Acceptance and Adoption of Open Access Publication (OAP) in University Libraries in South East Nigeria

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Abstract
This study examines the kinds of open access scholarly publication or information resources accepted and adopted by federal university libraries in South East Nigeria. The purpose was to determine the factors that affect open access scholarly publication or information resources acceptance and adoption in university libraries. The study adopted descriptive survey research design. Findings revealed that university libraries accepts and adopts open access such as institutional repository, open journals, subject repository, e-books, personal websites among others with the use of computers, internet facilities and services among others. Inadequate internet facilities and services were identified as a major factor that affects open access acceptance and adoption in university libraries. The study concluded that open access scholarly communication or information resources are vital tool of solving not only financial problems in libraries in general and university libraries in particular but also enable university libraries to keep pace with information explosion or changing trends in libraries. Based on this, it recommends that university libraries should ensure that users are provided with adequate and quality open access information resources for there is a need for access and use of information materials in all formats and acceptance and adoption of open access information resources could incite users to quickly access and utilize university library resources to a high extent.
Keywords: Acceptance, Adoption, Open Access Publications, University Libraries

INTRODUCTION

Open access enable institutions to save cost in their provision, access and utilization of their institution resources. They provide the most current results of scientific and scholarly information. They enable users' access to read, copy, download, print full text of the available articles before them. Open access can be seen as unrestricted visibility, provision and exploitation of external or scholarly publications. Open access movement according to Rossini, (2012) is a reaction to the persistence traditional control-based models of scientific knowledge distribution characterized by high cost subscription journals.

Open access acceptance and adoption in university libraries therefore is an attempt that is characterized by capture and lockdown through digital rights management (DRM), rather than the maximization of distribution of which is their supposed reason for existence. Open access according to Balnaves (2012) is important in leveraging the research output of an organization within the institution (even where copy right restrictions prevent external visibility). Similarly, acknowledging the importance of open access Macklin (2014) opined that "open access is also one solution to problem for university libraries-a problem that affect all of us in academia, whether we are aware of it or not. That problem is the rising price of work published in academic journals". It is in view of the importance of open access that a good number of information service oriented institutions such as university libraries are speedily accepting and adopting open access scholarly communication. Explaining the need to accept and adopt open access resources in university libraries, Iowa state university (2008) assert that "the current system of scholarly communication is changing. Libraries and their institutions can no longer keep up with the increasing volume and costs of scholarly resources".

 In response to the need for acceptance and adoption of open access publications in libraries, Rao (2012) exposed that:

> "our knowledge of the world has been improving more and more rapidly with time and is becoming increasingly reliable. The adoption of societies to the knowledge base has become more critical for sustained growth. As every segment of the world today depends on the other, it is critical to bridge the knowledge gap in every possible way". P.80

The implication of this is that there is a steady improvement in our knowledge of the world and this necessitated the speedy acceptance, adoption and organization of open access to information and knowledge in order to provide, share, and exploit recorded knowledge without any barrier. More so, reliable knowledge brings about sustainable growth and development. Belnaves (2012) declared that

> "the next decade is also likely to see the increase of open access model for presentation of digital resources, making use of highly functional digital library framework. Indeed, digital libraries are making transition from large institutional repositories to mid-sized and special

libraries particularly to meet a desire for open access collection of institutional repositories".

However, it has been observed that open access scholarly communication resources are not accepted and adopted in federal university libraries in South East Nigeria. This study therefore delves into the ways of enhancing the acceptance and adoption of open access to information and knowledge (scholarly communication) in federal university libraries in South East Nigeria.

Statement of the Problem

Open access resources provide endless benefits to organizations and other institutions. They save or minimize cost, time, free access to publishers to publish their works, provide the most current information to users anywhere anytime. In consideration of the benefits of open access resources, universities have been spending considerably to train staff in the area of information and communication technology (ICT) and to procure, install and maintain ICT equipment as well as other information systems to complement effective and efficient information delivery.

