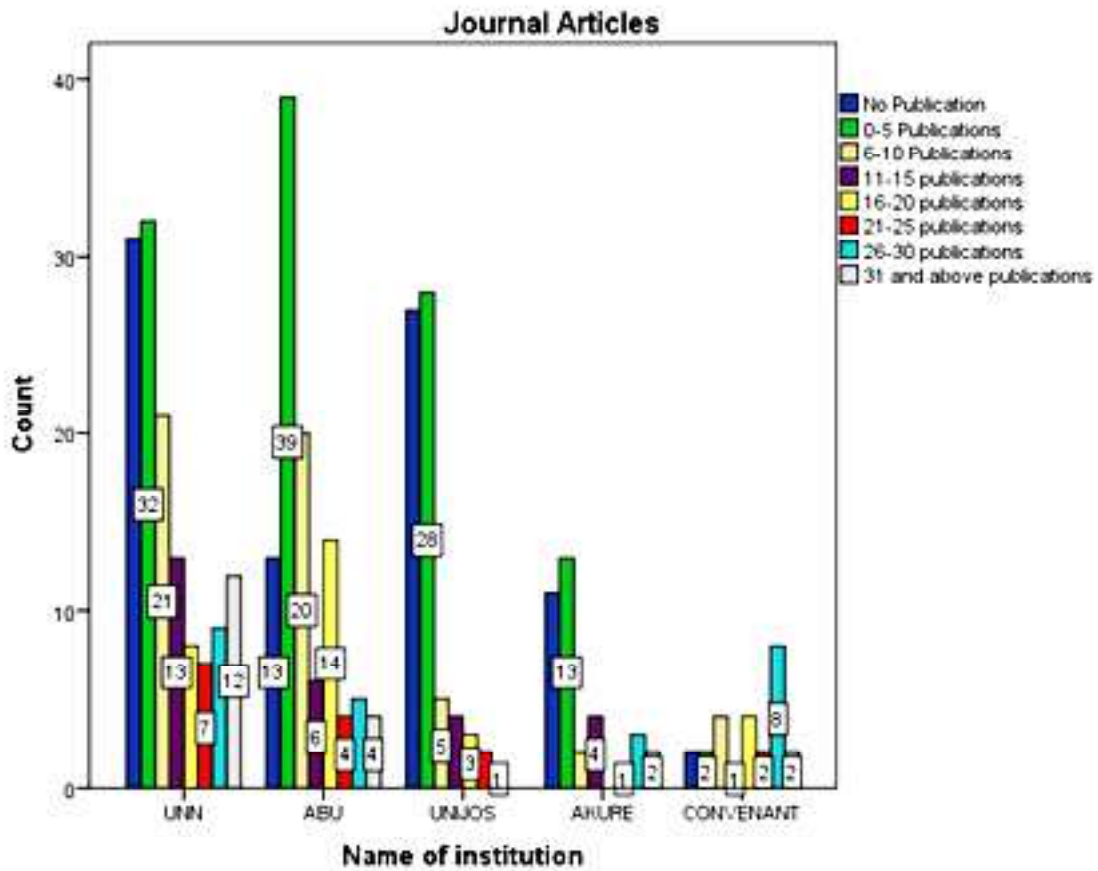


Figure 4: Number of Academics that have Submitted Journal Articles in each University

