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Deposition Mandate to Self-Archiving Practices among Academic Librarians in the Northwestern States of Nigeria: Benefit and Challenges

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Abstract*: The paper examines self-archiving practices among academic librarians in Northwestern States of Nigeria. The population for the study consists of 200 academic librarians in the area covered by the study. A total enumeration technique was adopted as sampling strategy where the entire population was considered as sample. Questionnaire was the instrument used for data collection. Out of the 200 copies of questionnaire distributed to the respondents, a total of 174 (87%) were returned duly completed and found useable for the study. The data collected were analyzed descriptively, using frequency distribution tables and percentages. The findings indicated that majority of the respondents publish their research through printed media than electronic. The finding of the study revealed that majority of the respondents indicated their mandate to deposit their intellectual output via institutional repositories and other open access outlets. The study further discovered that the main factors that motivate academic librarians to self-archive their publications was to benefit from varying impact of open access, which includes, wider research visibility, increased citation rate and research collaboration. In addition, the study revealed that low level of awareness about self-archiving practices, lack of institutional policy on self-archiving, perception of Institutional Repository (IR) contents as of lower quality, fear of plagiarism among other were reported as obstacles that affect self-archiving practices. It is therefore, recommended that academic librarians need to encourage university management to formulate policies that would encourage academic staff to self-archive their work in the IR through application of appropriate mechanism for reward and punishment "carrot and stick". There is also the need for sensitization campaign on publisher licensing clauses and copyright issues. Lastly, academic librarians should also encourage university management to finance, support and promote open access project and initiatives in the institutions covered by the study.*

Keywords*: Self-archiving Practices, Institutional Repositories, Open Access, Academic Librarians, Nigerian Universities.*

I. Introduction

The emerging self-archiving practices and the OAI-supported interoperability of individual repositories drove the social and technical impetuses to develop Institutional Repositories (IR) (Kim, 2007) According to Harnard (2001), Self-archiving is the means of depositing a free copy of an electronic document on the Internet, or in a more specific term on the World Wide Web in order to provide open access to it. In order to successfully achieve the core mission of the university the content of the institutional repository must widely acquired and built across faculties and department within the university system in order to enhance teaching, learning and research activities. University being producers of primary research, it is expected that academic institutions would develop an enthusiasm in identifying, capturing and preserving the intellectual output of their faculty, students, and staff.

Traditionally, scholarly publishers (as aggregators and distributors) and institutional libraries (as managers and preservers) served supporting roles in facilitating scholarly communication and preserving—although in a diverse and indirect manner—an institution's intellectual legacy (Crow, 2002). Institutional repositories nowadays have become a global issue—they are now deployed on all continents (Cullen & Chawner, 2009). IR is defined as "a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members" (Lynch 2003). Lynch further highlighted that in this definition, the main service of IRs becomes information management over time and the migration of digital content. He also stated that through the use of Institutional repositories as tools "the intellectual life and scholarship of our universities will increasingly be represented, documented, and shared in

digital form." This makes preservation of scholarly content an important role of IRs. Documents in separate IRs can also be made accessible through major search engines because some repositories are OAI-compliant (Kim, 2007).

According to Schöpfel, Prost, and Le Bescond (2012), the institutional repository is a container or storehouse for all kind of Information resources produced by faculty, staff and students. In this container, Electronic theses and dissertations (ETD), reports and conference proceedings stand next to images, learning objects, pre-print and post-print journal articles, datasets, presentations, posters etc. The focus is laid on availability and visibility of all kind of Information resources, "institutional stuff", rather than on selection of scientific relevant results. Quality control through validation or labeling is not an issue. One of their main characteristics is their great diversity. There is no single model but multiple possibilities, no single path but a multiplicity of options, still it is crucial for their success that the institution clearly defines the goals of its repository, in accordance with its own strategy and environment. "Each of the reasons for setting up a repository carries implications for the content, design and funding of a repository, and the institution needs to be clear about the implications of different roles for a repository, while being prepared to change or add roles as the scholarly communication environment develops" (Friend, 2011).

Open access (OA) self-archiving mandates have a history spanning less than a decade, more than three hundred institutions, funding agencies, and other academic programs across the globe have implemented a policy compelling scholars to self-archive their research outcomes in a repository or on a website, to promote free access to and wide sharing of information. OA exponents have been optimistic about the prospect of making the content of digital repositories richer and more useful after the implementation of such policies (Harnad et al., 2004). The definition of self-archiving also includes a reference to depositing digital documents in publicly accessible websites, preferably an open access archive or repository. Open access repositories: are of two type i.e. disciplinary repositories, such as arXiv, and Institutional Repositories (IR). Many studies also regard personal or departmental websites as another possible forum for self-archiving (Andrew, 2003; Antelman, 2006; Swan & Brown, 2005). However, there are also mixed feelings concerning the effects of mandate policies (Baker, 2010). Due to level of understanding of self-archiving deposition mandate, makes librarians to respond in a varying ways with some major factors influencing scholars' perception of self-archiving deposition mandate.

Xia et al. (2012) stated that academic authors with very low level of motivation to self-archive in open access repositories created the need for mandate policy. The earliest OA mandate was a program-based policy (alternately called a departmental or sub-institutional policy by ROARMap), created and employed by Southampton's School of Electronics and Computer Science in January 2003. After its successful implementation Shortly, the UK Parliament's Science and Technology Committee recommended a funder-based mandate policy in its 2003-2004 report: "We recommend that the Research Councils and other Government funders mandate their funded researchers to deposit a copy of all their articles in their institution's repository within one month of publication or a reasonable period to be agreed following publication, as a condition of their research grant." Within almost the same period, the US House of Representatives voted to set conditions for federal grant recipients, mandating that all recipients self-archive any articles resulting from government-funded research. That year also saw the first institution-based mandate policy in place at QUT in Australia. Subsequently, institutions across the globe slowly increased the number of repositories and many programs began to adopt a mandatory strategy to promote their repositories (Xia et al., 2012)

Despite the fact that institutional repositories played a crucial role and serve as an index for measuring academic performance in terms of research and scholarship as well as dominant factor of the institutional prestige. It is clear that deposition of research output by academic in federal universities in Northwestern state of Nigeria have been given little or no attention by most academics including librarians. For example the content of Ahmadu Bello University constitutes mainly thesis and dissertation with few seminar papers and conference proceeding despite the high caliber of academic and other professional staff within the institution. Paradoxically, this scenario indicates restriction by academics in depositing their research output. While reiterating the importance of depositing content in institutional repository, Shearer (2013) stated that deposition of critical mass of content could lead to the significant usage of institutional repositories. She further argued that the success of an IR should be determined by its use, and one of the measures for the usefulness of IRs was contribution of content by the researchers in the university community. However, preliminary investigation reveals that low level of deposition of scholarly content to institutional repositories is posing alarming danger to the preservation and effective utilization of scholarly content which to a large extent inhibit sharing of knowledge, ideas, experience and practices among academics and other professional staff.

