Competencies and Training of Academic Librarians for the Management of Institutional Repositories in Federal University Libraries in Northeast Nigeria

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Abstract
The objectives of the study were to find out the sources through which librarians in universities in Northeast Nigeria received training on the management of institutional repositories; the types of skills they possessed for the development of institutional repositories and to establish the relationship between the librarians' level of competences and the sources of training of librarians for the development of institutional repository in the federal universities. The study adopted a quantitative approach using a cross-sectional survey design. The population of the study was one hundred and forty (140) librarians from the seven (7) federal universities in the North East, Nigeria. Findings of the study revealed that the majority of the librarians agreed that the skills they possessed would enable them to manage the repository budget and respond to user needs, the majority agreed that they had the skills needed for the management of an institutional repository, agreed that the skills they possessed would enable them to install computer program, use Microsoft office and package, to download and retrieve data from databases, and to design web and programming skills. The majority received training on the management of institutional repositories within their institutions, followed by who received the training through personal sponsorship, followed by who received the training outside the institution and who received sponsored workshops, conferences, and seminars. The study then established a positive statistically significant relationship between the librarians' level of competencies and challenges experienced for the development of institutional repositories in federal universities in North East Nigeria.

Keywords: *Academic librarians, Competencies, Institutional repository, Training, Federal university libraries*

Introduction

The establishment of Institutional Repositories (IR) by institutions particularly universities is gradually changing the nature of library services. This is because universities give priority to research, teaching and community services as one of their core mandates. An IR is usually a digital archive that provides an opportunity for

institutions to deposit their intellectual output for easy accessibility. Besides making journal articles more accessible online and free, the open access movement has also brought institutional repositories to follow the path and become developed in our universities. Apart from all other stakeholders such as the authors and funding agencies, librarians have led this movement. However, in developing countries, the development of institutional repositories has been slow, many university libraries still consider their repositories as an important asset of the institutions and therefore keep them away from the public. The librarians still also consider themselves as the guardians of repositories; in addition to lack of or poor infrastructure for online access.

According to Melo and Sanches (2022), institutional repositories are devices that integrate and guarantee the operations of the Open Science movement and wholly support/encourage the free circulation of academic and scientific production, by making available a wide range of information resources to academic communities and the society at large. Similarly, according to Adeyemo and Jamogha (2021), an institutional repository is a platform that allows information access to publications/documents from any location globally which enhances the visibility of universities.

The development of institutional repositories can help increase scholarly and scientific communication and it motivates librarians to change their ideas of keeping and guarding their repositories and make the repositories available online and freely accessible via the internet. Librarians need to understand the change, they also need to understand the meaning and mission of open access movement which is to provide resources in order to boost the growth of scientific knowledge.

Statement of the Research Problem

The dynamic environment of academic libraries has been altered by the swift advancement of digital technology, which has made the creation and administration of institutional repositories (IRs) imperative in order to conserve and distribute scholarly materials. Effective management of these repositories is essential for promoting open access programs, guaranteeing the long-term preservation of digital materials, and increasing research exposure in federal university libraries in Northeast Nigeria. Nonetheless, the skills and background of academic librarians in charge of overseeing these repositories present considerable obstacles.

Even though institutional repositories are essential to the academic setting, it appears that many librarians in this area do not have the technical know-how, understanding of metadata standards, legal know-how, or project management skills needed to administer repositories effectively. Furthermore, there might not be enough professional development opportunities and training available to provide these librarians the skills they need to handle these difficulties.

This change requires librarians and the libraries as institutions to be well-prepared too. In this case, librarians do not only need new skills, but they should also change their mindset, to be able to change from closed-access repositories to OARs. Thus, librarians

need training from multiple sources as individuals and as a team. The management of institutional repositories will be successful if librarians engage in training and acquire the competencies and skills expected of them in this digital era. It is for this reason, that the researchers embarked on this study to determine the competencies of librarians and trainings for the management of institutional repositories in Federal University Libraries in North East Geopolitical Zone in Nigeria. The researchers will also identify the relationship between their competencies and training sources which will go a long way in addressing their skills requirements.

