Review

E-library approach for resource sharing in an information communication technology era: Issues, prospects and challenges

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This paper examines the impacts of electronic library in the context of globalization for resource sharing with the recent trend of information communication technology (ICT) for library services. It also discusses the role of system librarian, acquisition of e-resources, approach, and challenges faced. It is hoped that when libraries in Nigerian are e–compliant, they will increase access, improve services, establish sharing partners with other institutions, reduce the handling and use of fragile or heavily used original materials among other reasons. It is therefore recommended that, library being the nerve centre of any academic institution for information acquisition, processing, storage, retrieval and dissemination be charged with such responsibilities as making information available in both prints, non-print and electronically to the patrons, wider and dispersed learners irrespective of time, space and geographical location. The study advocates the creation of the post of information system librarian to take care and manage e-resources.

Key word: E- Library, Resource sharing, Web 2.0, Library 2.0, globalisation, ICT.

INTRODUCTION

The evolving information and knowledge based economy has resulted in a climate of tradition and change especially in academic libraries around the world. The rapid pace of development in the field of information technology coupled with the advent of networked information services has called for a total review of library services for resource sharing approach in this age of the digital divide. Resource sharing can be said to be library cooperation. It involves efforts at sharing faculties as well as commitments, extending and improving services without proportional increase in the cost of processing facilities including books. Resource sharing is made possible and practicably easier with operational digital library. Magara (2002) opened that a digital library is an automated or electronic library", known to be an

information center without a physical location for the end users. Libraries as constituents of their larger parent organizations are rethinking and exploring new ways to reposition themselves in the campus environment in view of higher expectations of their various stakeholders, pervasiveness of information technology, increased availability and focus on electronic resources and services, and the need to become learning and research centers to support a wide range of educational initiatives (Idowu, 2009). The traditional services rendered by the library include, readers services, reference services, reprographic services, current awareness services, selective dissemination of information etc. However, the advent of ICT has expanded the scope of these services and tools of information delivery. Historically, library has

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had a long tradition of resources sharing and networking with ICT. It is common now for library to be members of several consortia at the same time for various types of co-operative work and resources sharing. Examples of this are the Online Public access Catalogue (OPAC) and the Online Computer Library Catalogue (OCLC). With the development of the digital library software, Greenstone digital library software, CDSware, the CERNdocument server software, the possibilities of sharing resources have become much easier.

Web 2.0 principles and technologies offer libraries many opportunities to serve their patrons and to reach out beyond the walls and web sites of the institutions to reach potential beneficiaries where they happen to be undertaking. We make it possible with choice to view online, borrow locally, request from a far or sell as appropriate to clients' needs and circumstances. According to Davis, (2005) Web 1.0 took people to information; Web 2.0 will take information to the people. Today, librarians use Web 2.0 applications more frequently than ever in and out of the libraries. Applications such as blogs, instant messenger, online communities, video sharing tool, and web conferencing tool are gaining popularity. Librarian uses them to create their own contents on the web, contribute and collaborate with others, and develop social networks via multiple formats of media and representation (O'Reilly, 2005).

The application of Web 2.0 technologies to libraries resulted in the coining of the term Library 2.0 by Michael Casey in his Library Crunch blog. In his blog postings when defining the term, what Library 2.0 means? Library 2.0 is not about technology. Library 2.0 seeks to harvest good ideas from outside and use them to deliver improved and new services, often times in an effort to reach a new target population. Library 2.0 is, at its core, a way of thinking, a way of operating. It is a framework for integrating change into all levels of library operations. It is in our effort to reach this new level of service that we will utilize these new Web 2.0, technologies (Casey, 2005. blog).