Therefore, the rationale behind this study is to find out the existing ways in which academic librarian make their research materials publicly accessible, their depositions mandates to making research available through open access, the factors that motivate self-archiving mandate in North western states of Nigeria, the benefits to be derived in making their research material available via open access and what makes them reluctant to self-archive their research materials in their institutions so that rightful adjustment could be made where necessary.

II. Problem Statement

In the past few decades, tremendous developments in information production, acquisition, and dissemination was witnessed. This was possible through the deployment of various Open Access model of scholarly communication as part of concerted effort to weaken the effect of serial pricing crises on the library and library users. One of such model is institutional repository (self-archiving). The main reasons behind the deployment of institutional repositories are to put together and preserve the intellectual output of a laboratory, department and other entity within the university (Hirwade & Hirwade, 2006).

It was argued by Kennan (2008) universities are the suitable places to deploy OA repositories, as it is increasingly essential for them to document and share their scholarly content, as they have skilled library and information manager in their libraries and IT departments, they also have the resources and facilities to deploy, support and fund repositories. They can implement policies that would encourage self-archiving mandate and they can benefit from the increased citation rate, visibility and profile (Cochrane & Callan, 2007; Horwood, Sullivan, Young, & Garner, 2004; Lynch & Lippincott, 2005; Pinfield, 2005).

The existing modes of scholarly communication are supplemented by self-archiving mandate as it can facilitate scholarly communication among researcher to user community via the Internet. Advocate of Open Access (OA) often stated that this behavior results from the authors' adoption of OA as an overriding principle of free and unrestricted availability of scholarly research on the Internet (Dulle, Minish-Majanja, & Cloete, 2010). Kim (2007) stated that it is not known whether or how these principles of facilitating free, unrestricted and wider sharing of array of information resources would motivates scholars to self-archive their work. Although, some factors may influences and shapes the behavior of many researchers in terms of their self-archiving practice. For example, while faculty members are considered as the essential contributors to IRs, several studies have found a low rate of faculty submission to IRs (Chan, 2004; Foster & Gibbons, 2005; Pelizzari, 2003; Young, 2002). Similarly, preliminary investigation indicates low rate submission to IRs by academic librarians in the Northwestern states of Nigeria even though they are aware of IRs and the set of services offered by IRs in their institutions. Therefore, this study is set out to investigate, the existing ways academic librarians make research materials publicly accessible, the depositions mandates in making research available through Open Access by academic librarian, and what makes them reluctant to self-archive their research materials in various institutions in Northwestern state of Nigeria.

III. Research Questions

The following research questions were developed for the study:

1- What are existing ways that academic librarian in federal universities in Northwestern states of Nigeria make research materials publicly accessible?

2- What are the depositions mandates to making research available Open Access by academic librarian in federal universities in North western states of Nigeria?

3- What are the factors that motivate self-archiving mandate of academic librarian in federal universities in Northwestern states of Nigeria?

4- What are the benefits to be derived by academic librarian in federal universities in Northwestern states of Nigeria in making their research material available via open access?

5- What factors makes academic librarian in federal universities in North western states of Nigeria reluctant from self-archive their research materials?

6- How can academic librarians in federal universities in Northwestern states of Nigeria promote open access in their institutions?

IV. Review of Related Literature

The deployments of Institutional Repositories (IRs) have increase in the recent time as a result of development witnessed in the area of Information and Communication Technology (ICT). The reason behind the deployment of institutional repository is to capture, organize, preserve and disseminate scholarly content in order to ensure free and wider access to digital content produced by members of university community. IRs has been defined in numerous ways by different scholars. According to Lynch (2003), "a university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members." The model of open access (OA) that exists is divided into two broad types (Albert, 2006; Ghosh, 2009; Hayton, 1996; Rossini, 2007), they are the open access journal "gold road" and open access repositories or institutional repositories "green road".

The position paper published by Scholarly Publishing and Academic Resources Coalition (SPARC) make a case for institutional repositories as a "critical component in reforming scholarly communication … as having the potential to serve as tangible indicators of a university's quality" (Crow, 2002). The SPARC paper further highlighted that the responsibility of capturing, organizing, preserving and maintaining the content of the institutional repository lies with libraries. Institutional repositories may have different purpose, policy mandates, procedures, functionalities, resources, services and metadata, they may also have different business models and funding strategies (Swan & Awre, 2006), which their content may include more than current output from faculties. Smith (2008) details a "wide variety of materials in digital form, such as journal articles; preprints and

post prints, digital versions of theses and dissertations, administrative documents, course notes and learning objects" could be hosted in a repository. In addition, repositories may also host datasets, multimedia or cultural and scientific heritage (Schöpfel et al., 2012) depending on the purpose and policy mandates of a repository.

Institutional repositories are set up with the aim of supporting teaching, learning and research of their parent institution; this is possible through self-archiving practices whereby scholars within an institution deposit their scholarly research work in IR. The most critical issue that lies behind the success of any institutional repository is deposition by academics through self-archiving; a process whereby an author deposit digital copies of his work in a publicly available website, preferably one compliant with the Open Archives Initiative-Protocol for Metadata Harvesting (OAI-PMH), is one of the two key strategies for reaching the goal of the research output of a discipline (Harnad & McGovern, 2009). According to Friend (2011), the strategic objective of institutional repository may be "to collect together all publications and other research and teaching outputs as a permanent record of the institution's achievements but without any specific use in mind". Nevertheless, there are various advantages of self-archiving scholarly content. Singson, Sevukan, and Murugaiyan (2015) stated that the term "self-archiving" usually refers to the self-archiving of peer-reviewed journal research paper and conference articles, as well as thesis and book chapters, deposited in the author's institutional repository or open archive for the purpose of increasing its accessibility, usage and citation impact. Abuabdallah (2014) divided the benefits of self-archiving in to two; intrinsic and extrinsic benefits. The intrinsic benefit is described as altruism conveying the desire to share the scientific knowledge for the benefit of others, which in turn, result a high research impact. While extrinsic benefits identified in the study are: accessibility, publicity, trustworthiness, academic reward and professional recognition. In addition, accessibility is ensured from the IRs through interoperability that makes them hardly ever stand-alone systems.

However, despite the enormous benefits derived from self-archiving practices, many scholars have not yet fully engaged in self-archiving. According to a survey conducted on attitudes of Authors toward IR by Rowlands, Nicholas, and Huntington (2004), the findings arisen from the survey revealed that 82% of authors' knew 'nothing at all' or 'a little' about IR. Van Westrienen and Lynch (2005) while reporting European survey, it noted that low faculty participation in IRs was attributed to confusion and uncertainty about intellectual property issues, as well as the perception of open access content being of low quality. Hahn and Wyatt (2014); Yang and Li (2015) surveyed business faculty from 125 Associations of Research Libraries (ARL) institutions and reported that the majority of faculty members were unaware of IRs in their local institutions and that many faculty were also ignorant regarding to OA journals.