Objectives of the Study

The objectives of the study are:

1. To find out the sources through which librarians in universities in Northeast Nigeria received training for the Management of institutional repositories.
2. To examine the types of skills possessed by the librarians for the management of institutional repositories in the institutions.

3. To establish the relationship between the librarians' level of competence and the sources of training for the management of institutional repositories.

Librarians Skills for the Management of Institutional Repositories

Successful implementation of an institutional repository depends on the contribution of the academic librarians working at various universities. This is because of the crucial role they play. Their role includes producing and consuming research output (Stanton & Liew, 2011). According to Chan, Catherine and Steve (2005), effective provision and consumption by academic librarians can only occur if the academic librarians have the right skills mix to self-archive their research output as well as access the research output of other scholars.

Cassella and Morando (2012) conducted a survey in Italy in which they explored the skills of repository managers and administrators. They assessed the educational and professional background of the repository managers and their skills for implementing institutional repositories. Their findings showed that highly specialized competencies were required and the skills to deal with copyright issues, metadata expertise and technical skills on interoperability standards and protocols. They further reported that the main challenge for repository managers in Italy was the rising of internal stakeholders' awareness regarding open access and suggested a focus of attention on internal advocacy initiatives, including training courses. Similarly, Simon and Richardson (2012), surveyed the Australian and New Zealand repository staff to identify their skills and knowledge sets. The study found significant gaps in the current provision of formal training and coursework related to institutional repositories.

However, Mathew and Baby (2012) studied technology skills for academic librarians from library professionals in seven universities in Kerala, India. These skills which include These skills include: word processing, desktop publishing, use of bibliographic software packages, spreadsheets, graphics, packages, bulletin-board, familiarity with data and file manipulation, maintaining www files, troubleshooting and

familiarity with local automates systems. Their study also revealed that most of the qualified library professionals did not have an opportunity to familiarize themselves with ICT services and these were performed by ICT personnel. Mobile phones (91.4%) and the internet (86%) were the most used technologies, their awareness of emerging technologies was considered low with younger professionals being more interested in emerging technologies and ICT-based services. The study further showed that lack of training in ICT applications was a main hindrance to ICT utilization.

From the study of Priyanto (2015), it was clear that librarians were not very confident about stating that they could manage the repository. Most of them thought that the management of institutional repository was better managed collaboratively by both the staff with IT backgrounds and librarians, only one of his respondents, confidently stated that librarians were capable of managing the institutional repository because most of the librarians had strong knowledge about the basics of information organization and knowledge management, not much about the IT skills. The main reason librarians were not so confident about managing the institutional repository is that they think repositories are fully IT-based and therefore they required staff with IT capabilities and that librarians do not have enough IT skills. Instead, they could only do the routine of data input. More interestingly, the number of respondents who strongly agreed that staff with IT backgrounds were more appropriate was higher than the number of respondents who believed that the librarians were capable of managing the institutional repository. In other words, the respondents were not entirely confident about saying that librarians were capable of managing the repository because they were aware that they didn't have the skills to do so.

Another study from Australia conducted by Keenan and Kingsley (2009) found that 71.1 percent of repository staff had library backgrounds. However, repository management requires staff with specific knowledge and skill sets that are different from more traditional library roles such as cataloger or reference librarian. It can be particularly challenging to find the right people to support a repository program. Coordinator roles require a certain amount of understanding of both libraries and technology (Henty, 2007).

Moreover, the survey results of Simons and Richardson (2012) further identified a specific set of skills and knowledge required to work on a digital repository, many of which support suggestions in the existing literature in terms of the following broad categories, these may be summarized as:

Knowledge sets: Specific repository software**,** Copyright legislation, Open access issues and Government reporting requirements.

Technical skills: Liaise with IT support staff and communicate technical issues to management and team members.
Collection management skills: Identify and manage copyright issues**,** Monitor metadata quality; use metadata sets and Liaise with clients.

Management skills: Lead and manage staff**,** Plan and develop the repository collection**,** Assess and evaluate repository performance and Engage in strategic planning.