Consequently, the massive investment made by university libraries to create intensified awareness, acceptance, adoption and management of open access resources may be given little or no attention at all in the federal university libraries in South East Nigeria. This may make these university libraries to rely on the traditional print materials that are expensive, difficult to share and in some cases outdated even before they are being published and this may greatly affect university graduates. In spite of this, no effort is seem to have been made to engage in a study of acceptance and adoption of open access resources in federal university libraries in South East Nigeria. It is on this ground that this study becomes very necessary.

Purpose of the Study

The purpose of this study is to determine factors that affect open access scholarly communication or information resources acceptance and adoption in university libraries. Specifically, the study sought to:
1. Examine librarians attitudes towards acceptance and adoption of open access information resources in federal university libraries in South East Nigeria;
2. Identify the kinds of open access materials that are accepted and adopted in federal university libraries in South East Nigeria;
3. Examine the tools used for open access adoption in federal university libraries in South East Nigeria;
4. Determine factors that affect the acceptance and adoption of open access scholarly communication in these libraries and
5. Proffer strategies for enhancing librarians acceptance and adoption of open access scholarly communication in these libraries

Research Questions

The following research questions were formulated to guide the study
1. What are librarians' attitudes towards open access information resources acceptance and adoption in federal university libraries in South East Nigeria?
2. What kinds of open access scholarly communication that is accepted and adopted in federal university libraries in South East Nigeria?
3. What are the tools used for open access adoption in federal university libraries in South East Nigeria?
4. What are the factors that affect the acceptance and adoption of open access scholarly communication in these libraries?
5. What are the strategies for enhancing librarians' acceptance and adoption of open access scholarly communication in these libraries?

Significance of the Study

The findings of this study will be significant to librarians and other information scientist who are involve in open access resources implementation to find strategies that will maximize open access resources acceptance and implementation in university libraries.

Literature Review

This study is anchored on Technology Acceptance Model (TAM) developed Davis, Fred D in 1989. TAM assumes that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: perceived usefulness (PU) which is "the degree to which a person believes that using a particular system would enhance his or her job performance" and perceived ease-of-use which is "the degree to which a person believes that using a particular system would be free from effort"(Davis, 1989).

The relationship between TAM and the subject matter of this research is the emphasis placed on acceptance and usage of a new product or technology. As university libraries are made up of different set of people

with diverse thoughts or intentions and aspirations, they have different and strong behavioral elements to act freely when information resources and services are introduced to the university library. In order words, open access information resources are new products introduced by the emergence of Information and Communication Technologies (ICTs) in libraries. The acceptance and adoption decisions of these resources are formed and influenced by the perceived usefulness of open access resources which is the degree to which library managers believes that the use of open access would support teaching, learning, research and community services. Perceived ease of use which is the extent to which university library managers hoped that using a particular kind of resource or open access information material will be free from   a physical attempt made by library users to   identify, search, locate, access and make of use recorded knowledge in a printed format.

The essence of this is the complexity and uncertainty of the new products which exists in the minds of library managers who are decision makers of the university libraries with respect to successful adoption and use of library resources. Bagozzi, Davis and Warshaw explained that

> …..new technologies such as personal computers are complex and an element of uncertainty exists in the minds of decision makers with respect to the successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using. Attitudes towards usage and intentions to use may be ill-formed or lacking in conviction or else may occur only after preliminary strivings to learn to use the technology evolve. Thus, actual usage may not be a direct or immediate consequence of such attitudes and intentions (Bagozzi, Davis & Warshaw, 1992).

The importance of the above assertion is to the effect that man by nature is reluctant in accepting change as such; it is difficult for library managers to welcome new technology that would enhance open access to information resources in some university libraries.