Several user studies provide evidence for low uptake to self archiving for instance Rockman, Buehler, and Boateng (2005) while reporting the experience of Rochester Institute of Technology regarding self archiving they stated that Even though, the Library created a useful avenue to deposit, store, and present scholarly contents, faculties are often reluctant to take advantage of the IR to showcase their intellectual research content. In another related study by Kim (2011) as reported by Yang and Li (2015) Kim investigated the perceptions of faculty members from 17 Carnegie doctorate granting universities in the US concerning IRs. They reported that about 60 percent were unaware of their university IRs. Furthermore, they examine factors that encourage faculty participation in IRs as well as factors that frustrate faculty contributions to IRs. Of three statistically significant impediments that might be responsible for low participation rate are copyright issues, time and effort were seen to the problem that hindered their participation in self-archiving. He concludes by underlining the importance of strengthening digital preservation and copyright management in IRs to increase faculty participation (Kim, 2011). Scholars have been slow to partake in self-archiving via institutional repositories. Poynder (2010) provide an estimate on self-arching practices where he stated that only about 15% of the peer-reviewed literature is presently being self-archived in IRs. Zhang, Boock, and Wirth (2015) also reported the state of self-archiving at the Oregon State University (OSU) where they stated that the rate of deposit of OSU scholarly articles increased significantly when OSULP initiated the Web of Science Project where articles were request from authors which was deposited by library staff, on behalf of faculty authors in January 2012. Despite the passage of OA policy by the Faculty Senate on June 13 2013, authors from various faculties have not increase their deposits to the IR. Although the specific reason for the lack of increase in deposit at OSU is not known, local anecdotal evidence as well as the experiences of other institutions points to lack of awareness of policy, understanding of the policy, and time constraints as possible reasons (Chen, 2014; Kim, 2010; Vincent-Lamarre, Boivin, Gargouri, Larivière, & Harnad, 2014).

Singeh, Abrizah, and Karim (2013) shared a Malaysian case by examining the conditions that hinder authors from self-archiving in open access repositories. According to their study, the major barrier was fear of plagiarism. Davis and Fromerth (2007) further investigated the reasons why self-archiving in IRs gained little uptake. They identified the use of alternatives such as departmental pages and disciplinary repositories, the concern with redundancy and multiple copies being deposited, the learning curve and effort involved in depositing in IRs, confusion about copyright, fear of being "scooped" by their peers, concern with plagiarism, and a failure to identify truly compelling values in self-archiving as precipitating factors. Singson et al. (2015) also indicated that lack of good understanding of publishers' licensing policies posed a challenge for librarians to

self- archiving. As some of technical jargons in the journal licensing clause often mislead authors to breach journal licensing policy. For example, indicating whether pre-prints can be self-archived (yellow), post-prints can be self-archived (blue), both pre-print and post-print can be archived (green) or neither (white). Poynder (2015) reported some of the embargo place by most publishers which, he termed "dark deposit", or otherwise inaccessible to content. In other word, makes them not open access. To try and get a clearer picture and understanding of the level of openness, Schöpfel et al. (2012, p. 1 - 2) conducted a survey of 25 institutional repositories and over 2 million records, 53% of which were peer-reviewed papers. Their conclusion is that the rate of open access varies from repository to repository. Of those repositories they surveyed, they added the median figure for items that provide open access to the full text is around two-fifths. The finding further elucidate openness to content based on type, they reported: "The overall degree of openness of working papers is 0.96, which means that in the entire sample, only 4% of the working papers are freely accessible, followed by PhD theses (0.76) and reports (0.63). Significantly less open are journal articles (0.31), communications (0.21) and books/book chapters (0.17)." To put it in another way they add, "Articles are half as open as reports, and PhD theses are over four times more open than books/book chapters. The median degree of openness per repository confirms the overall statistics. The median is high for working papers (0.98) and theses (0.92), medium for reports (0.63), and low for articles (0.38), communications (0.29) and books (0.13)." Worthy to note here is that, "the number of items and their openness are inversely correlated, in that the more important categories (articles, communication and books/book chapters) are less open than the less important ones."

Despite the challenges bedeviling self-archiving practices, one important issue to put into consideration is providing a clear policy on how to encourage faculty to self-archive their work. As some scholars support this general practice and argue that, without such mandates, IRs will remain empty, while others prefer "carrots over sticks" (Harnad & McGovern, 2009). Ferreira, Rodrigues, Baptista, and Saraiva (2008) reported that University of Minho tackled the problem of the slow rates of deposits by undertaking several activities in their strategic plan. They started with a promotional plan that included internal talks, training, seminars, flyers and contact with departments' directors. Next, they created value added services such as downloading statistics and researchers webpages. The most effective measure they implemented was a self-archiving mandate policy 13 and a financial incentive given to the department with most deposits. Other studies reported that mandate policies drastically improved content recruitment, such as in the work of Xia and Sun (2007); Gargouri, Larivière, Gingras, Carr, and Harnad (2012); Jantz and Wilson (2008); and Xia et al. (2012) notes that other factors (peer pressure, incentives or positive outcomes) would make faculty staff more likely to contribute. At many IRs, designated staffs (eg. librarians) to collect research results from the academia and feed them into the database after supplementing them with the necessary metadata. In these institutions, information professionals are assumed to have the skills to take on these tasks. In addition Schöpfel et al. (2012) stressed that institution may also decide to establish a mandatory deposit, and/or incentives for self-deposit. The underlying idea is to "dig out" hidden material, find a solution for digital dissemination and preservation, together with other published or unpublished documents. Debreczeni (2015), suggested depositing papers by library staff or research assistants rather than the researchers themselves as this would go a long way in increasing the rate of deposition.

However, commercial publishers have wrong misconception about self-archiving as it is considered as "poisoned apple" that is often seen as obstacle to publishing landscape. According to Poynder (2015), one of the inconvenient truths that the open access movement prefers not to discuss is the fact that a large amount of the content in the circa 4,125 institutional repositories created by research institutions in order to provide open access to their research output is not actually freely available but on "dark deposit", or otherwise inaccessible. In other words, it is not open access. Poynder (2015), further reiterated that publishers too resisted open access; especially green OA, which they believe poses a threat to their revenues. However, while the logical response for publishers would be to impose embargoes before papers can be made freely available on the Internet, the general lack of interest in self-archiving amongst researchers, and the haphazard way in which it was occurring, saw few publishers initially do so. They assumed that it would never amount to anything more than a niche activity.

With all the wrong misconception about self-archiving by commercial publishers, yet research conducted by Poynder (2010) reported that over 90% of scholarly journal publishers in all disciplines allow some kinds of self-archiving; the majority of academic authors should feel free to self-archive. According to Covey (2013), most publishers with self-archiving policies in the SHERPA RoMEO database allow authors to deposit their articles in a repository or post them to a website – supporting the green route to open access. Nevertheless, the Association of American Publishers (AAP) enthusiastically endorsed legislation proposed and defeated twice in the United States to prohibit federal agencies from mandating repository deposits of articles reporting on research they funded (Covey, 2013)**.** In addition, The AAP also endorsed the Finch Report issued in the United Kingdom; the Report designated repository deposits and elevated open access publishing – the gold route to open access – as the preferred path to expand public access. Given that the green route is more affordable than the gold route, that the green route exceeds the gold route in growth rate and proportion of articles available to

open access, these are puzzling tactics for publishers professing to support self-archiving (Gargouri et al., 2012; Houghton & Oppenheim, 2010; Van Noorden, 2013).