The library should organize suitable training programmes and materials for those groups, topics may include an introduction to Open Access, How to deposit items into the repository, How to search for open access materials and Answer queries and provide advice as appropriate.

Adam and Kaur (2021), examined librarians' skills and competencies for repository management in Nigeria through a quantitative approach. The study established among others that; 74% of the librarians have a general understanding of repository platforms, and 54.17% have background knowledge of the open access movement. Similarly, 83.3% of the librarians can capture, store, and preserve the research output.

Academic Librarians Training For the Management of Institutional Repositories

Training is the improvement of the person's performance for a particular job and focuses on the development of the individual's ability to reach their full potential (Rudman, 2002). It is seen as an experience, a discipline, or a regimen which causes people to acquire new, predetermined behaviors." These are the activities designed to improve human performance on the job. Training involves a process which aims at improving knowledge, skills, attitudes and behaviors in people to accomplish certain jobs, tasks or goals. Training courses and programmes are designed to increase knowledge, improve skills, and change attitudes. Professional training plays a crucial role in the development and growth of organizations. It is an organized method of improving the knowledge and skills of employees to enhance their performance and contribute to their overall success. This training is essential for keeping library staff updated with library trends, regulations, and technologies and improving their job-specific competencies and workplace skills. Thus, Partington and Stainton (2003) argued that academics and non-academics alike should be engaged in professional training.

Moletsane (2004) argues that professional training should be seen as more than the mere learning of knowledge and skills. Rather, it should include personal development. However, Ratanya (2010) stated that access to scholarly research is improving as a result of the growth of institutional repositories and associated information technology developments. The author further added that an increasing number of academic institutions are encouraging students to submit theses in electronic format which as a result become increasingly visible within the competitive research environment. In addition to paper copies, institutions of higher learning require electronic versions to be made available for inclusion in institutional repositories, while many institutions are also scanning/digitizing older versions of theses in order to make them freely available on the Internet.

The development of institutional repositories in Nigeria and other African countries has been very slow despite the international awareness which has been given to it through conferences and workshops (Ezema, 2011). Among the developing countries, India, Brazil, and South Africa are more adaptable to the building of institutional

repositories. According to Christian's (2008), study of the 20 institutional repositories in Africa, South Africa alone has 14 of them, which means that the remaining six are shared among other African countries including Nigeria. This does not tell a good story in Nigeria because the scientific and technological development of any country is highly dependent on the availability and the use of research findings. The near absence of institutional repositories in Nigeria has been linked to the information and communication technology infrastructure in the country coupled with the neglect of research and education in the area. Other factors that contribute to the lack of institutional repositories in Nigeria, according to Christian (2008), are lack of awareness of open access institutional repositories, epileptic power supply and lack of trained information communication technology personnel. Though institutional repository is a capital-intensive project, no nation that wants to be part of the present information economy could ignore the critical roles of institutional repository in aggregating the research productivity of scholars. Considering the aforementioned challenges, Oni, Odaro-Ekhaguebo and Momoh (2019), recommended in their article that the budget of polytechnic libraries in Nigeria should be judiciously utilized by polytechnic management for the establishment of institutional repositories, and also, emphasis should be placed on training and re-training of staff.

From another angle, the opportunities presented by institutional repositories and Open Access archives to the development of Africa as well as the challenges hindering the development of digital information repositories on the continent have been examined by Chisenga (2006) who acknowledged the fact that several research outputs from the region exists in the form of grey literature that is, unpublished information and knowledge resources such as research reports, theses and dissertations, seminar and conference papers. Very few research outputs find their way into the world's well-established international scientific journals, due to various problems, the prominent ones being that publication in mainstream journals faces the problems of over-subscription and recorded prejudice against submissions from developing country scientists. Additionally, local journals in general have poor distribution and visibility, this situation results in research from developing countries not being indexed in major international databases which can increase the visibility of these research outputs.