Today, we have electronic library (e-library) and virtual library which provides access to electronic books and journals, online references, web-resources, web-catalogues etc. Libraries are repository of knowledge, they are duty bound to acquire, process, preserve and disseminate information from whatever source. Hence, there is the need for such information to be kept, preserved and made available in a more convenient and accessible format. Over the years, libraries have been burdened with the problems of space, accessibility and preservation. Electronic library approach for resource sharing is becoming a common request among academic and research institutions; libraries are responding to this request by attempting to make text and image of name of interesting materials available to a wider virtual and audience (Akintunde, 2003). Cognizant of the opportunities provided by developments information

dissemination and exchange made possible by ICT, some libraries in Nigeria have made efforts to digitize their collections to make it available to the world knowledge (Felix, 2009).

Ogunsola (2004) noted that the proliferation of Nigerian universities, despite the economic recession in the country since the 1980s, has aggravated the problem of universities and their libraries so much that their future seems uncertain. On the whole, university libraries in many African counties have faced difficult decades, with rapid erosion of funding for books and journals, staffing difficulties, and perhaps a loss of the perception of the library as the center of academic life and scholarship. African university libraries have been portrayed negatively and there may be little understanding of their responsibility. Lack of Internet access has denied African universities the latest research information, web-based learning; Africa as a whole is lagging behind, Nigeria in 8th position along with Angola. Serious efforts are being made by African universities to foster cooperation among libraries through the Association of African Universities (AAU), with the support of the International Development Research Centre (IDRC). The key player in these efforts is the Cameroonian Interuniversity Network (CIN), while the Kenya Education Network (KENET) will have a far-reaching impact on information technology in Kenya's academic libraries. This initiative was spearheaded by Kenya's institutions of higher learning to establish a high speed, reliable, and sustainable IP Network for all Kenyan universities. Other efforts, such as the Malawi Academic and Research Network (MAREN) and Senegal's UCAD represent the determination of African leaders' efforts at speeding up socio-economic development through resource sharing. Unfortunately, Nigeria does not yet have a truly functional National Network backbone (AAU, 2005). There have been more than a dozen efforts to create National Research and Education Networks (NRENS) in Nigeria, including:

1. National Virtual (Digital) Library Project (NVLP)
2. Nigerian Virtual Library Consortium (VLC)
3. eLFL Net- Consortium of Nigerian Libraries
4. Nigerian Universities Management Information System (NUMIS)
5. Nigerian Universities Network (NUNET)
6. Nigerian Education and Research Network (NEARNET: a collaboration of NUNET, Poly Net and Teach Net)

THE SITUATION TODAY

The demands for more and more digital content in an ever–increasing electronic world, where access to information is just a few clinics away has become paramount in this millennium. Academic libraries in Nigeria are at their best not to be left behind in this new

trend. Some academic libraries have been making concerted efforts to make records, catalogue and text available in electronic form to their clients. The library achievements in this direction so far include:

1. Establishment of e–library acoustically designed with air conditioners and furniture's.
2. Procurement of quality hardware and software resources.
3. Catalogue of documents, text materials and special collections, and online subscription to journals and textbooks.
4. The inclusion of ICT use for library services on the curriculum of the bibliographic instruction course - Use of Library.
5. Provision of uninterrupted power supply
6. Library website in focus in many Nigeria Institutions.

The need for e–library today cannot be over–emphasized because of the need for a traditional library to fit into the train of information technology as a means of globalising library services. In the library world, interactions between libraries in developing countries and organisation assisting libraries are not new: provision of information, resources, and expertise has been ongoing for much of the second half of the last century. This is why Ann et al. (2002) report service companies such as OCLC, Blackwell, and EBSCO, whose globalization strategies are designed to increase their share of the international customer market place and place their products in developing countries. Some librarians note that e–library initiative can be a "very positive force for cultural and social and economic development by providing interaction among various peoples of the world. As librarians and information specialists we need to inform and educate ourselves on the emerging concepts, technologies and strategies that will enhance library information service delivery to our numerous users. This paper highlights the efforts made by African University Libraries to develop and use information communication technology (ICTs) for resource sharing.