University libraries being the hub of knowledge for assets and the relevant technologies for knowledge organization, drastic changes occur in the nature of information provision, dissemination and delivery. According to Balnaves (2012) "information providers, publishers and information agents are offering new services directly to clients where they would once have dealt with such issues through the library and may now view the library as a dispensable middle man". Open access acceptance and adoption in university libraries could be a practical reaction to the compatibility and increase in the capability of information most importantly when there is a fall in the library budget. Open access to scientific literature according to Rossini (2012) plays a crucial role in the development of digital knowledge commons, benefiting scholars, patients, researchers, and therefore, the public at large. It is based on this that Rao (2012) asserted that

> "the library of the institute (Mahatma Gandhi State Institute of Public Administration, Punjab) provides automated library and information services to its users-most of them are resource persons and trainers and trainees, besides having set up a digital library of training modules on various aspects of governance, public management and training. The institute is in the process of creating an archive containing all the documents related to its domain and produced within the institute, but the access to it will be limited". P.85

None the less, one wonders why access to institutional materials should be limited. This however, may largely be due to the need to prevent plagiarism and act of piracy; factors which have negatively affected the growth and development of institutional repository in terms of access to authentic information materials. Balnaves (2012) maintain that open access is an enabler for better ownership and visibility of organizational resources. Organization such as university libraries are man by professionals called librarians. Librarians who are human resources of the university library that rotate the hub of knowledge for assets and relevant technologies in university libraries are charged with the responsibility of ensuring the coherent, effective and sustainability of information management and access in university libraries. They need to be fully aware of the existence and usefulness of open access information resources in order to accept and adopt it for use by users of the libraries.

In order to meet the information needs of the academic community, university libraries acquire not only print information resources which are sometimes keep under closed access but also acquire and provide access to open access resources which have limitless access. They gather information resources from time to time from different institutions related to their academic programmes and such institutions websites, blogs, archives, repositories, publications e.g. books and journals et cetera are accessed as open access resources. This means that open access resources exists in different forms or types. Rao (2012) identify the various types of open access resources as institutional repository, subject repository, self archiving, blogs, open journals, wiki, personal websites, e-books, e-mail list services, forums, Reach Site Summary (RSS) feeds originally called Really Sample Syndication, document sharing networks et cetera. These resources are created and adopted through different means or tools. The tools as identified by Rao (2012) include open source institutional repository software, open journal systems and open harvester systems. An institutional repository according to the source is a digital archive where a

university/institution community's intellectual work is made accessible and preserved for posterity. On the other hand, software according to Sambe, Omeje and Onah (2013) is a set of detailed and coded instructions that control the operations of a computer system. Some of the software is free and open source. Software is used in this context to for access creation and provision of information resources through archives or institutional repositories. Such open source institutional repository software includes Fedora, DSpace, CDSware etc. Software are capable of enabling users to explore open access resources of archives or institutional repositories of different institutions from anywhere at any time free of charge. In addition, Open journal systems (OJS) are journal management and publishing system which aim at providing limitless access publishing for a viable alternative for journals while open harvester systems (OHS) is a free metadata indexing system which enable users to create a searchable index from open archives initiative. All these are developed by the public knowledge project for open access resources purposes in organizations which university libraries are also part of.

Consequently, a number of factors are identified to be affecting open access resources acceptance and adoption in organizations. Nazim and Davis (2008) identify the hardware concern as the main issue for library and information managers to accept and adopt open access resources in libraries. Rao (2012) suggested that libraries should play an important role in effectively managing and preserving the open access resources so as to adopt to the information needs of not only today's society but also to the future understanding of the past. He continue that libraries need to focus more on providing services based on open access resources along with their library and information services.

Methodology

This study employed a descriptive survey research design. The population of study was made up of 88 librarians in four federal universities in South East Nigeria namely: Federal University of Technology Library Owerri (12 librarians), Michael Okpara University of Agriculture Library, Umudike (10 librarians), Nnamdi Azikiwe University Library, Awka (16 librarians) and Nnamdi Azikiwe Library, University of Nigeria, Nsukka (50 librarians). All the population of library staff was used for the study because of this, no sampling technique was used to draw any sample for the study. Data were collected through structured questionnaire titled "acceptance and adoption of open access publication in university libraries in South East Nigeria (AAOAPULQ).