Methodology

The study adopted a quantitative approach using a cross-sectional survey design. The population of the study was one hundred and forty (140) academic librarians in the seven (7) federal universities in the North East, Nigeria which comprised Abubakar Tafawa Balewa University, Bauchi, Federal University Kashere, Gombe State, Modibbo Adamawa University of Technology, Yola, University of Maiduguri, Federal University Wukari, Taraba State, Federal University Gashuwa, Yobe State and Nigerian Army University, Biu Borno State. A self-developed questionnaire was used as the instrument for data collection. The Cronbach alpha value obtained for the questionnaire items ranged from 0.711 to 0.843. Enumerative sample size was used for data collection which is a type of sampling technique that involves examining the entire population of the study. The questionnaire was administered with the help of the research assistants and

descriptive statistics through the use of frequencies, tables and percentages was used to analyze the data collected.

Results and Discussions

Table 1: Sources of Training for the Management of Institutional Repository

S/N	Sources of Training	Yes Frequency (%)	No Frequency (%)
a.	Within the institution	89(90.8%)	9(9.2%)
b.	Outside the institution	77(78.6%)	21(21.4%)
c.	Through sponsored workshops, conferences, seminars	58(59.2%)	40(40.8%)
d.	Through personal sponsorship	86(87.7%)	12(12.2%)

Table 1 showed that the majority 89(90.8%) of the respondents indicated that they received training on the management of institutional repositories within the institution, while only 9(9.2%) indicated that they didn't receive any training on the management of

institutional repository within their respective institutions. This is followed by 86(87.7%) of the respondents who revealed that they received training on the management of institutional repositories through personal sponsorship; while 12(12.2%) indicated that they didn't receive any training on the management of institutional repositories through personal sponsorship. Table 3 further revealed that the majority, 77(78.6%) of the respondents showed that they received training on the management of institutional repositories outside the institution while less than half 21 (21.4%) of the respondents revealed that they did not receive such training on the management of institutional repository outside the institution. Additionally, 58 (59.2%) of the respondents indicated that they received training on the management of institutional repositories through sponsored workshops, conferences, and seminars, while 40 (40.8%) of the respondents revealed that they did not receive training on the management of institutional repository through sponsored workshops, conferences, seminars.

The above analysis showed that the majority of the respondents in this study received training on the management of institutional repositories directly or indirectly within and outside their institutions respectively.

Types of Librarians Skills for the Management of Institutional Repository

The respondents were asked to indicate the skills they possessed for the management of institutional repository through using the 4-point Likert-Scale: SA= Strongly Agree, A= Agree, U= Undecided, DA=Disagree SA= Strongly Disagree. Their responses are seen as contained in the table

Table 2: Skills possessed by the Librarians for the management of Institutional Repository

S/N	Types of Skills possessed	Frequency (Percentages)		
		Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
a.	I have all the necessary skills needed for the development of an Institutional Repository.	61(61.2%)	17(17.3%)	20(21.4%)
b.	I can install computer programs, and use Microsoft Office and packages.	59(59.2%)	14(14.3%)	25(26.5%)
c.	I can operate library management software	42(43.9%)	25(25.3%)	31(31.6%)
d.	I can download and retrieve data from databases.	55(55.1%)	19(20.4%)	24(24.5%)
e.	I can create and operate an online public access catalogue.	34(34.6%)	38(39.9%)	26(26.5%)
f.	I can manage the repository budget and respond to user needs in line with user needs.	71(72.5%)	8(8.1%)	19(19.3%)
g.	I can work with IT services and the use of their network storage and backup requirements.	36(37.7%)	28(28.6%)	34(34.7%)
h.	I can design web and programming skills	35(35.7%)	14(14.3%)	49(50.0%)
i.	I can manage metadata resources.	64(63.3%)	15(15.3%)	21(21.4%)

Table 2 revealed the skills possessed for the management of institutional repositories by academic librarians in Federal Universities in the North-East zone of Nigeria. Based on the above table, the finding of this study is presented as follows: the majority 71(72.2%) of the respondents agreed that the skills they possessed would enable them to manage the repository budget and respond to user needs in line with user

needs, 19(19.3%) of the respondents disagree that the skills they possessed would enable them to manage repository budget and responds to user needs in line with user needs, and 8(8.1%) of the respondents were undecided on the notion. More than half 62(63.3%), of the respondents agreed that the skills they possessed would enable them to manage metadata resources, 21(21.4%) of the respondents disagreed with the assertion that the skills they possessed would enable them to manage metadata resources and 15(15.3%) of the respondents were undecided on the statement.

