

Bookless Library in Nigeria: Current Trends and Issues

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***Abstract** - This study investigated the development of bookless library. Attention was committed to the following areas: opportunity, usability and challenges facing academic libraries in North-east Nigeria towards actualizing this idea. The paper highlighted funding, infrastructure and technology as challenges facing the application of digital libraries in North-east Universities and concludes that, though they are faced with numerous challenges, however, the university libraries could gradually overcome such challenges in the course of time especially through library collaboration.*

Keywords: digital, library, bookless, technology

Introduction

The introduction of computers and other telecommunication technologies in libraries during the last quarter of the century has changed the concept of a library and the library profession. Information seekers are no longer confined to the walls of the library, (Ayele and Sreenivasarao 2013). With the rapid evolution of Information and Communication Technology (ICT), libraries have experienced unprecedented level of changes over the past decade. They have transformed their operations as they have responded to the opportunities of the digital revolution, and further challenges that lie ahead. With revolution brought about by the internet such as cloud computing, scholarship is moving towards a bookless future. The conventional wisdom still seems to be that school libraries should continue to provide a balanced approach to both digital and print-based information for as long as possible, and that traditional and future library roles are not mutually exclusive, (Gray and Cassandra 2009).

While the librarian's traditional role of collection development was necessitated by the limited physical collections of the past, this role is still viable in a digital environment. Librarians select titles appropriate for course subjects and independent reading and draw attention to them in a number of different ways (through library course pages, rotating video displays, Animator videos, and so on). If the selections are good, and readers respond well, then they are purchased immediately upon request. In a digital environment, librarians don't have to own a title upfront in order to highlight its value and provide quick and easy access to it.

In the digital environment, common data can easily be shared among services and users when it is stored in a cloud, the need for local storage and backups are removed. Another benefit of

storing data in the cloud is that it provides collaboration and cooperative intelligence. The cooperative efforts of libraries will bring wider recognition for libraries and provide the platform where the libraries can innovate. One key advantage of electronic materials over print material is that simultaneous users could access them at the same time and regardless of location and time of the day. Also quite a sizeable number of e-materials could be stored and carried along on a portable storage devices and e-readers. These flexibilities help libraries to conserve spaces needed for readers, book shelves and storage spaces. It should be noted that hundreds of books (in electronic forms) could be stored on a small storage devices such as SD Cards and flash drives. They are also accessible from any computer, tablet and Smartphone that have access to internet service. Cloud computing allow libraries to store thousands of e-materials on cloud in a location unknown and managed by the cloud service provider. Cloud service providers are companies that offer some components of cloud computing services typically such as Software as a Service (SaaS), Infrastructure as a Service (IaaS), or Platform as a Service (PaaS) to other businesses, organizations or individuals. Examples are Amazon, Windows Azure and Google cloud.

Adoptions of digital libraries are reducing the dependency of libraries on print materials and some librarians and scholars are coining and adopting the idea of bookless library. According to David and Tony (2015), the idea of the “bookless” library, however, is voiced much more prominently than ever before, and as both libraries and publishing continue to be transformed in the digital age, the concept will likely continue to gain traction. For example Ohio LINK library alliance are using amazon.com’s Web-services for hosting some of their public digital resources, and are testing the limitation of DSpace Collection software and server management in the clouds(Chen *et al*, 2011). Eastern Kentucky University Library is using Google Docs to collect replies from website tables, and they take Google Calendar as training and conference Calendar , and they also use Google Analytics to collect website, the Library catalog and blogging data. Western State College, located in Gunnison, Colorado, is using Google’s App Engine for their E-Library.

The Development of Digital Libraries in Nigerian Universities

The Federal Government of Nigeria through the National Universities Commission (NUC) started different projects intended to lunch Nigerian Universities into data worldwide society. Among the ventures as indicated by Nok (2006) incorporate automation of university libraries utilizing Management Information Systems (MIS) and Nigerian Universities Network (NUNET). NUNET aimed at building up a practical local and wide area network in every institution higher learning. In any case, in spite of the previously mentioned exertion, Gbaje (2007) observed that the National Universities Commission Virtual Library Project started in mid 2002, the National Board for Colleges of Education Virtual Library, the National Open University Library Project and the UNESCO Virtual Library Pilot Project started in 2003 were a portion of the different activities by the Nigerian Ministry of Education in regards to Virtual (electronic) libraries for higher institutions in Nigeria, yet none of the endeavors had yielded any utilitarian virtual (electronic) library around then.

