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Access and Management of E-Resources in Libraries and Information Centres: Review of Literature

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Abstract

This paper centred its discussion on e-resources, access and management of e-resources in libraries. Specifically, the concept of e-resources was discussed to indentify the types of e-resources, their accessibility and usage among academia and other researchers. The paper also discussed e-resources management that encompasses the acquisition, cataloguing and classification of the resources. The paper highlighted some advantages of e-resources and as well some challenges of e-resources that prohibiting the accessibility and utilization of the resources. Arising from the challenges, some suggestions were made to ameliorate some of the identified challenges.

Keywords: *Electronic resources, Access, Management, Libraries, Information centres, Information technology*

1.1 Introduction

The advancement of information technologies (ITs), information storage and delivery mechanism, and the advent of the Internet and electronic publishing perhaps have made it possible for e-resources to dominate academic libraries' collections globally. Today, academic libraries are justified by the number of e-resources they possess and made available to their users. Observation shows that, in Nigeria the quantity and relevancy of the e-resources serves as criteria for Nigeria University Commission (NUC) for accrediting courses in both public and private universities in the country.

In the world today, particularly in the academic, libraries are providing access to different types of e-resources to researchers and other categories of user in unlimited quantity. The e-resources that are locally and

remotely hosted by websites and databases require interruptible access for their effective utilization. The provision of access to e-resources is a core aspect of e-resources management. It is only when the materials are properly managed that the users can have hit free access to the resources. The world's intellectual output in electronic format would have been useless, if e-resources were not gathered, analyzed, catalogued, classified and accessed (Oyelude, 2011). The adequate management of e-resources is a very crucial aspect of e-resources accessibility that require professionals particularly in the areas of acquiring, organizing and creating links to the content of the materials.

2.1 Review of Related Literature

2.2 The Concept and Types of Electronic Resources

Electronic resources are described as

resources which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed (Dhanavandan and Tamizhchelvan, 2012). These may be delivered on CD Rom, on tape, via Internet and so on. Dhanavandan & Tamizhchelvan (2012) further stated that over the past few years, a number of techniques about related standards have been developed which allow documents to be created and distributed in electronic form. The e-resource on magnetic and optical media has a vast impact on the collections of university libraries.

The Anglo American Cataloguing Rules (AACR2), Rule 9.0A1 states that "Electronic resources consist of data (information representing numbers, text, graphics, images, maps, moving images, music, sounds, etc.), programmes (instructions, etc., that process the data for use), or combinations of data and programmes" (Oyelude, 2011). In furtherance, the Online Cataloguing Library Corporation (OCIC) cited in Oyelude (2011) defines an electronic resource as Material (*Data* and or programme(s) encoded for manipulation by a computerized device. This material may require the use of peripheral directly connected to a computerized device (e.g. CD Rom drive) or a connection to a computer network such as the Internet.

Types of E-resources

There are several types of e-resources currently in use by academia and researchers all over the world. Okore, Asogwa and Eke cited in Ugwu and Onyegiri (2012) identified some specific types of electronic information to include electronic books (e-books), electronic journals (e-journal), indexes,

collections of journal articles, reference works, digital collections, databases and websites. Furthermore, Dhanavandan and Tamizhchelvan (2012) said, some of the popular ones that are gaining ground are the electronic journals, standards, technical specifications, reports, patents, full text articles, trade reports and host of other document sources.

2.3 Access to E- Resources

Access to e-resources is as important as the e-materials. Many of the electronic books or electronic publisher's web site freely permit and encourage readers to provide feedback on works, often directly to the author rather to the publisher. Nevertheless users may establish their own accounts, charge services to credit cards or to pay by prearranged method, and have requested material delivered directly to them by fax, e-mail, etc.

Today, libraries of all kinds have been spending larger and larger shares of their budgets to adopt or gain access to electronic resources from publishers and vendors. Fortunately, most of the e-resources come with powerful search and retrieval tools that allow users to perform literature searches more effectively and efficiently. Most relevant e-resources are now available through the webs where users can have desktop access to them 24 hours a day (Dhanavandan & Tamizhchelvan, 2012).