It is evident that members of the academic and scholarly community do not see repositories as part of the publication process. Considering the reluctant attitude of academics to deposit their research output, whether through lack of interest, lack of knowledge or through concern over the purpose and function of repositories, it appears those tertiary institutions wanting to increase their rate of deposit (and use) needs to actively market the concept of the institutional repository within their institution. Advocacy is an ongoing task to ensure that new depositors are being recruited, and that previous depositors continue to contribute updates of their research output, and remain committed to the overall success of the repository (Cullen & Chawner, 2009; Van Noorden, 2013).

V. Methodology

Survey research method was adopted in conducting this study. The study area was Northwestern state of Nigeria which comprises seven (7) Federal Universities within the region. The populations for the study consist of 200 academic librarians in the seven (7) Federal Universities in Northwestern state of Nigerian, which 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. Questionnaire was the instrument used for data collection. A total enumeration technique was employed where the entire population was considered for the study. Out of 200 copies of the questionnaire distributed to the respondents, 174 (87%) were duly completed and found usable for the study. The entire population was considered as sample for the study due to the fact that it was reasonable and can be manage by the researcher. As supported by Newman and Feldman (2011), a researcher's decision about the best sample size depends on three issues: the degree of accuracy required; the degree of variability or diversity in the population; and the number of different variables examined simultaneously. According to Dulle (2010) in an ideal situation (manageable population, adequate time and financial resources), the researcher is supposed to study the whole population, hence the researcher consider the entire population for the study. The data collected for the study were presented and analyzed using descriptive statistics and the findings were presented in tables, frequencies and percentages. 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). The software has been widely applied by many scholars specifically in technology acceptance and user studies (Al-Zahrani, 2006; Ammenwerth et al., 2002; Ifinedo, 2006; Knutsen, 2005; Louho, Kallioja, & Oittinen, 2006; Pelizzari, 2003).

VI. Findings

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.

Table 1: Demographic Characteristics of the Respondents

Demographic characteristics of the respondents were among the variables selected for evaluation, along the opinions of the academic librarians for the utilization of open access resources in Table 1

Demographic Characteristics of the Respondents			
Variables	**Variable classification**	**Frequency**	**Percentage**
Name of Institution	Ahmadu Bello University, Zaria	108	62.06
	Bayero University Kano	24	13.79
	Usmanu Danfodio University Sokoto	25	14.36
	Federal University Dutse	10	5.74
	Federal University Dutsinma	7	4.02
	Federal University Birnin KB	0	0
	Federal University Gusau	0	0
	Total =	**174**	**99.97**
Gender	Male	114	65.51
	Female	60	34.48
	Total =	**174**	**99.99**
Age	23-30 yrs	6	34.4
	31-38 yrs	110	63.21
	39-46 yrs	48	27.58
	47 yrs and above	12	5.74
	Total=	**174**	**99.97**
Highest Educational Qualification	BLS	92	52.87
	MLS	53	30.45
	Phd	3	1.72
	M.phil	4	2.29
	Others	22	12.64

	Total=	**174**	**99.97**
Working Experience	1-5	120	69.96
	6-10	34	19.54
	16-20	2	1.14
	21-25	9	5.17
	26-30	7	4.02
	31yrs and above	2	1.14
	Total=	**174**	**99.97**

Based on the classification of the respondents by institution, Kashim Ibrahim Library, Ahmadu Bello University, Zaria has the largest number of academic librarians with 108 (54%) responses. It is not surprising to find out that the Ahmadu Bello University, Zaria has the largest respondents because it is among the first generation university and one of the largest in the country. Looking at Bayero University library Kano and Usmanu Danfodiyo University, Sokoto have almost the same number of academic librarians. Out of all the respondents, 114 (65.51%) were male and 60 (34.48%) were female. This unequal representation of the gender in the study signified that male constitutes the majority of academic librarians in the area covered by the study. The age range of 31-38 years constituted the highest respondent with 110 (63.21%) responses followed by 39 – 46 years category with 48 (27.58%), the age range of 23 -30 and 47 and above were ostensibly few. The implication of this finding is that there is high number of young academic librarians that are within the range of 31 - 46 years. Furthermore, analysis from the distribution indicated that, majority of the respondents 92 (52.87%) hold Bachelor Degrees in Library Science (BLS), followed by Masters in Library and Information Science (MLS) with 53 (30.45%) responses. The findings revealed that academic librarians holding PhD and M.Phil were ostensibly few with 3 (1.72%) and 4 (2.29%) responses, respectively. With regards to working experience, first and second categories that is 1-5 years of experience with 120 (68.96%) and 6-10 with 34 (19.54%) have the highest responses respectively. This implies that academic librarians with less than 10 years working experience constitute the majority.

Ways Academic Librarian in North Western States of Nigeria Make Research Materials Publicly Accessible

An assessment was made on the ways in which academic librarians make their research publicly accessible in Table 1.

Table 1: Ways Academic Librarian in North western States of Nigeria Makes Research Materials Publicly Accessible

Ways used in publishing Research Output	**Frequency**	**Percentage (%)**
Print Journals	140	(80.5%)
Electronic Journals	123	(70.7%)
Open access journal	94	(54.0%)
Fee based Journals	103	(59.2%)
Discipline/ subject repository	5	(2.85%)
Personal/departmental homepage	5	(2.85%)
Institutional Repositories	10	(5.7%)

Based on the findings in Table 1 print journals were the leading media used by academic librarians in publishing their research output with 140 (80.5%) scores. Electronic journals constitute 123 (70.7%) responses; Fee based journals were ranked higher than open access journals with 103 (59.2%) responses as against open access journals with 97 (55.7%) responses. Accordingly, Discipline/ subject repository and Personal/departmental homepage were the least ranked with 5 (2.85%), responses, respectively. The implication of the above finding is that there is low level support to OA outlets and lower priority over Institutional Repositories, discipline/subject repository and personal/departmental homepage which should ideally lead because of their assigned portfolios and their closeness to their immediate users.

The finding of the research portrays that, in spite of the popularity and numerous advantages of self-archiving research that comprise preserving intellectual research output and promoting research visibility, librarians still give priority to print than electronic media in the area covered by the study.

However, the movement toward open access is an outcome of need to optimize free access and wider circulation of research findings (Houghton & Oppenheim, 2010). Therefore, the implication for academic librarians in federal universities in Northwestern states of Nigeria is that through this medium their research can be maximally utilized.