As of late, there has been an enormous advance in the area of telecommunications industry in Nigeria, Nigerian ICT industry had been helped with a great many phone lines that were associated. Likewise Internet benefit has developed consistently as Internet Service Providers (ISPs) and digital café administrators keep on expanding (Diso, 2005). The difficulty in library development in the nation was reported by IT News Africa reported by Abubakar (2010) expressed that the Mobile Telephone Networks (MTN) Nigeria had effectively

deployed and commissioned digital libraries in three (3) Universities in Nigeria. The three universities are the Ahmadu Bello University, Zaria, the University of Lagos and the University of Nigeria, Nsukka. The fourth one which has been billed for commissioning in early 2011 is built up at the University of Benin. Abdulmumin(2010), likewise confirmed the operation of e-library in University of Ilorin.

While this review looked at the difficulties digital libraries confront in conveying core services and the opportunities that distributed computing give to library to upgrade its services toward the digital age, academics libraries is the focus of this paper.

Objectives of the Study

The objectives of this paper are to:

1. Examine the concept of digital libraries
2. Identify some of the challenges and threats confronting bookless library
3. Identify opportunities of bookless library

Cloud Computing

Gosavi, Shinde, and Dhakulkar(2012), define cloud computing as an emerging computer paradigm where data and services reside in massively scalable data centers in the cloud and can be accessed from any connected devices over the internet. Cloud computing is a way of providing various services on virtual machines allocated on top of a large physical machine pool which resides in the cloud. Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly deployed with minimal management effort or service provider interaction (Mell &Grance 2009).

Five essential elements of cloud computing is as follows:

1. *On-demand self-service*: A consumer with an instantaneous need at a particular timeslot can avail computing resources (such as CPU time, network storage, software use, and so forth)in an automatic (i.e. convenient, self-serve) fashion without resorting to human interactions with providers of these resources.
2. *Broad network access*: These computing resources are delivered over the network (e.g. Internet) and used by various client applications with heterogeneous platforms (such as mobile phones, laptops, and tablets) situated at a consumer's site.
3. *Resource pooling*: A cloud service provider's computing resources are 'pooled' together in an effort to serve multiple consumers using either the multi-tenancy or the virtualization model, "with different physical and virtual resources 'invisible' to consumers, who in general do not have control or knowledge over the location, formation, and originalities of these resources(e.g. database, CPU, etc.). For example, consumers are notable to tell where their data is going to be stored in the Cloud when using storage services like icloud, dropbox, one drive and google drive.
4. *Rapid elasticity*: For clients, computing resources can immediate be scaled up or scaled down rather than resolute system that cannot be flexible, there are no up-front commitment as they can use them to scale upwhenever they want, and release them once they finish to scaling down, making resources appears to be infinite, the

consumption can rapidly rise in order to meet peak requirement at any time and scaled down when off-peak period.

5. *Measured Service*: Although computing resources are pooled and shared by multiple consumers (i.e. multi-tenancy), the cloud infrastructure is able to use appropriate mechanisms dynamically assigned and reassigned according to consumer demand, (Mell and Grance 2009). The motivation for setting up such a pool-based computing paradigm lies in two important factors: economies of scale and specialization. The result of a pool-based model is that utilization of computing resources can be measured based on the usage of these resources for each individual consumer through its metering capabilities and appropriate charges and applied accordingly.

Types of Cloud Computing

1. *Private cloud*: The cloud infrastructure is operated solely within a single organization and managed by the organization or a third party vendor regardless of whether it is located in the premise or off premise. The motive is to maximize and optimize the utilization of existing in-house resources and security concerns such as data privacy and trust. Data transfer cost from local IT infrastructure to a Public Cloud is still rather considerable, (Armbrust, et al, 2009). This cost is minimized or eliminated when using private cloud.
2. *Public cloud*: in this deployment the cloud infrastructure is accessible to general public and shared in a pay as you go model of payment. The cloud resources are accessible via the internet and the provider is responsible for ensuring the economies of scale and the management of the shared infrastructure. In this model clients can choose security level they need, and negotiate for service levels agreement (SLA) (Dustin, Richard and Ken 2010).
3. *Hybrid Cloud*: Hybrid Clouds emerged due to diffusion of the advantages of both public and private Clouds. In this model, organizations outsource non-critical information and processing to the public Cloud, while keeping critical services and data in their control (Ritu 2013).
4. *Community Cloud*: Several organizations jointly construct and share the same cloud infrastructure as well as policies, requirements, values, and concerns. The cloud community forms into a degree of economic scalability. The cloud infrastructure could be hosted by a third-party vendor or within one of the organizations in the community.

Digital Library Platforms

The advent of ICTs has completely transformed libraries and information Centre's. They have emerged as early adopters of new technologies and act as service points for access to digital libraries.