However, electronic resources management system (ERMS), e-resources software and technical know-how are some of the basic requirement for effective access to e-resources. Electronic resources management system and, hardware and software are significant infrastructure in e-resources environment. Similarly, access to e-resources to a large extent depends on the ability of the library management to adopt the right software to manage the resources. In addition, the users' knowledge of the e-resources access

and contents is also very important in making effective use of e-resources. The users need to understand that e-resources are remotely located and locally hosted, and therefore they need authenticated IP and password to access them. They should also know that e-resources

content are hosted in bibliographic and non-bibliographic databases, index to publications databases that required search engines for their retrieval. Below are the diagrammatical details of access and contents of e-resources:

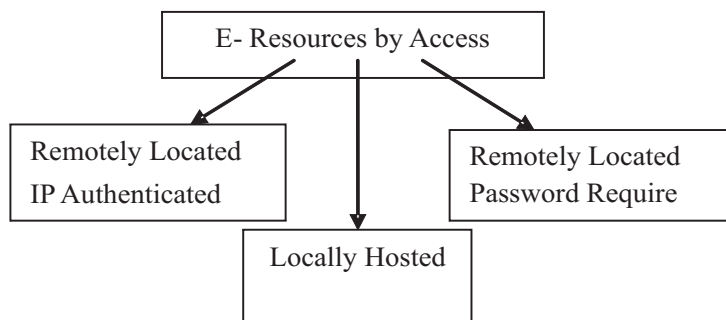


Figure 1: E-resources by Access

The e-resources are remotely located and hosted outside the library, which require authenticated IP and password to access them. It is the library staff responsibility to register and create password for prospective users to explore the e-resources.

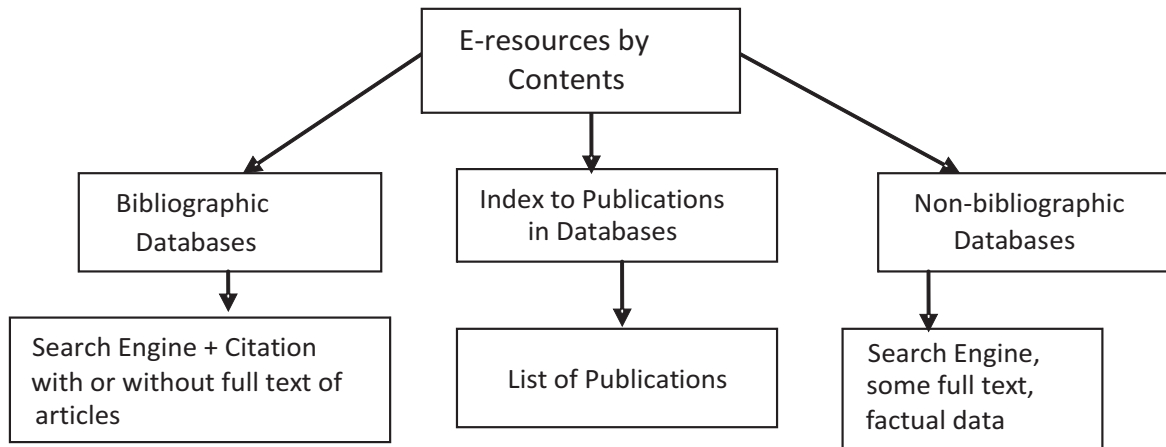


Figure 2: E-resources by Contents

Sources of Figures 1&2: Swati Bhattacharyya - Student Orientation Program- 2010

The e-resources contents are located in bibliographic and non-bibliographic databases, and indexes to electronic publications databases. Search engines such as Google, Yahoo, Crawler, etc. are the tools used in retrieving the documents. At such every prospective user require the following to access the e-contents:

1. Users Id and password
2. Create account
3. Configure your computer
4. Click login

Furthermore, in creating access to e-resources, librarians most take into cognizant to:

1. Include those resources either in OPAC or to make difference list for browsing;
2. Organized access to e-resources either by alphabetical or under specific subject headings for browsing;
3. Set up gateway to e-resources for easy access;
4. Develop the institutional repositories for the institutional publications journal and proceedings paper; and
5. Check the method of access to e-resources, abstracting or full, since most of the users search the resources under subject heading predominantly, organization of e-resources should be in a such a way that the users could be able to retrieve different sets of information records (Tamizhchelvan, 2012).