ACADEMIC LIBRARY IN THE DIGITAL AGE: ISSUES

Digital resources are data and program files which store information. They are files that can only be accessed by a computer. The files are generally kept as floppy diskettes. Other electronic resources are CD- ROM discs or Internet resources (Harry, 1999). Resource sharing is seen as fuel to participating libraries in the following ways:

1. Online indexes
2. Electronic books and texts
3. Electronic journals
4. Electronic catalogues (Library Catalogues)
5. Reference sources
6. Statistical sources
7. Sound recordings
8. Image databases (arts, maps, medical etc.)
9. Games, Educational games etc.

Electronic resources can only be accessed via computers. The important of this is that, for a library to render e-resource service, it must have computer facilities and the infrastructure to support such. These include consistent electricity, air–conditioned rooms/halls, computer literate staff and library users, maintenance culture, fund for subscription, etc.

Academic research libraries are not just physical or structure building any-more. They are vast collections of online resources that users can access from campuses, offices, cyber cafes, anywhere and everywhere around the world. They are not independent, stand–alone collections. Their holdings are interdependent with those of partners' libraries in order to bring the broadest possible range of materials to shared, often overlapping pool of users. They are not static repositories of published information, whether print or virtual; they are active initiators or new collecting areas, new publishing paradigms and new preservation formats. Academic library buildings at this age, do not house just rows and rows of stacks of books. They contain computer laboratories, reading rooms, coffee bars, Multimedia and group study areas. They provide spaces for quiet independent study, group projects, consultations between instructors and students and even relaxation. They present exhibitions, teleconferencing, concerts, lectures, screening and symposia. They are both fully wired and wireless, so users can access the internet throughout the buildings.

ICT is a powerful tool that would link library with libraries in the world and facilitate the ongoing revitali-zation of the information acquisition and dissemination process. In line with the above, Hawkins (2004) observes that knowledge and information have become the most important currency for productivity, competitiveness, and increased wealth and prosperity. Today, the concept of virtual library referred to variously as 'digital library' 'e-library' has become the in-thing that no library worth its salt can ignore. It is called "virtual" because in a good electronic wide area network library where the user enjoys the euphoria of being in distance libraries and yet he has not physically moved. The whole universe of the global information super highway this has become human resource and heritage, which, all that have the necessary infrastructural capabilities can tap for their development.

According to Odejikun (2001), with the advent of electronic library approach, users find more information at minimal cost and in less time; the negligible fact is that e-library initiative has become indispensable to libraries in the provision of timely information to users and in fact, to the progress of librarianship as a profession, in which

academic libraries must not be an exception. This therefore underscores the need for academic library to be fully ICT compliant; library approach has already begun to exert massive transformation of libraries services and education system in developed countries. Therefore, academic libraries in developing countries especially in Nigeria, should not give the impression either that they do not know of the capabilities and potentials of the resources sharing or that they do not need e–library to improve their services.

APPROACH FOR RESOURCE SHARING

The advent of ICT has not only revolutionized the process of resource sharing but has also brought about fundamental transformation from the traditional appro-aches to modern approaches. These modern approaches of resource sharing include:

1. Provision of internet facilities
2. Electronic mail
3. Provision of e-library
4. Teleconferencing and video conferencing
5. Office automation etc.

Embarking on electronic library project for resource sharing should be made clear. The purpose will determine the process and the cost. The following steps are considered (UNESCO 2002). According to UNESCO (2002), the following points should be considered before embarking on e-library project:

1. Is the project user driven?
2. Opportunity driven?
3. Preservation driven?
4. Revenue driven?
5. Do we have the skills, the money, the capacity, and the technical infrastructure?

Arising from the above, individual library should be requiring asking and providing answers to the following pertinent questions.

Questions to ask

1. Why do you want electronic resources?
2. Who is your audience?
3. Who owns the materials?
4. Who owns the copyright?
5. Who will be responsible for different stages of the project?
6. How will you provide access to the collection?
7. How will you preserve and maintain the collection and digitized materials.

Selection

Copyright is an extremely important aspect of selection

in order for items to be digitized and distributed for the public on the internet; you should be sincere that they are in the public domain and you are making a fair use of the materials under copyright.