Data collected was tabulated and analyzed using descriptive statistics such as frequencies and percentages. Percentages above 50% were accepted and used while any percentage below 50% was rejected and not used. In taking decision for mean, the researchers considered any mean of 2.5 and above as accepted and used while any mean that was below 2.5 was rejected and not used for the study.

Findings

Table 1 captures kinds of open access information resources accepted and adopted in federal university libraries in South East Nigeria.

Result in table 1 above showed that the federal university libraries in South East Nigeria accepted and adopted open access information resources such as institutional repository with 51 (56.7%), open journals with 82 (83.8), subject repository with 56 (58.9), e-books with 85 (89.5%), personal websites with 50 (52.6%), e-mail list services with 50 (53.2%) and forums with 35 (58.3%). Others include video of lectures with 42 (53.2%), government documents with 56 (69.2%) and audios with 43 (52.4%) whereas, open access information resources such as document sharing networks with 39 (60.9%), homework assignments with 61 (68.5%), courseware with 45 (56.3%), images with 50 (63.3%), thesis with 61 (67%), blogs with 59 62.1%), self archiving with 71 (74%) and wiki with 92 (96.8%) are rejected as not accepted and adopted. The reasons of not accepting and adopting these items may be the deciphered from table 3 below.

Table 2 considered the tools used for open access resources adoption in federal university libraries in South East Nigeria

Result of the study revealed that the major tool for open access acceptance and adoption in federal university libraries in South East Nigeria is computers with mean of 3.74. This is followed by internet services, open source institutional repository software, open journal systems, open harvester systems, and e-book reading technology with 3.29, 3.29, 2.19, 3.01 and 2.89 while printing and publishing machines are rejected as a tool with a mean of 1.21.

Table 3 displayed factors that affect acceptance and adoption of open access scholarly communication in these libraries

Table 3 showed factors that affect acceptance and adoption of open access scholarly communication in federal university libraries which include: inadequate internet facilities and services with mean of 3.88, lack of functional computers with mean of 3.53, lack of ICT maintenance culture with mean of 3.44, high cost of internet subscription with mean of 3.33, lack of open source institutional repository software with mean of 3.23, inadequate knowledge about ICT /open access adoption by library staff with mean of 3.04, lack of open harvester systems with mean of 3.00, lack of e-book reading devices or technology software with mean of 2.88, lack of open journal

systems with mean of 2.78, lack of open access awareness and it benefits with mean of 2.78 while lack of ICT adoption as well as open access resources are not quality resources because of improper review with mean of 2.45 and 2.03 were rejected as factors.

Table 4 showed strategies for enhancing librarians' acceptance and adoption of open access scholarly communication in university libraries

Table 4 revealed that the twelve items presented in the table are skewed to the affirmative meaning that all the items scored above average mean of 2.5 which is accepted and used for the study. This implies that respondents are seriously in search of strategies for enhancing librarians' acceptance and adoption of open access scholarly communication in university libraries.

Discussion of Findings

Result showed that the federal university libraries in South East Nigeria accept and adopted open access information resources such as institutional repository, open journals, subject repository, e-books, personal websites, e-mail list services, forums, video of lectures, government documents and audios. This is in line with Rao (2012) who identified various types of open access resources as institutional repository, subject repository, self archiving, blogs, open journals, wiki, personal websites, e-books, e-mail list services, forums, RSS feeds, document sharing networks etc.

Finding of the study revealed that the major tool for open access acceptance and adoption in federal university libraries in South East Nigeria is the computer. Others include internet facilities and services, open source institutional repository software, open journal systems, open harvester systems, and e-book reading technology. This agreed with Rao (2012) who identified open access information resources tools as open source institutional repository software, open journal systems and open harvester systems.