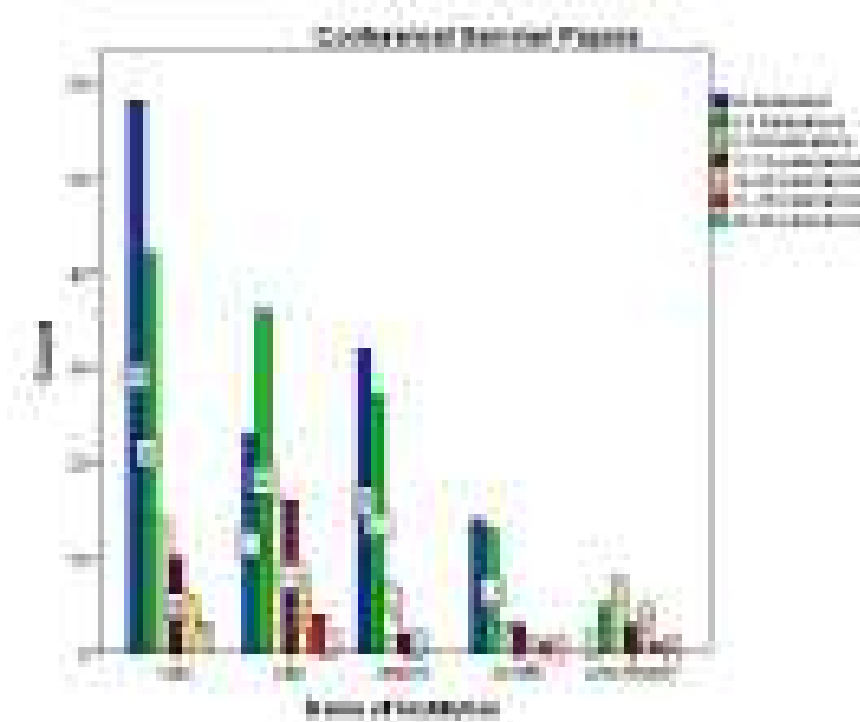


Figure 5: Number of Academics that have Submitted Conference/Seminar Papers

Figure 5 shows that 82 out of 105 (78%) academics from ABU had submitted between 1 and 31 and above of their conference/seminar papers for archiving, followed by UNN (75) out of 133 (56.4%) academics; UNIJO 38 out of 70 (54.3%)

academics; Covenant 23 out of 25 (92%) academics and FUTA 22 out of 35 (62.9%) academics. Academics from CU submitted more conference/seminar papers, followed by ABU and FUTA.

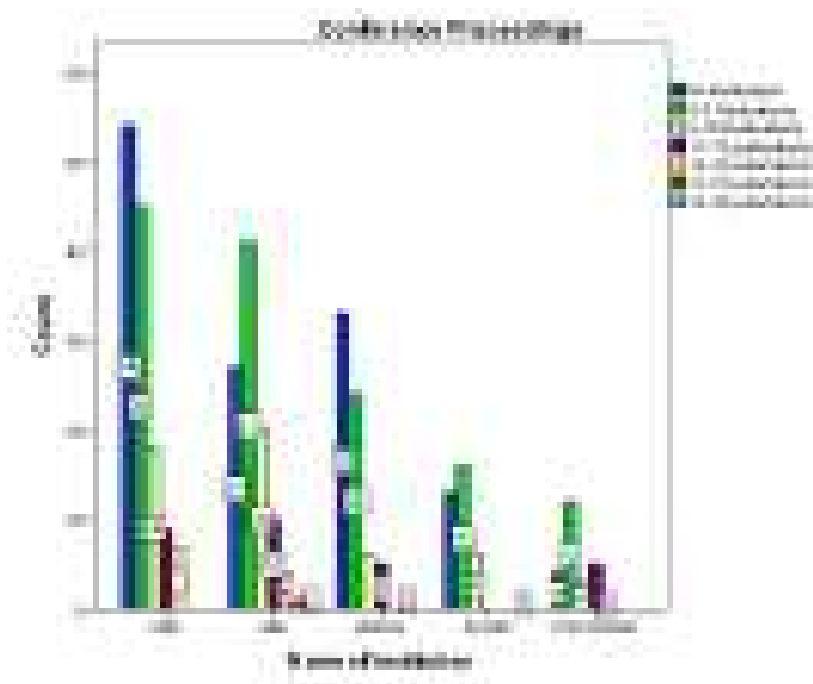


Figure 6: Number of Academics that have Submitted Conference Proceedings Based on Universities

For conference proceedings, 79 out of 133 (59.4%) academics submitted conference proceedings for archiving; 78 out of 105 (74.3%) academics from ABU submitted conference proceedings; 37 academics out of 70 (52.9%) submitted for archiving; 23 academics out of 35 (65.7%) had submitted

conference proceedings for archiving; while 21 academics out of 25 (84%) have submitted conference proceedings. Academics from Covenant University submitted more conference proceedings; followed by ABU and FUTA.