Acquisition of material for resource sharing

From the discussion above, it is certain that the selection of materials for digitization resource sharing in this age is far more critical and problematic than acquisition. Acquisition of materials for resource sharing process is unlike what is obtained in the bound selection and acquisition is more or less independent of each other. In digitization of materials for resource sharing, acquisition does not necessarily come after selection. Rather materials that are digitized would usually be those that are not already in collection; arrangements are made with an institution that has it digitized for sharing of the required digital contents through colla-boration. Therefore, when electronic library is fully in operation, digital/electronic library can latch on to the global trend by carefully studying the catalogue of those institutions that have already digitized their content and seek collaboration. Moreover, it is hoped that government, management of academic libraries will fund digitization project and in terms of skills, the library should employ, train and equip personnel with necessary skills to support the technology that digitization requires. It may therefore be more profitable for Nigerian libraries to focus on access to digitized materials in those libraries that have already been digitized rather than embarking on fresh digiti-zation, except in case of local history and memorabilia (Akintunde, 2006) that make them succeed (Idowu, 2009).

The role of system librarian

Digital information system management refers to the overall competencies, knowledge know-how, skills and attitudes necessary to create, organize, store, retrieve and disseminate digital information in e-libraries for re-source sharing among other duties. Systems librarian with acquired proficiency skills can play meaningful and leading role in networked information society of the millennium. He will add values and can make e-library truly useful and user friendly. Therefore, to de-scribe the roles of the e-libraries according to Ogunsola (2005), the following concepts are considered:

1. Digital Library Act as Symbiotic Human Machine
2. Navigation and Filtering
3. Multimedia search and indexing continue to evolve.

Affirmed also is the adoption of the new technology (ICT) which has opened up different options for

educational pedagogy, methodology and learning paradigms with which librarians and library services must contend with, if they must remain relevant in the discharge of their duty.

CHALLENGES FOR RESOURCE SHARING

In the late 20th and early 21st centuries, library automation and the internet revolutionize information access and library operations around the world. The effect on academic institutions has been profound. It enables users to access library resources from sites hundreds or thousands of miles away. Libraries in academic institutions can now provide information access to off – campus faculty and students wherever they are located (Burgstahler, 2009). To meet the ever increasing demands for information availability, academic libraries must now subscribe to electronic resources such as e-books, full text journals and on–line bibliography databases in addition to the print formats. While the availability of these electronic resources enables remote access to needed information, concomitantly, they present issues and challenges. Some of these issues and challenges are operational, strategic or attitudinal in nature, they include:

1. Access control (online database and Internet connectivity with ID logging password, IP authentication and licensing policies)
2. Personnel and workload
3. Overlapping coverage of the same title by multiple vendors
4. Cost implication of e-resource subscription and other collection development issues (print and digital)
5. Complexity of virtual library, e- resource computing facilities (appropriate hardware and software requirement)
6. Power supply / electricity as impediment
7. Funding

Apart from the challenges of e–resources, libraries continue to be under ever increasing pressure to enhance the technological capabilities and to meet the academic demands, and compete with alternative information providers for survival. According to Idowu (2009), it is imperative that all library staff be web technology skilled and adopt these new skills to assist library users in an ICT environment. In addition, librarians must be more assertive and confident in their professional duties. Training and retraining of staff would go a long way in addressing this challenge.