2.4 E-resources Management

Management of e-resources is fundamental aspect of the availability and accessibility of e-resources in libraries. E-resources management is a process that involves acquiring, organizing and making the document available and useful. According to Oyelude (2011) e-resources management entails outlining or mapping out what each resource is to be used for, and by whom, and also determining who will be in charge of providing the e-resource, and how the resources are going to be made functional and maintained. Oyelude further said that managing e-resources in libraries is often a daunting task especially for library managers and staff who have the duty of providing

information in various formats to their clientele.

The management of electronic resources often refers to the tools and processes used to organize administrative metadata, such as license terms, vendor contracts and usage statistics (Mitchell and Surratt, cited in Okoye and Ugwuanyi 2012). Considering, the key process (acquiring, organizing, creating access, negotiation of license terms, vendor contract, keeping usage statistics, etc.) involved in e-resources management, the place of qualified and knowledgeable personnel, adequate funding, modern devices cannot be overemphasized.

Qualified digital librarians with a good knowledge of information technology (IT) are prerequisite to adequate management of the e-resources. Such librarians are expected to takes a lead in the planning, budgeting, funding and supervising of the entire process of e-resources management. Librarians who actively involved management of e-resources will no doubt understand the best license terms and vendor contract that will be of interest to the users and entire library management.

The success of the management of e-resources depends largely on the fund available to the library. Fund is required to acquire the resources, devices, training of staff, etc. It is the responsibility of the digital librarian to ensure that funds are made available to acquire, process and organize the materials for easy accessibility.

2.5 Acquisition of E-Resources

The acquisition of print books, journals and other information resources involves a series of activities such as selection, bibliographic search, ordering, etc that engage librarians and faculties members. The acquiring of e-resources is the same as the print materials but it is easier than the print. It process also involved team of faculty

members and librarians with specific subject background.

However, the acquisitions of electronic resources have a number of challenges that are not encountered with traditional library materials. For example, issues such as licensing, access, networking, pricing, ownership, and rapidly changing technology and standards (Ugwu and Onyegiri, 2013).

2.6 Cataloguing and Classifying of E-resources

E-resources are catalogue and classify like the print materials. However, the e-resources cataloguing and classification procedure is a bit different from print books and journals. For example, the bibliographic details such as the author, title, statement of responsibility, etc. are retrieved from the website on which the material is projected. Also e-resources descriptive cataloguing required that General Material Designation [GMD] should be put in front of the title in bracket. Emphasis is also placed on the content of the material (Oyelude, 2011).

The content of the information package is one of the most important factors when cataloguing both print and electronic. However, in addition to the content of the material, different rules are applied to different materials. The Anglo American Cataloguing Rules (AACR2) for example demands that an electronic resource that is primarily language material should be catalogued as a monograph, serial, or integrating resource, as appropriate. For example, a music score issued in electronic format should be catalogued as a score, not as an electronic resource. The computer/electronic aspects of these materials are brought out with the addition of 007 field (see 007 Field: Physical Description Fixed Field: General Information and Policies) to the record. The 007 field is mandatory for all electronic resources. Subject cataloguing of e-

resources is the same as for 'Print materials. The material is browsed through and the subject is assigned using the classification scheme preferred by the library. In some libraries, e-resources are not classified. The libraries simply provide URL to the users to explore the materials (Oyelude, 2011).

In other hand, direct copy cataloguing can be done from the Internet using online cataloguing tools like the Library of Congress Online (<http://www.catalog.loc.org>), the World Cat (<http://connexion.oclc.org>) or Book cataloguing facilities. The information found on these online cataloguing tools are copied, modified if need be and stored as a fresh record in the library's database (Oyelude, 2011).

According to Okoye and Ugwuanyi (2012) in the electronic environment, there have been some efforts to find some alternatives to cataloguing of e-resources. In furtherance, Mitchell and Surratt cited in Okoye and Ugwuanyi (2012) enumerated three alternatives of cataloguing e-resources. They are, web list, context-sensitive linking and federated searching, as strategies to bibliographic control in the online environment. This directs the library's bibliographic tools and practices to meet its own unique access needs. Cataloguers are required to provide an easy-to-understand introduction to the record content and cataloguing rules and guidelines involved in organizing digital resources. They are also expected to be able to identify the bibliographic characteristics of online information for efficient organization and management of electronic resources.