The study revealed that there are many factors that affect acceptance and adoption of open access scholarly communication in federal university libraries which include: inadequate internet facilities and services, lack of functional computers, lack of ICT maintenance culture, high cost of internet subscription, lack of open source institutional repository software, inadequate knowledge about ICT /open access adoption by library, lack of open harvester systems, lack of e-book reading devices or technology software, lack of open journal systems as well as lack of open access awareness and it benefits. This in line with Nazim and Davis (2008) who opined that hardware concern is the main issue for library and information managers to accept and adopt open access resources in libraries.

The results revealed that the major strategy for enhancing librarians' acceptance and adoption of open access scholarly communication in university libraries is that university libraries should adopt ICT in order to enable them manage open access resources. This is followed by releasing of more funds to university libraries for library ICT (internet) projects, provision of functional computers by the university libraries, provision of adequate internet facilities and services by the university libraries, initiation of open journal systems by the university libraries for the purpose of open access as well as provision and adoption of open source institutional repository software for the purpose of open access by the university libraries. This is in consonance with Rao (2012) who suggested that libraries should play an important role in effectively managing and preserving the open access resources so as to adopt to the information needs of not only today's society but also to the future understanding of the past. Others include open access resources should be properly reviewed to gain quality, open harvester systems should be provided for Open Access (OA) by the university libraries, e-book readers should be provided by the university libraries, open access awareness and it benefits should be created by the university libraries, ICT/OA publication should be adopted and maintained by university libraries and more training be given to librarians on how to adopt and maintain open access publication. This in collaboration with Rao (2012) who maintained that libraries need to focus more on providing services based on open access resources along with their library and information services.

Conclusion

Open access information resources are vital tool of solving not only financial problems in libraries in general and university libraries in particular but also enable university libraries to keep pace with information explosion or changing trends in libraries. It is in regards that university libraries accepted and adopted open access information resources policy such as institutional repository, open journals, subject repository, e-books, personal websites, e-mail list services, forums, and videos of lectures, government documents and audios with tools such as computers among others. However, findings of this study show that inadequate internet facilities and services, lack of functional computers, lack of ICT maintenance culture are among major factors that affect acceptance and adoption of open access scholarly communication in federal university libraries. This implies that if librarians in general and library administrators do not ensure that adequate internet facilities and services are made available, functional computers are provided and maintained, it will lead to non-adoption of open access information resources in university libraries. The bottom line is adequate funding and maintenance of virtual libraries goes a long way in

ensuring availability of open access information resources which are essential for easy access to knowledge.

Recommendations
Following the findings of this study, the following recommendations are made among others
1. University libraries should ensure that users are provided with adequate open access information resources. This is because there is need for access and use of information materials in all formats and acceptance and adoption of open access information resources could incite users to quickly access and utilize university library resources to a high extent.
2. More open access resources tools should be accepted, adopted and maintained in university libraries
3. University libraries should properly adopt Information and Communication Technology (ICT) in order to manage open access information resources
4. Adequate funds should often be released tirelessly to university libraries for library internet projects
5. Functional computers should be made available by the university libraries and same be maintained consistently
6. University libraries should ensure that internet facilities and services are made available for open access information resources.

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APPENDIX

Table 1: Kinds of Open Access Information Resources Accepted and Adopted in Federal University Libraries in South East Nigeria