Training of librarians would equip them with the knowledge of:

1. Knowing the criteria for setting up e – library resources and the right attitude to choice of database services including e-books and journals.
2. Understanding how to manage a virtual library for efficient service delivery
3. Acquiring adequate exposure to current database links and integration
4. Combining librarianship and information technology to enhance competency at work
5. Having knowledge of dominant databases and the vendors
6. Maximizing the use of database example, EBSCO, AGORA, JOSTOR etc
7. Building of database example, digitizing projects, theses, staff publications for online accessibility etc
8. Creation of library website etc
9. Using appropriate database tools for CAS and SDI operations
10. Creation and utilization of web based catalogue

In the world of information technology and globalization, resource sharing is fast becoming the norm among libraries as each seeks to contribute its quota to the world information resource. There are various reasons why libraries embark on the digitization of their materials. Digitization makes library resources available electronically thereby providing a wider access to its collections. In a networked campus, users can access the library's digitized resources from their offices and hostels even when the library is physically closed. Also, several users can access the same resource at the same time. Digitization offers a way of preserving aging materials, which could have otherwise gone out of use. Library services when fully digitized, for instance, user uses this to review and replace on shelf their heavily used, old and tattered books. The books can be digitized, print, bound and placed back on shelves. When library resources are put on the web, it increases the library's visibility as the users all over the world access the materials. Apart from the machines that act as interface it is now possible to have most library resources stored virtually. Digitization of library materials depends largely on the priority of each library, but there are widely accepted criteria, which are normally applied. These include materials that are on high demand by patrons/librarians especially when such materials are available in limited copies or are on restricted access. Local and unique materials, aging materials that are on high demand by patrons, librarian's useful materials that are out of publication, and materials that are difficult to handle can be made visible (British Library Website, 2007).

High Cost of Internet Access and Digitized Material

The total cost of internet access and digitization must be very carefully considered against expected used of the digitized product. World Bank project Africa virtual library (AVU) culled from Ifidon (1999) affirmed also that

the cost to consider includes that of human resources, high cost of hardware and software resources, reliable and permanent sources of power, technology and maintenance. Question to ask include:

1. Who will benefit from the proposed digital product?
2. Is the intellectual value of the proposed product commensurate with the expense?
3. How will the proposed project address the long-term cost associated with digital files?
4. Can external funding be secured to support the proposed project?

From the foregoing, resource sharing takes a lot of efforts and involves a lot of critical factors, which must be fully considered before embarking on. Digitization, no doubt, has the benefits of a more flexible format, access and better performance than the hard copy. Decision to select materials for sharing should also, be based on a businesslike approach that:

1. Identified target area population and cost estimate
2. Subscription for e-journal
3. Establishment of e-library section - i.e. as follow
4. Number of MB server
5. Number of computer system for e-library
6. Number of Laser Jet printer
7. Number of Ethernet hub
8. Telephone line
9. Software facilities and
10. ISP consultant

Funding

Funding is critical to any library initiative, especially digitalization of library collections for resource sharing. Digitalization is very costly in terms of hard and software; trained and competently qualified personnel are also very scarce and costly. The rate of adaptation or adoption of ICT to library services has so far been largely defined by the supply of funds in most of Nigerian universities apart from the attitudes of librarians and institutional management. Libraries that are about making some significant changes from the manual to a fully digitalized library system, according to Akintunde (2006), are funded by external grants; examples of these universities are Ahmadu Bello, Ibadan, Ife, University of Ibadan, university of Lagos, Lagos State University, Obafemi Awolowo University, Jos, Port Harcourt among others.

Building

Academic libraries worldwide are "customized", built for their respective institutions with space and appropriate facilities as indicated in the design brief. The

implication of this is that all Nigeria academic libraries including the newer ones have no ICT customized structures. Re-design, reconstruction and modification are happening in the libraries that are developing ICT today. Lines for electrical and network cables should be provided, space for services and switches must be observed. There should be provision for purely electronic mail services, teaching laboratories as well as laboratories for library patrons to browse and do their research learning.

Space for electronic mail service and on-line public Access catalogue should be clearly marked out as well as space for seminar, video conferencing and gaming

The furniture in the libraries should suit patron needs to work both independently and in groups. There should be space for instance, on the reader's table for computer power cables and network cables to be plugged in.

Easy chairs for patron relaxation during study should be provided. The walls of the libraries should also be provided with network outlets and sockets for plugging in of computer power cables.