Similarly, 61(61.2%), of the respondents agreed that they had the necessary skills needed for the management of an institutional repository, this is followed by 20(21.4%) of the respondents who disagreed that they had the necessary skills needed for the management of institutional repository and the least 16(16.3%) of the respondents were undecided on the notion.

Table 1 also shows that 59(59.2%) of the respondents agreed that the skills they possessed would enable them to install a computer program, use Microsoft Office and package, less than half 25(26.5%) of the respondents disagreed that the skills they possessed would enable them to install a computer program, use Microsoft office and package and only 14(14.3%) of the respondents were undecided with the notion. More than half 55(55.1%) of the respondents agree that the skills they possessed would enable them to download and retrieve data from databases, followed by 24(24.5%) of the respondents who indicated that they disagreed that the skills they possessed would enable them to download and retrieve data from databases and 19(20.4%) of the respondents were undecided on the notion.

Delving deeper, Table 1 also shows that less than half 43(43.9%) of the respondents agreed that the skills they possessed would enable them to operate library development software, while only 31(31.6%) of the respondents disagreed that the skills they possessed would enable them to operate library management software, and 25(25.3%) of the respondents were undecided on the view. Similarly, less than half 36(37.7%), of the respondents, agreed that the skills they possessed would enable them to work with IT services and the use of their network storage and on the backup requirement, 34(34.7%) of the respondents disagreed that the skills they possessed would enable them to work with IT services and the use of their network storage and on the backup requirement and only 28(28.6%) of the respondents were undecided on the statement.

Table 1 unequivocally revealed that more than half 49(50.0%) of the respondents disagreed that the skills they possessed would enable them to design web and programming skills, while less than half 35(35.7%) of the respondents agreed that the skills they possessed would enable them to design web and programming skills and 14(14.3%) of the respondents were undecided on the statement. Finally, 34(34.6%) of the respondents agreed that the skills they possessed would enable them to create and operate online public access catalogues, and 26(26.5%) of the respondents disagreed that the skills they possessed would enable them to create and operate online public access catalogue and 38(39.9%) of the respondents were undecided, on the statement that the skills they possessed would enable them to create and operate online public access catalogue.

The findings of this study agreed with the study of Priyanto (2015) who found that librarians were not very confident about stating that they could manage the repository.

Most of them thought that the management of institutional repository was better managed collaboratively by both the staff with IT-background and librarians, only one interviewee, confidently stated that librarians were capable of managing the institutional repository because most of the librarians have strong knowledge about the basics of information organization and knowledge management not much about the IT skills.

The present study must acknowledge the investigation made by Keenan and Kingsley (2009) who found that 71.1 percent of repository staff had library backgrounds.

However, repository management requires staff with specific knowledge and skill sets that are different from more traditional library roles such as cataloger or reference librarian. Also, the study of Simons (2012) identified a specific set of skills and knowledge required to work on a digital repository, many of which support suggestions in the existing literature. Based on the findings of this study, it is clear that academic librarians possess different types of skills which will help them in the management of institutional repositories in the university libraries under study.

The respondents were asked to indicate whether or not the library provides training concerning the management of institutional repositories. The summary of their responses is in Table 2.

Table 3: Training on the Management of Institutional Repository

Training	Frequency	Percent
Yes	100	83.4%
No	20	16.7%
Total	120	100.0

Table 3 shows that the majority of 100 (84.4%) of the respondents indicated that they received training on the management of institutional repository services, while 20 respondents representing 20(16.7%) revealed that they received no training concerning the development of the institutional repository. This mirrors that the university libraries had taken serious measures in providing training on the management of institutional repositories.

Respondents were further asked to indicate the sources from which they received training on the management of institutional repositories. The summary of their responses is in Table 3.