Table 2: Volume of Content Archived in Institutional Repository Based on Universities and Types of Resources

Local contents	UNN	ABU	UNI JOS	FUTA	COVENANT
Conference proceedings	602	0	0	400	0
Conference/ seminar papers	60	0	0	400	0
Journal articles	4,000	0	661	0	1,232
Books	156	0	0	0	45
Book chapters	118	0	0	0	0

Table 2 shows that UNN staff archived 602 conference proceedings, 60 conference/seminar papers, 4000 journal articles, 156 books and 118 book chapters titles. At ABU, they had not archived any of these contents; UNI JOS 661 journal articles had been archived; FUTA 400 conference proceedings and 400 conference/seminar papers had been archived. CU had 1,232 journal articles and 45 books had been archived. The response from the interview conducted with the repository managers showed that ABU archived theses and dissertations first, and will continue with other materials. FUTA archived materials that they did not have to get copyright permission for, while CU, UNI JOS and UNN archived all the different types of publications studied. Generally, on the use of IR for archiving academic publications; the number of submission of publications by academics was very low. This in line with the study of Akpokodje and Akpokodje (2015), where 50 academics out of 51 academic staff submitted between 0 and 2 articles and 9 above. In the study of Bamigbola (2014), very few (7.8%) have also submitted their scholarly works in their university IR and had searched it for information sources. Further breakdown of Figure 2 (figures 2 -6) on the rate of academics submission based on universities and types of resources, academics from Covenant University submitted more

contents for archiving in their repository than other universities. On the type of materials that are submitted mostly by academics, journal articles ranked highest, followed by conference/seminar papers. A close look at Table 2 shows that even though the academics submitted these publications, they were not all available on the website. One would have expected the academics to use the repository platform to promote their visibility by archiving their publications, but the reverse is the case. The study of Byrd (1999) stated that there existed a relationship between the use of journal literature and the publishing productivity of academics in the Faculty of Medicine. This view also reflects in the finding of the study on the contents academics use and the types they submit for the IR. Therefore, journal articles and conference/seminar papers were the most submitted content for archiving.

Findings on the extent of use of the content of institutional repository by academics for research show that journal articles are used by the academics to a large extent. The findings of Olanlokun, cited in Popoola and Haliso (2009), showed that journal articles, textbooks, theses and dissertations monographs are important to academics in Nigerian universities. In this study, it was discovered that academics use journals to a large extent.

During the interview schedule, it was also discovered from the repository librarians that archiving the research publications on IR had improved service delivery; enhanced preservation of the university publications, and provided easy access to these important resources. In addition, Covenant University repository librarian stated that the library had been able to provide 24 hours service for researchers both within and outside their institution. Also, in UNIJOS, the IR librarian pointed out that archiving of staff publications had promoted the research of works of their academics.

The result on the benefits derived from using IR showed that there are lots of benefits from using IR. The findings of this study corroborate the findings of McGill (2010) and Harnad (2003) that IR keeps track of research publications, gives global access to research and increases readership (citation). Pinfield (2005), on the other hand, stated that it lowers access barrier.

The implication of the findings is that it is beneficial to use institutional repository to manage institutional resources because it can help to provide global access to resources and improved library services. Users can also access the materials anytime, irrespective of their location. Again, users have access to more information; and also, one document can be used by several users at the same time. This result is in consonance with the study of Rieh; Markey; Yakel; St. Jean; and Kim (2007) that IR captures intellectual output of the institution; visibility of the institution; preservation of the institutions' output, and improves service to the institution. The interview with UNIJOS repository librarian reveals that patrons from within and outside the UNIJOS community had been accessing the IR. At UNN, it was reported that IR had improved services in terms of access and visibility of their research publications globally. CU Repository Manager reported that IR had helped to provide more access to content, and people made use of the content of IR more than print resources. At FUTA, it was reported that IR had improved services to users.

Conclusions and Recommendations

This study has evaluated the use of institutional repositories in Nigerian universities and the extent of utilisation. The study concludes that the number of submissions made by academics was very low, UNN academics submitted more of their publications for archiving, followed by ABU. The resources that were mostly submitted were journal articles, conference and seminar papers. The study also discovered that there are a lot of benefits derivable from using an IR, such as improved visibility and collaboration. More awareness and enlightenment programmes are important to sensitise the academics and the university community on the benefits of IR. Based on the findings of the study, the following recommendations were made:

- Provision of adequate infrastructure is important for IR development facilities; such as power and broadband width are necessary for the project. It will be frustrating for academics to submit or archive their publications or even access the archived works where facilities (such as internet access; power supply) are not available.
- Sensitisation and awareness programmes should be conducted by the university community on the existence and the use of IR in universities for research and preservation. In this way, the academics will be aware that it is important to submit their content for archiving. They will also know that their published works can be linked to the repository if they request that from the publisher.
- There should be more advocacy and marketing of academic publication by the librarians and university community using IR platform so that many will be motivated to use the IR for accessing information resources and for self-archiving of their research publications.

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