S/N	Items	Freq. (F)	Per. (%)	Freq. (F)	Per. (%)	Remark
1	Institutional repository	51	56.7	39	43.3	Accepted
2	Open journals	82	83.8	16	16.3	Accepted
3	Subject repository	56	58.9	39	41.0	Accepted
4	e-books	85	89.5	10	10.5	Accepted
5	Personal Websites	50	52.6	45	47.4	Accepted
6	E-Mail List Services	50	53.2	44	46.8	Accepted
7	Forums	35	58.3	25	41.7	Accepted
8	Video of lectures	42	53.2	37	46.8	Accepted
9	Government documents	56	69.1	25	30.9	Accepted
10	Audios	43	52.4	39	41.6	Accepted
11	Document Sharing Networks	25	39.1	39	60.9	Rejected
12	Homework assignments	28	31.5	61	68.5	Rejected
13	Courseware	35	43.7	45	56.3	Rejected
14	Images	29	36.7	50	63.3	Rejected
15	Thesis/dissertation	30	32.9	61	67.0	Rejected
16	Blogs	36	37.9	59	62.1	Rejected
17	Self Archiving	24	25.3	71	74.7	Rejected
18	Wiki	3	3.2	92	96.8	Rejected

Table 2: Tools Used for Open Access Resources Adoption in the Federal University Libraries

S/N	Items	SA	A	D	SD	$\bar{X}$	Remark
1	Computers	70	12	5	0	3.74	Accepted
2	Internet services	32	60	0	2	3.29	Accepted
3	Open source institutional repository software	38	47	10	0	3.29	Accepted
4	Open journal systems	47	26	7	14	3.19	Accepted
5	Open harvester systems	26	48	7	9	3.01	Accepted
6	E-book reading technology	18	58	0	12	2.89	Accepted
7	Printing and Publishing machines	12	16	60	7	1.21	Rejected

Table 3: Factors that Affect Acceptance and Adoption of Open Access Scholarly Communication in the Libraries

S/N	Items	SA	A	D	SD	$\bar{X}$	Remark
1	Inadequate internet facilities and services	66	15	17	0	3.88	Accepted
2	Lack of functional computers	70	10	13	3	3.53	Accepted
3	Lack of ICT maintenance culture	63	10	21	0	3.44	Accepted
4	High cost of internet subscription	57	19	16	0	3.33	Accepted
5	Lack of open source institutional repository software	50	25	8	10	3.23	Accepted
6	Inadequate knowledge about ICT /open access adoption by library staff	49	17	13	16	3.04	Accepted
7	Lack of open harvester systems	29	32	13	2	3.00	Accepted
8	Lack of e-book reading devices or technology software	30	28	33	4	2.88	Accepted
9	Lack of open journal systems	16	23	10	13	2.78	Accepted
10	Lack of open access awareness and it benefits	20	28	27	5	2.78	Accepted
11	Lack of ICT adoption	14	28	26	17	2.45	Rejected
12	Open access resources are not quality resources because of improper review	10	7	49	24	2.03	Rejected

Table 4: Strategies for Enhancing Librarians' Acceptance and Adoption of Open Access Scholarly Communication in University Libraries

S/N	Items	SA	A	D	SD	$\bar{X}$	Remark
1	University libraries should adopt ICT in order to manage open access resources	56	26	7	0	3.56	Accepted
2	More funds be released to university libraries for library internet projects	67	15	4	4	3.50	Accepted
3	Functional computers should be provided by the university libraries	61	17	0	11	3.43	Accepted
4	Adequate internet services should be provided by the university libraries	54	25	10	3	3.41	Accepted
5	Open journal systems should be initiated by the university libraries for the purpose of open access	50	31	3	5	3.41	Accepted
6	Open source institutional repository software should be provided for the purpose of open access by the university libraries	47	40	0	0	3.33	Accepted
7	Open access resources should be properly reviewed to gain quality	28	43	4	0	3.32	Accepted
8	Open harvester systems should be provided for OA by the university libraries	50	27	5	9	3.29	Accepted
9	E-book readers should be provided by the university libraries	27	60	5	3	3.16	Accepted
10	Open access awareness and it benefits should be created by the university libraries	37	41	12	6	3.16	Accepted
11	ICT/OA publication should be adopted and maintained by university libraries	43	30	7	13	3.10	Accepted
12	More training be given to librarians on how to adopt and maintain open access publication	14	57	23	0	2.90	Accepted