2.7 Advantages of E-resources

There are several advantages of e-resources both to the academia, business society, and other users of e-resources. Iwehabura cited in Ugwu and Onyegiri (2013) identified that the e-resources have:

1. The ability to provide faster and easier access to current information by users in various places such as home, offices and other workplaces, hotels and dormitories;
2. Easy storage and the possibility of sharing the same information resources among many users at a time;
3. Saving space with relatively easy maintenance and;
4. Easy linkage to indexing and abstracting databases.

Similarly, Dadzie (2005) cited Adeniran (2013), (2007) cited in Egberongbe (2011) indicated the following advantages of e-resources to include:

- i. Access to information resources that might be restricted to the user due to geographical location or finances;
- ii. Access to more current information and provision of extensive links to additional resources related contents.
- iii. Speedy publication and availability on the desktop are some advantages that attract research scholars (Navjyoyi, 2007).

3.1 Uses, Management and Challenges of E-Resources in Nigeria

3.2 The Use of E-resources in Nigeria

The usefulness of a product determines its widespread and patronage in the society. Since the advent of e-publishing and digitalization technologies, e-resources have witnessed wide acceptance and high degree of usage among researchers, students and other groups of users. Several studies on the use of e-resources reported high rate of usage while some also reported low rate of usage. For example, Akpojotor (2016) in his investigation on the use of e-resources reported that postgraduate students of library and information science are quite aware and

highly use electronic information resources.

The study also reported that postgraduate LIS students are skilled in the use of electronic information. Usage of e-resources has made changes in the trend of information behavior of postgraduate students (Akpojotor, 2016). A majority of users feel that the use of e-journals has created high dependency value on their research work (Madhusudhan, 2008). Oduwole and Akpati (2005) also reported that electronic resources cut across all members of the university community, and it was to a greater extent easy to use.

On the contrary, studies also reported low rate of usage. For example, Ojo and Akande (2005) reported that the level of usage of e-information resources is not high among students in university teaching hospitals, Ibadan. Similarly, Egberongbe (2011) reported that the use of databases was poor, due to lack of awareness, lack of access to computers, insufficient training and high cost of providing e-resources.

3.3 Awareness of E-resources

The level of use of the available e-resources in the libraries by researchers and academia may be determined by the extent of awareness of the resources by academia and researchers. Awareness is a major factor in the use of information resources particularly e-resources which are not visible like the print information resources that are displayed on the books' shelves in the library. E-resources can only be accessed through electronic devices. Those that are not familiar with these devices may not have the awareness of these resources that can only be accessed through electronic devices. It is the responsibility of the library and information science professionals to create awareness of what their libraries are holding and how to access what the libraries are holding. Such awareness can be easily created in the university community through

library bulletin, library orientation programmes, flyers, etc.

The important of e-resources has prompted many librarians to carry out several studies to ascertain the level awareness of e-resources in academic libraries. Several of these studies reported high level of awareness and as well low level of awareness. One of such studies was carried out by Kattimani and Kamble (2010), the study revealed that about 80.2% of the Honey well library, Bangalore users have quality awareness on Internet information resources.

Similarly, Aina (2014) also survey the awareness, accessibility and use of electronic databases among academic staff of Babcock University. The study reveals that majority of respondents were aware of the e-resources and JSTOR in the library. The studies review indicated that both lecturers and students aware of the available e-resources in the respective libraries.

3.4 Skills in Managing E-Resources

To be effective in management of e-resources in libraries, library professionals must have basic knowledge of the entire concept of e-resources, sources of e-resources, the technologies used providing access to e-resources, networking, databases, hard and software in use, electronic resources management (ERM) system, method of cataloguing and classifying e-resources, etc. It is on this capacity that effective e-resources service can be provided in the libraries. Adeniran (2013) reported that the use of electronic resources has tremendous impact on the academic performances of the undergraduate students of Redeemer's University; however, there is need for them to acquire more skills in the use of electronic resources.

In their contribution to the management or organization of e-resources Dhanavandan and Tamizhchelvan (2012) opined that, in a modern digital library

information system, the professionals should have skills such as:

1. Computing;
2. Database management;
3. Networking;
4. Using online cataloguing and classification tools;
5. Online searching; and
6. Other management skills relating to IT environment (Tamizhchelvan, 2012).

Therefore, it is very clear to librarians and other professionals managing e-resources in their respective institutions that their failure or success in providing e-resources largely depends on quality of skills they possessed in managing e-resources.