Analysis of Inferential Statistics
Relationship between the Librarians' competencies and the sources of training for the Development of Institutional Repository in Federal Universities in Northeast Nigeria.

To establish the relationship between the librarians' competencies and the sources of training, the study formulated a null hypothesis that: there is no significant

relationship between the librarians' competencies and the sources of training for the Development of Institutional Repository in North East Federal Universities. In conducting the test, 0.05 was used as the level of significance in testing the hypotheses. For the interpretation to test whether the hypothesis is rejected or accepted; the decision rule states that when the computed value is greater than the critical value p-value (0=0.05), then the null hypothesis is rejected. On the other hand, if the computed p-value is less than the critical value (p=0.05) therefore, the null hypothesis is accepted. To test the above hypothesis, the PEARSON statistical analysis was used. The results of the analysis are shown in Table 4.

Table 4: Pearson analysis of the Relationship between the Librarians' competencies and the sources of training for the management of Institutional Repositories in Federal Universities in Northeast Nigeria

		Competencies	Sources Of Training
	Pearson Correlation	1	.336**
	Sig. (2-tailed)		.000
Competencies	N	140	140
Sources Of Training	Pearson Correlation	.336**	1
	Sig. (2-tailed)	.000	
	N	140	140

**. Correlation is significant at the 0.05 level (2-tailed).

Correlation analysis as shown in Table 4 above indicates that there is a significant positive correlation (or relationship) between Librarians' competencies and the sources of training for the management of Institutional Repositories in federal universities in North East Nigeria (r=.336; n= 140; p=0.005). Therefore, the study accepts the alternative hypothesis and rejects the null hypothesis since p<0.05. This implies that there is a positive statistically significant relationship between the Librarians' competencies and the sources of training for the management of Institutional Repositories in federal universities in North East Nigeria.

Relationship between the librarians' level of competencies and challenges experienced for the development of institutional repositories in federal universities in the North East Nigeria. To establish the relationship, the study formulated a null hypothesis that: there is no significant relationship between the librarians' level of competencies and challenges experienced for the management of institutional repositories in federal universities in North East Nigeria. To test the above hypothesis, the PEARSON statistical analysis was used. The results of the analysis are shown in Table 5.

Table 5: Pearson analysis on the relationship between the librarians' level of competencies and challenges experienced for the management of institutional repositories in federal uni versities in North East Nigeria.

		s	
Level Of Competencies	Pearson Correlation	1	.241**
	Sig. (2-tailed)		.000
	N	140	140
Challenges Experienced	Pearson Correlation	.241**	1
	Sig. (2-tailed)	.000	
	N	140	140

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

Table 5:   This section compares the librarians' level of Competencies and Challenges Experienced in order to see if there is a relationship between the two. Pearson's correlation test results indicated that there were significant positive correlations between institutional repository and institutional readiness. (r=241; n= 98; p=0.005). Therefore, the study accepts the alternative hypothesis and rejects the null hypothesis since p<0.05. This implies that there is a positive statistically significant relationship between the librarians' level of competencies and challenges experienced in the management of institutional repositories in federal universities in North East Nigeria.

Conclusion

It could be very difficult for institutional repositories to be implemented and sustained without proper training for all the stakeholders involved. From the literature reviewed also it appears that the usage of institutional repositories in developing countries is also affected by a lack of awareness of the information resources available, limited technical expertise, insufficient resources and managerial issues, while adoption in developed countries seems to be largely influenced by the quality of resources and author's visibility. Therefore it is necessary for librarians in Northeast, Nigeria to be trained on how to manage the institutional repository. The librarians could manage the daily operation of the repository works. This is because an institutional repository is mainly viewed from the practical side. It is a service for the library users who need online resources. Most of the academic libraries that had implemented institutional repositories had manuals and technical resources about the repository. For the librarians working in the repository unit, the availability of manuals and technical papers on how to help the librarians in the day-to-day routines of running a repository. On the other

hand, most of the librarians know how to manage the resources from repositories but due to lack of resources, they have limited knowledge of the institutional repository. To support their understanding, therefore, it is necessary to have more training and technical competencies so that university libraries will be able to handle the institutional repository better.

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