Depositions Mandates in Making Research Available Via Open Access by Academic Librarian in Northwestern States of Nigeria

The disposition in making research available via open access outlets was investigated, the respondents were asked about their general disposition towards Open Access methods of information dissemination, as well as the types of material (documents) to be deposited. The descriptive analysis of the result is presented in table 2:

Table 2: Disposition to Making Research Available via Open Access Methods

Type of publications	**Ratings (number & percentage)**				
	Institutional repository	Discipline/ subject repository	Personal / dept. homepage	Open Access Journal	I would Not make available
Text book	85(48.9%)	20(11.5%)	19(10.9%)	14(8.0%)	36(20.7%)
Chapter in book	15(8.6%)	86(49.4%)	20(11.5%)	24(13.8%)	29(16.7%)
Co-authored textbook	30(17.2%)	78(44.8%)	10(5.8%)	13(7.5%)	43(24.7%)
Working paper	58(33.3%)	34(19.5%)	42(24.1%)	26(14.9%)	14(8.0%)
Patent and certified invention	92(52.9%)	40(30.0%)	6(3.4%)	4(2.3%)	32(18.4%)
Occasional paper	95(54.6%)	20(11.5%)	17(9.8%)	24(13.8%)	18(10.3%)
Scientific Peer-review bulletin	84(48.3%)	16(9.2%)	16(9.2%)	31(17.8%)	27(15.5%)
Seminar paper	102(58.6%)	24(13.8%)	21(12.1%)	29(16.7%)	18(10.3%)
Conference proceedings	57(32.8%)	35(20.1%)	26(14.9%)	33(19.0%)	23(13.2%)
Monographs	63(36.2%)	9(5.2%)	22(12.6%)	42(24.1%)	38(21.8%)
Peer review Journals	51(29.3%)	8(4.6%)	14(8.0%)	86(49.4%)	15(8.7%)

The findings in Table 2 revealed that majority of the respondents indicated their mandate to deposit seminar paper through institutional repository with 102(58.6%) responses. Next to it is occasional paper with 95 (54.6%) responses. Similarly, the result also indicated willingness by the respondents to deposit patent and certified invention via institutional repository with 92(52.9%) responses. Deposition of chapter in book via discipline/subject repository was ranked forth with 86(49.4%) responses. In addition, the respondents also portray their keen interest to make scientific peer-review bulletin via discipline/subject repository with 84 (48.3%) responses. There was also a clear tendency to deposit co-authored textbook through discipline/subject repository with 78(44.8%) responses. While count on patent and certified invention via open access journal ranked least with 4(2.3%) responses. Noteworthy here is the fact that even though the respondents indicated their mandate in making their resources available via open access outlet it could be noticed that the number of resources and their level of openness are inversely correlated, in that the more important categories (co-authored textbook, text books/book chapters, monograph patent and certified invention) are less open than the less important ones.

The finding implies that there is preference by the respondents to deposit through institutional repository and discipline/subject repository than other open access outlet indicating deficit of deposit because librarians are expected to produce different types of publications and products, including newsletters, journals, bulletins, fact sheets, reports, summaries, guides, video recordings, conference proceedings, books, and technical reports. These different types of publications have different purposes and different audience to be served. This finding supports that of Schöpfel et al. (2012), who conducted a survey of 25 institutional repositories and over 2 million records. They conclude that the rate of open access varies from repository to repository and "the number of items and their openness are inversely correlated, in that the more important categories (articles, communication and books/book chapters) are less open than the less important ones." (Poynder, 2015).

Factors that Motivate Academic Librarian in Northwestern States of Nigeria to Self-Archiving their Research Work Via Open Access outlet

An assessment was carried out in order to rate the respondents on the factors that motivate them to self-archive their research work via open access outlet on a scale of five from "very important" to "not important at all". The result of the factors that motivate academic librarians in the Northwestern states of Nigeria to self-archive is presented in Table 3:

Table 3: Factors that Motivate Self-Archiving Mandate of Academic Librarian in Northwestern States of Nigeria

Motivating Factors for Publishing Output Via Open Access	Importance Ratings (Number and Percentage)				
	Very Important	Important	Somewhat Important	Less Important	Not Important at all.
Support for access policy to resources at no cost	61 (35.1%)	70 (40.2%)	36 (20.7%)	4 (2.3%)	3 (1.7%)
Satisfying my need for creativity / curiosity for subject field	38 (21.8%)	90 (51.7%)	32 (18.4%)	11(6.3%)	3 (1.7%)
Achieving peer recognition and prestige	53 (30.5%)	72 (41.4%)	28 (16.1%)	5 (2.9%)	16(9.2%)
urge to contribute to knowledge and Career advancement	55 (31.6%)	94 (54.0%)	17 (9.8%)	4 (2.3%)	4 (2.3%)
Gain funding/ Financial reward	55 (32.6%)	49 (28.2%)	59 (33.9%)	3 (1.7%)	8 (4.6%)
Limited access to subscription based publications	66 (37.9%)	48 (27.6%)	41 (23.6%)	16 (9.2%)	3 (1.7%)

The result from Table 3 indicated that, urge to contribute to knowledge and career advancement by academic librarians studied received highest rating where it was considered very important or important with 149 (85.6%)

responses. Accordingly, 131 (75.3%) respondents also considered support for access policy to resources at no cost as very important or important motivating factor. The study further revealed that 128 (73.5%) respondents agreed with the fact that satisfying the need for creativity/curiosity for subject field as an important motivating factor for self-archiving their work via open access outlet. The study also revealed that achieving peer recognition and prestige with 125 (71.9%) responses, while gain funding/financial reward ranked lowest by 104 (60.8%) of the respondents as motivating factor.

From the foregoing result, the main factors that motivates academic librarians to self-archive their publications is to benefit from varying impact of open access, which includes free access to public funded research publications, research visibility, increase citation rate and research collaborations. These finding corroborates with that of Abuabdallah (2014), who categorized the benefit factors of self archiving as intrinsic and extrinsic benefits, where the intrinsic benefit is described as altruism conveying the desire to share the scientific knowledge for the benefit of others, which in turn, result a high research impact. While, extrinsic benefits identified in the study are: accessibility, publicity, trustworthiness, academic reward and professional recognition. This agreed with the fact that making research output through OA outlets would make materials more visible, discoverable, retrievable, and useful and also gives authors a worldwide audience.

Benefits to be derive by Academic Librarians in Northwestern states of Nigeria by making their Research Materials Available via Open Access.

The respondents were assessed on their degree of agreement or disagreement about the benefit to be derived in making their research materials available via open access in Table 4.

Table 4: Benefits to be derive by academic librarians in Northwestern states of Nigeria making their research materials available via open access.

Benefits derived by making research material available via open access	Ratings (Number and Percentage)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Increase citation rate of your publications	36 (20.7%)	77 (44.3%)	41 (23.5%)	4 (2.3%)
Wider visibility of open access publications	67 (38.5%)	74 (42.5%)	30 (17.2%)	3 (1.7%)
Fostering international collaboration, partnership and sharing	66 (36.7%)	68(39.1%)	39(22.4%)	3(1.7%)
Open access speed research progress and Knowledge sharing	53 (30.5%)	72 (41.4%)	33(19%)	16(9.2%)
To improve global network and interoperability of Knowledge	47 (27.0%)	77 (44.3%)	25 (14.3%)	5 (2.9%)
Interest in getting research indexed in search engines/ higher impact	87(50%)	79 (45.4%)	2 (1.1%)	6 (3.4%)

The result from Table 4 indicated that 166 (95.4%) of the respondents agreed or strongly agreed that interest in getting their research indexed in search engines/higher impact was considered as the major benefit. 141 (81%) respondents also agreed that wider visibility of open access publication as benefit to be derived when published via open access outlet. Similarly, the respondents highlighted that self-archiving to improve global network and interoperability of knowledge as benefit with 124 (71.3%) responses. The study also agreed that open access outlets speed research progress and knowledge sharing with 125 (71.9) responses. Lastly, specific questions regarding the properties of open access resources such as increase citation rate as beneficial factor with 113 (65%) responses.