3.5 Challenges of E-resources

In spite of the wide acceptance and high rate of usage recorded, there are still several challenges prohibiting effective access and usage of e-resources in our higher institutions of learning particularly in university libraries in Nigeria. Challenges such as:

1. Lack strategic planning;
2. Lack of adequate or reliable funding;
3. Lack of use of Internet to provide information services to users;
4. Lack of training or consistent training for users in new ICT services;
5. Lack of awareness of e-resources available;
6. Lack of access to computers;
7. Problem of inconsistent access to e-resources due to denied of access, change of publisher, archiving problem, etc;
8. High cost of subscription and maintenance;
9. Lack of information retrieval skills for exploiting e-resources;
10. Lack of skills in searching and evaluation of e-resources;

11. Inadequate security (Adomi, Chisenga, cited in Egebrongbe, 2011, Ojo and Akande, 2005).

In addition to the above problems associated to access and usage of e-resources, there are other challenges associated to the management of e-resources in the libraries. Concurring, Ugwu & Onyegiri (2013) in their study on management problems of electronic information identified some of these challenges to include: University policies or practices, funding, staffing and information technology infrastructure. Similarly, Oyelude (2011) also in his study on managing electronic resources in libraries outlines some challenges to address to include: adequate training of staff to handle the resources, registration, provision of IP address, passwords, and setting up access to the e-resources; security issues, maintenance, upgrading of the resources and the ability to afford the software and hardware, and creating links to other related materials; and lack of expertise in using the cataloguing and classification tools online.

Recommendations

It is obvious that e-resources have come to stay particularly among the academic community and researchers, to this effect majors should be taken to address the challenges of inadequate management of e-resources, access, technical know-how, inadequate utilization, etc. Therefore, specifically this paper suggests the following:

1. The process of managing and as well provision of access to e-resources for users to effectively exploit the resources is a very a complex that requires regular training of professionals handling such responsibility. The efforts of most libraries to provide e-resources for their users are not yielding the expected results due to lack of skills to manage the

resources. The study of Iwehabura (2009) cited in Ugwu & Onyegiri (2013) affirmed to this fact when their study revealed that lack of adequate knowledge and skills in some aspects, including searching and evaluation affected the use of various electronic information resources (EIR) in Tanzanian University libraries. Therefore, this paper suggested that adequate training should be made available for the professionals, to enable them properly manage the resources and as well train the users.

2. Funding is a very important aspect in the provision of e-resources. Adequate fund is required to acquire the e-resources, hardware, software, and as well manage and maintain the resources. For the libraries to successfully provide e-resources for users, the university management in collaboration with the library management should set aside special fund to acquire e-resources, upgrade hard and software, manage and maintain the e-resources.
3. In e-resources environment, technical know-how is a key factor. In most libraries this factor is undermined. The politics of the libraries will not allow those who are knowledgeable or have the technical know-how to manage the e-library section. No matter the politics of the library, technical know-how should be given adequate consideration, possible the first step to be considered in planning e-resources services.
4. There is no much difference between cataloguing of e-resources and print materials. Those with knowledge of cataloguing of print materials need little or no training to catalogue e-resources. It is my suggestion that every professional librarian should endeavour to have cataloguing and classification skills to be

able to manage or function well in e-resources environment.

Conclusion

The advancement of information technologies (ITs) has introduced e-resources into our information driven society. The outcome is the proliferation of e-resources particularly in the academic environment. Libraries all over the world spend huge amount of money to acquire organize and maintain e-resources for prospective and future users of e-materials. E-resources management encompasses the acquisition, organization, creating access and maintenance e-resources. There are several advantages of e-resources such as the ability to provide fast and easy access, easy storage and the possibility of sharing the same materials among many users, etc. As a result, there is wide spread of use and as well high level of awareness of the availability of e-resources in various university libraries in Nigeria.

However, several challenges, such as lack of adequate funding, lack of use of Internet to provide information services to users, lack of training or consistent training for users in new ICT services, etc. have limited users to have consistent access to effectively utilize the e-resources in libraries. However, proper funding, adequate knowledge of e-resources cataloguing and classification and regular training regarding the management of e-resources, searching, technical know-how, etc are some majors that librarians can adopt to improve on the provision of e-resources in academic libraries.

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