Training

The training of staff and library users is a very necessary investment if an organization must be productive. Librarians in all of Nigerian academic libraries already have some professional training. But the skills required for the application of e-libraries today for resource sharing, require some specialized training. Because technology becomes obsolete so easily, it is imperative that re-training be done as a routine in order to be in tune with innovations. The training required includes proficiency in office applications and job specific proficiencies. Librarians need to be trained on how to communicate to their patrons through effective presentations (using the multimedia digital projector, power point and internet sourcing) and general communication such as on the web and other discussion group services. Many of these training required strategic approach by the university library, though individual staff should first; take up challenge of developing themselves in ICT. Library staff seminars and the inclusion of ICT related topics on the curriculum of the bibliographic instruction course, use of library at the undergraduate level should be considered especially where it had become obsolete. These should focus on the integration of ICTs in delivering library services. Some of the training programmes may be on-site while others will likely be off-site. Funds should be allocated for these in order to succeed.

CHARGING IN THE DIGITAL LIBRARY

The mode of charging students/users of the e-library is another   paramount   issue   and   challenge   to   be

considered. Interview conducted on a PhD student of the Witt's University South Africa in 2009 revealed that access to the e-Library is by annual subscription, that is whatever amount payable to e-learning library by the user is paid with the tuition at the beginning of the session, Also, findings from the British Council revealed that renewal of membership annually entitles them to password, which also gives access to the e-library. But for students from other higher institutions that come to use the faculty for their various researches, it is recommended that charges be made at the discretion of the e-librarian which should be as reasonable as possible. It must be noted that every print out will be charged per page. Patrons who want to surf the Internet using any of the dedicated computers for this purpose are however required to make payment on the spot for the service. It is recommended that patrons should pay e-library fee with their tuition fee.

Conclusion

E-library approach for resources sharing in these modern times is not insurmountable for the determining libraries even though problem of adopting ICT are multifarious in Nigerian libraries. Traditional libraries are being and would continue to be converted into flavors of digital or virtual libraries. Over the years, the application of technology to library services has taken different formats. Nowadays, the internet has gained more popularity among students, teachers, educational administrators, and members of the society at large. The way forward could be that international funding agencies, NGOs, the UNESCO, the educationists, trust funds, school managements, philanthropists etc, should be involved in the general development of ICT in Nigeria to complement the efforts of the government in order to move Nigeria libraries to the global information society and be at par with, libraries all over the world using digital technology. Librarians and library users must contend with this innovation and catch up with the technological world at this age of globalizing education. It is therefore hoped that the librarians would adopt the new approach and forge ahead in the dissemination of information.

RECOMMENDATIONS

An important consideration in library automation with ICT is constant power supply. The electronic library must be supplied with electricity that is uninterrupted. One must acknowledge that the present level of power supply in Nigeria is not satisfactory. This can however be complemented by ensuring that uninterruptible power supply units are procured, stand by generating set be provided in case of power outages.

Funding and maintenance is another factor that should ensure the success of the electronic library. And information system that has computers needs regular maintenance. Such maintenance includes the constant upgrade of anti-virus software on the system, constant back-up of important files on the system, subscription to on-line journals etc.   it is important to note that funding of electronic library requires will and commitment on the part of management as it entails that more fund will have to be committed to it compared to the convectional (manual) library operations.

The next consideration is user's education. It is worrisome that many library users enter the library without having an idea of how to access whatever information they want to access in the library. There is the need to incorporate into the present curriculum of library education an aspect that will take care of system librarianship. This is important because the level of computer literacy among undergraduate in Nigerian universities is nothing to write home about. It is also recommended that CD-ROMs and DVD containing educational databases and packages be procured for use in the electronic library.

1. Interface functions
2. Knowledge and data mining

The digital/information librarian's role is increasingly towards offering consultancy to the users in the efforts in providing digital reference, navigating, searching and retrieval of digital information through web documents that span the universal digital library. Digital librarian is therefore, an embodiment of digital information professional who ensures that digital libraries are used effectively and with ease.

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