The findings from the study revealed that making research output through OA outlets would make materials more visible, discoverable, retrievable, and useful and also gives authors a worldwide audience

Factors That Makes Academic Librarians in Northwestern States of Nigeria Reluctant from Self-Archive Their Research Materials

Factors that make academic librarians reluctant to self-archive their research materials were presented in Table 4. In order to achieve these respondents were asked about their reasons for not self-archiving their materials.

Table 5: Factors that Makes academic Librarians Reluctant from Self-Archive their Research Materials

Factors that Makes Academic Librarian in Northwestern States of Nigeria Reluctant from Self-Archive Their Research Materials	Problem Ratings (number & percentage)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Low level of awareness deposition mandate and self-archiving	79 (45.4%)	74 (42.5%)	9 (5.2%)	12 (6.9%)
perception of IR contents as lower quality	79 (45.4%)	82 (47.1%)	11 (6.3%)	2 (1.1%)
fear of plagiarism,	67(38.5%)	78 (44.8%)	22 (12.6%)	7 (4.0%)
low level of understanding of licensing policy for self	72 (41.4%)	69 (39.7%)	23 (13.2%)	10 (5.7%)
time and effort required of them to perform self-archiving	55 (31.5%)	85 (48.9%)	28 (16.1%)	6 (3.4%)
Perceive self-archiving in institutional repositories to be a	51 (29.3%)	96 (55.2%)	25 (14.4%)	2 (1.1%)
Inadequate advocacy for self-arching mandate	62 (35.6%)	88 (50.6%)	19 (10.9%)	5 (2.9%)
Intellectual freedom issues such as privacy, copyright,	70 (40.2%)	77 (44.3%)	20 (11.5%)	7 (4.0%)
Lack of Institutional policies on self-archiving mandate	41 (23.6%)	74 (42.5%)	35 (20.1%)	24 (13.8%)

It is very glaring from the analysis in table 5 which indicated that majority of the respondents stressed that perception of IR contents to be of lower quality makes them reluctant to self archive their research work with 161 (92.5%) responses. The study further revealed that low level of awareness about deposition mandate and self-archiving practices have greatly affected the respondents in their self-archiving practices with 153 (87.9%). This finding is followed by inadequate advocacy for self-archiving practices with 150 (86.2%) responses. This result supports that of Hahn and Wyatt (2014), Yang and Li (2015), who reported low level of awareness and inadequate advocacy for self-archiving mandate as major hindrance. The respondents also stressed that self-archiving in institutional repository is a redundant activity and intellectual freedom issues such as privacy, copyright, censorship constituted the reason for their reluctances with 147 (84.5%) responses each. The study also revealed that fear of plagiarism 145 (83.3%) was another factor that makes librarians to be reluctant from self-archiving their research work. This finding is in agreement with that of Singeh et al. (2013) who affirmed that, fear of plagiarism was a major barrier in to self-archiving practces. Low level of understanding of licensing policy for self-archiving was also reported as hindrance to the respondents with 141 (81.1%) responses. Further evidence from the study pointed out that lack of institutional policy has impeded the respondents from self-archiving with 115 (66.1%), this finding affirms that of Singson et al. (2015) which also attest to this barrier.

Roles of Academic Librarians in Promoting Open Access in their Insttitutions

The respondents were asked to indicate their views on how academics librarians can promote open access in their various insttitutions in Table 6.

Table 6: Roles of Academic Librarians in Promoting Open Access in their Insttitutions

How can academics Librarians Promote Open Access in their Insttitutions	Ratings (number & percentage)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Academic librarians should encorage university administrators to develop self-archiving policies to encorage self-arching practices	61 (35.1%)	106 (60.9)	16 (9.2%)	3 (1.7%)
Academic librarians should encourage university administrators to set out reward and penalty mechanism "Carrot and stick"	55 (32.6%)	108 (62.1)	3 (1.7%)	8 (4.6%)
Academic librarians should encourage university administrators to finance open access related projects	89 (51.2)	66 (37.9%)	16 (9.2%)	3 (1.7%)
Academic librarians should encourage university administrators to upgrade facilities	100 (57.5)	53 (30.5%)	4 (2.3%)	4 (2.3%)
Academic librarians should educate academics about open access, copyright issues and publishers licensing clause	55 (31.6%)	111 (63.8)	4 (2.3%)	4 (2.3%)
Academic librarians should advocate, support and promote open access project and initiatives in their Institutions	96 (55.2)	47 (27.0%)	6 (3.4%)	5 (2.9%)

Analysis in Table 6 indicated that 167 (96%) respondents strongly agree or agree that academic librarians should encourage university administrators to develop self-archiving policies to encourage self-arching practices. The study also revealed that 166 (95.4%) respondents are in agreement with a statement that; "academic librarians should educate other academics about open access, copyright issues and publishers licensing clause". The respondenst 163 (94.7%) also strongly agree or agree that "academic librarians should encorage university administrators to set out reward and penalty mechanism "Carrot and stick" in ensuring high deposition mandate among academics." Noteworthy to mentioned also is the fact that 155 (89.1%) respondents indicated that cademic librarians should encourage university administrators to finance open access related projects. Lastly, the finding highlighted that 141 (82.2%) academic librarians should advocate, support and promote open access project and initiatives in their institutions.

Base on the findings, it is interesting to see that all the items on strategies to promote open access were considered supportive. This suggests that the involvement of academic librarians is very important as their action or in actions would definitely lead to success or failure. More importantly, academic librarians can better effectively model the attitude of authors toward deposition mandates and on the other hand, university administrators would be guided toward implementation of appropriate strategies. This finding concords with that of Mallik and Roy (2007) and Mercer (2011) who highlighted the relevancy of librarians in promoting open access.

VII. Summary of the Major Findings

1-The finding of the research revealed that majority of respondents give priority to print than electronic media in spite of the popularity and numerous advantages of electronic media.

2- The finding of the study revealed that majority of the respondents indicated their mandate to deposit their research materials in institutional repositories and other open access outlets.

3- The study discovered that the main factors that motivate academic librarians to self-archive their publications was to benefit from varying impact of open access, which includes free access to public funded research publications, wider research visibility, increased citation rate and research collaborations.

4- The findings from the study revealed that making research output through OA outlets would make materials more visible, discoverable, retrievable, and useful and also gives authors a worldwide audience.

5- The study also highlighted that perception of IR contents to be of lower quality, low level of awareness about deposition mandate and self-archiving practices, fear of plagiarism and low level of understanding of publishers licensing policy as the major factors that makes them reluctant to self archive their work.
6-The study suggests that the involvement of academic librarians is very important as their actions or in-actions would definitely lead to success or failure. More importantly academic librarian can better model the attitude of authors toward deposition mandates and on the other hand, university administrators would be guided toward implementation of appropriate strategies.

VIII. Conclusion

Self-archiving mandates to institutional repositories is increasingly becoming an issue of concern in the 21st century by most academic institutions across the globe. There is no doubt that academic institutions want to capture, preserve, and promote free access and wider sharing of intellectual output among members of the university community. It is clear that some researchers have been reluctant to accept self-archiving via institutional repositories and other open access outlets. It is evident that the greatest barrier that accounts for low participation were low level of awareness, fear of plagiarism, copyright concerns, perception of IR contents is of lower quality and low level of understanding of licensing policy for self archiving. It appears that members of the academic and research community do not see repositories as part of the publication process. In view of the above challenges, implementation of self-archiving mandate policy have become so important, likewise advocacy in order to improve the level of awareness of self-archiving is equally needed, positive incentive to encourage deposition to IRs and issues relating to copy right (registration and certification from "owner*"* of the intellectual property) need to be addressed. When these issues are addressed squarely, definitely it would be a step forward toward improving scholars' awareness and participation. As this would go a long way in enhancing collaboration among researchers, speed research progress, enhance research visibility and citation rate of scholars in Nigerian universities and beyond.

IX. Recommendation

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

1- Efforts should be geared towards organized campaigns, advocacy to encourage taking numerous advantages of electronic media and other open access outlets.
2- Academic librarians who self-archive their work in open access outlets should make efforts to sensitize others to adopt the habit through workshops, seminars etc. The university management should provide necessary facilities and formulate policies that would encourage mandatory deposit of scholarly works in institutional repositories and other open access outlets to raise the level of contribution and usage.
3- Academic librarians who benefit from varying impact of open access should make efforts to sensitize others to adopt the habit through workshops, seminars etc.
4- More effort should be geared towards providing value-added services and enforcing a policy mandating self-archiving, this is highly important as it would help in gaining fruit of raising awareness on the benefit of self-archiving materials.
5- The university management should embark on campaigns and advocacy to clarify copyrights issues and raises awareness on self-archiving practices through workshops, seminars etc. this would raise the level of awareness, usage and mandatory deposit.
6- Academic librarians need to encourage university management to formulate policies that would encourage academics to self-archive their work in the institutional repositories through application of appropriate mechanism for reward and punishment "carrot and stick". There is also the need for sensitization campaign on publisher licensing clauses, copyright issues. Lastly, academic librarians should also encourage university management to finance, support and promote open access project and initiatives in the institutions covered by the study.

References

Abuabdallah, Z. S (2014). *The Gap between Scholarly Practices and the Institutional Practices at Dalhousie University.* (Master of Applied Computer Science), Dalhousie University Halifax, Nova Scotia.

Al-Zahrani, S. (2006). An Information management system model for the industrial incidents in Saudi Arabia: a conceptual framework based on SDLC methodology. *Journal of Computer Science, 2*(5), 447-454.

Albert, K. M. (2006). Open access: implications for scholarly publishing and medical libraries. *Journal of the Medical Library Association, 94*(3), 253.

Ammenwerth, E., Kaiser, F., Bürkle, T., Gräber, S., Herrmann, G., & Wilhelmy, I. (2002). *Evaluation of user acceptance of data management systems in hospitals-feasibility and usability.* Paper presented at the Proceedings of the 9th European Conference on Information Technology Evaluation.

Andrew, Theo. (2003). Trends in self-posting of research material online by academic staff.

Antelman, K. (2006). Self-archiving practice and the influence of publisher policies in the social sciences. *Learned Publishing, 19*(2), 85-95.

Baker, G. (2010). Open access Advice on working with faculty senates. *College & Research Libraries News, 71*(1), 21-24.

Chan, L. (2004). Supporting and enhancing scholarship in the digital age: the role of open access institutional repository. *Canadian Journal of Communication, 29*(3).

Chen, X. (2014). Open access in 2013: Reaching the 50% milestone. *Serials Review, 40*(1), 21-27.

Cochrane, T., & Callan, P. (2007). Making a difference: implementing the eprints mandate at QUT. *OCLC Systems & Services: International digital library perspectives, 23*(3), 262-268.

Covey, T. D. (2013). Publisher Support for Self-Archiving: Laudatory or Predatory?

Crow, Raym. (2002). The case for institutional repositories: a SPARC position paper. *ARL Bimonthly Report 223, 10(7)*, 89-100.
Cullen, R., & Chawner, B. (2009). *Institutional repositories and the role of academic libraries in scholarly communication.* Paper presented at the Asia-Pacific conference on library & information education & practice.
Davis, P., & Fromerth, M. (2007). Does the arXiv lead to higher citations and reduced publisher downloads for mathematics articles? *Scientometrics, 71*(2), 203-215.
Debreczeni, Z. . (2015). Sustainable institutional repositories: issues and challenges for capturing and sharing scientific knowledge. *"Libraries and Digital Strategy"*
Dulle, F., Minish-Majanja, M. K., & Cloete, L.M. (2010). *Factors influencing the adoption of open access scholarly communication in Tanzanian public universities.* Paper presented at the World Library and Information Congress: 76th IFLA General Conference and Assembly. Gothenburg, Sweden. Available at: http://www.ifla.org/files/hq/papers/ifla76/138-dulle-en.pdf [Accessed 15th January, 2016].
Dulle , F. W. (2010). *An analysis of open access schorlarly communication in Tanzanian public universities.* (PhD Thesis), University of South Africa, Pretoria
Ferreira, M., Rodrigues, E., Baptista, A, A., & Saraiva, R. (2008). Carrots and sticks: Some ideas on how to create a successful institutional repository. *D-Lib Magazine, 14*(1), 3.
Foster, N. F., & Gibbons, S. (2005). Understanding Faculty to Improve Content Recruitment for Institutional Repositories. *Online Submission, 11*(1).
Friend, F. (2011). Open access business models for research funders and universities. *Report, Knowledge Exchange, Copenhagen*.
Gargouri, Y., Larivière, V., Gingras, Y., Carr, L., & Harnad, S. (2012). Green and gold open access percentages and growth, by discipline. *arXiv preprint arXiv:1206.3664*.
Ghosh, M. (2009). Information professionals in the Open Access Era: the competencies, challenges and new roles. *Information Development, 25*(1), 33-42.
Hahn, S. E., & Wyatt, A. (2014). Business Faculty's Attitudes: Open Access, Disciplinary Repositories, and Institutional Repositories. *Journal of Business & Finance Librarianship, 19*(2), 93-113.
Harnad, S., Brody, T., ValliÃ¨ res, F., Carr, L., Hitchcock, S., Gingras, Y., . . . Hilf, E. R. (2004). The access/impact problem and the green and gold roads to open access. *Serials review, 30*(4), 310-314.
Harnad, S., & McGovern, N. (2009). Topic 4: Institutional repository success is dependent upon mandates. *Bulletin of the American Society for Information Science and Technology, 35*(4), 27-31.
Harnard, S. (2001). The self-archiving initiative: nature web debates.
Hayton, R. (1996). *OASIS: An open architecture for secure interworking services.* Paper presented at the University of Cambridge Computer Laboratory, New Museums Site.
Hirwade, M., & Hirwade, A. (2006). Institutional repositories: challenge and opportunity for LIS Professionals in digital age. *Library Herald*.
Horwood, L., Sullivan, S., Young, E., & Garner, Jane. (2004). OAI compliant institutional repositories and the role of library staff. *Library Management, 25*(4/5), 170-176.
Houghton, J. W., & Oppenheim, C. (2010). The economic implications of alternative publishing models. *Prometheus, 28*(1), 41-54.
Ifinedo, P. (2006). Acceptance and continuance intention of web-based learning technologies (WLT) use among university students in a Baltic country. *The Electronic Journal of Information Systems in Developing Countries, 23*.
Jantz, R. C., & Wilson, M. C. (2008). Institutional repositories: Faculty deposits, marketing, and the reform of scholarly communication. *The journal of academic librarianship, 34*(3), 186-195.
Kennan, M. A. (2008). *Reassembling scholarly publishing: open access, institutional repositories and the process of change.* The University of New South Wales.
Kim, J. (2007). Faculty self-archiving behavior: Factors affecting the decision to self-archive. *Proceedings of the American Society for Information Science and Technology, 44*(1), 1-5.
Kim, J. (2010). Faculty self-archiving: Motivations and barriers. *Journal of the American Society for Information Science and Technology, 61*(9), 1909-1922.
Kim, J. (2011). Motivations of faculty self-archiving in institutional repositories. *The Journal of Academic Librarianship, 37*(3), 246-254.
Knutsen, L. A. (2005). *M-service expectancies and attitudes: Linkages and effects of first impressions.* Paper presented at the System Sciences, 2005. HICSS'05. Proceedings of the 38th Annual Hawaii International Conference on.
Louho, R., Kallioja, M., & Oittinen, P. (2006). Factors affecting the use of hybrid media applications. *Graphic arts in Finland, 35*(3), 11-21.
Lynch, C. A, & Lippincott, J. K. (2005). Institutional repository deployment in the United States as of early 2005. *D-lib Magazine, 11*(9), 1-11.
Lynch , C. A. (2003). Institutional repositories: essential infrastructure for scholarship in the digital age. *portal: Libraries and the Academy, 3*(2), 327-336.
Mallik, S, & Roy, P. (2007). Online journals usage pattern: A case study of CDRI, Lucknow as a member of CSIR E-journals Consortium. *Library and Information Networking (NACLIN), DELNET*, 243-254.
Mercer, H. (2011). Almost halfway there: An analysis of the open access behaviors of academic librarians. *College & Research Libraries, 72*(5), 443-453.
Newman, J. C., & Feldman, R. (2011). Copyright and open access at the bedside. *New England Journal of Medicine, 365*(26), 2447-2449.
Pelizzari, E. (2003). Academic staff use, perception and expectations about open-access archives: a survey of social science sector at Brescia University.
Pinfield, S. (2005). A mandate to self archive? The role of open access institutional repositories. *Serials, 18*(1), 30-34.
Poynder, R. (2010). A prophet whose time has come. *Information Today, 27*(2), 1.
Poynder, R. (2015). Open Access, Almost-OA, OA Policies, and Institutional Repositories
Rockman, I. F., Buehler, M. A, & Boateng, A. (2005). The evolving impact of institutional repositories on reference librarians. *Reference Services Review, 33*(3), 291-300.
Rossini, C. A. (2007). The open access movement: Opportunities and challenges for developing countries. Let them live in interesting times. *Diplo Foundation. Available: http://campus.diplomacy.edu/env/scripts/Pool/GetBin.asp*
[Accessed 15th Decenber, 2015].
Rowlands, I., Nicholas, D., & Huntington, P. (2004). Scholarly communication in the digital environment: what do authors want? *Learned Publishing, 17*(4), 261-273.
Schöpfel, J., Prost, H., & Le Bescond, I. (2012). *Open Is Not Enough: Grey Literature in Institutional Repositories.* Paper presented at the GL 13: Thirteenth International Conference on Grey Literature: The Grey Circuit. From Social Networking to Wealth Creation. Washington, 5-6 December 2011.

Shearer, K. (2013). *Institutional repositories: towards the identification of critical success factors.* Paper presented at the Proceedings of the Annual Conference of CAIS/Actes du congrès annuel de l'ACSI.

Singeh, F. W., Abrizah, A, & Karim, N. H. (2013). What inhibits authors to self-archive in Open Access repositories? A Malaysian case. *Information Development, 29*(1), 24-35.

Singson, M., Sevukan, R., & Murugaiyan, M. (2015). Author self-archiving and licensing policies of open access library and information science journals: a study. *Annals of Library and Information Studies (ALIS), 62*(2), 104-109.

Smith, K. (2008). Institutional repositories and e-journal archiving: What are we learning? *Journal of Electronic Publishing, 11*(1).

Swan , A., & Awre, C. (2006). Linking UK Repositories: Technical and organisational models to support user-oriented services across institutional and other digital repositories. London: Joint Information System Committee.

Swan, Alma, & Brown, Sheridan. (2005). Open access self-archiving: An author study.

Van Noorden, R. (2013). The true cost of science publishing. *Nature, 495*(7442), 426-429.

Van Westrienen, G., & Lynch, C. A. (2005). Academic institutional repositories. *D-lib Magazine, 11*(9), 1082-9873.

Vincent-Lamarre, P., Boivin, J., Gargouri, Y., Larivière, V., & Harnad, S. (2014). Estimating Open Access Mandate Effectiveness: I. The MELIBEA Score. *arXiv preprint arXiv:1410.2926*.

Xia , J. , Gilchrist, S. B., Smith, N., Kingery, J. A., Radecki, J. R., Wilhelm, M. L., . . . Mahn, A. J. (2012). A review of open access self-archiving mandate policies. *portal: Libraries and the Academy, 12*(1), 85-102.

Xia, J., & Sun, L. (2007). Assessment of self-archiving in institutional repositories: depositorship and full-text availability. *Serials Review, 33*(1), 14-21.

Yang, Zheng Ye Lan, & Li, Yu. (2015). University Faculty Awareness and Attitudes towards Open Access Publishing and the Institutional Repository: A Case Study. *Journal of Librarianship and Scholarly Communication, 3*(1), 5.

Young, J. R. (2002). Superarchives could hold all scholarly output, online collections by institutions may challenge the role of journal publishers. *The Chronicle of Higher Education*, A29.

Zhang, H., Boock, M., & Wirth, A. A. (2015). It Takes More than a Mandate: Factors that Contribute to Increased Rates of Article Deposit to an Institutional Repository.