Schiller, in 1992 was one of the first writers to use the expression "virtual library" and defined it as "library in which telecommunication technologies make access to a wide range

of information resources possible”. Today, the same concept is referred to as ‘digital library’ or ‘electronic library’ or ‘information superhighway’; ‘future library’ or ‘universal library’ (Daniel 2002, Mshelia2004).

A “digital library” is fundamentally a resource that reconstructs the intellectual substance and services of a traditional library in digital form. These consist of digital contents (which are sometimes but not necessarily text-based), interconnections (which may be simple links or complex metadata or query-based relationships), and software (which may be simple pages in HTML or complex database management systems). Also digital libraries are considered as organized collection of knowledge, stored in digital or electronic interface technologies.

According to Seadle and Greifeneder (2007), digital libraries are not replacements for traditional libraries, they are rather the future of traditional libraries, much as medieval manuscript libraries simply became a specialized and much revered part of the larger print-based libraries that we have today.

Roles of Nigerian Academic Librarians in Building an Electronic Library

Nigerian academic librarians are currently confronted with the difficulties of obtaining web innovation abilities to enlarge what they generally learnt, in order to have the capacity to add to the accomplishment of the Virtual Library. The choice of materials for the electronic library is the obligation of the bookkeeper, henceforth the requirement for abilities to find and assess electronic resources. Overseeing memberships to electronic resources and arrangement of licenses is another duty the obtaining librarians would need to get. Aside from subscribing for electronic resources, librarians should likewise recognize open get to and free online materials that can likewise be incorporated into the electronic library. They will likewise need to furnish their benefactors with help and help with discovering, assessing, and understanding the universe of data that the digital world gives. The execution of an electronic library likewise infers that libraries will spend more cash on equipment, programming, authorizing, preparing, and specialists with web advancements aptitudes to help and deal with the library. Cash will likewise be spent on making an interpretation of substance into digital frame and encouraging access to the resources.

Expected Role of digital library towards bookless library

Digital libraries have the potential to significantly change fundamental aspects of the classroom in ways that could have an enormous impact on our teaching and learning and therefore should play the following roles:

- Create a library website that brings together multimedia resources.
- Design online interactive information literacy modules.
- Improve students’ awareness of available digital resources
- Create access to information resources globally
- Increases the quantity, quality and comprehensiveness of Internet-based educational resources.
- Make these resources easy to discover and retrieve for students, parents and educators.
- Ensure that these resources are available all the time.

- Participate in Collaborative team with technology experts and instructors to enhance e-learning.

Challenges of Digital Library

Digital Libraries are faced with a number of challenges, which includes:

1. *Lack of Resources*- An institution may have the vision and goal to execute an e-learning programme, but lack of finance will pose a threat to the actualization of this dream. This was supported by Zake (2009) who stated that poverty is one of the most important barriers, especially due to the fact that ICTs are important and therefore relatively more expensive in Africa than in developed countries. The issue of lack of resources especially lack of money is a big threat to the establishment and running of digital library in academic libraries in north east Nigeria.
2. *Inadequate training of staff*:- The transition from analog information to digital is very pervasive, resulting in various forms of electronic resources - websites, digital books and journal, digital government archives, sounds, images and film collections, business and educational databases, which calls for constant training of staff to manage information effectively. From a study conducted about “Challenges of Digital Libraries for Effective e-learning in Nigeria” by Otubelu (2016), it is observed that training of librarians is an impediment. The training of staff is a necessary investment if an organization must be productive. It is therefore imperative that training and re-training be done as a routine in order for librarians to cope with innovation and advancement in ICT for digital library service initiative in this age.
3. *Compatibility of format*: - Earlier cloud applications are platform specific, and platform functionality across vendors is far from standardized, naturally, users expect the same functionality across all platforms so that what they could read from one device could also be accessed on other devices from different vendors.
4. *Content formats*:- this refers to the type of formats that text, audios, videos, pictures and animations could be made or placed and accessed in a digital form. Text and images/pictures could be in Portable Document Format (PDF), HyperText Markup Language (HTML), Electronic Publication (EPUB), DjVuLibre (DjVu), Microsoft Word Document (Doc), Microsoft Word Open XML Format Document file (Docx), FictionBook2 (Fb2), JPG, GIF, MP3, MWA, MP4 etc.
5. *Conversion of old books*: The task of converting print materials to digital format is enormous. This can mostly be achieved by scanning the print material page by page and some of these could not be good enough for reading on digital devices, and in most cases they are not searchable electronically i.e searching for a specific text is usually not accurate as some of the scanned text will be stored as images, also analogue sounds cannot be noiseless or clear like sounds originally in digital format.
6. *Privacy*: Privacy issues are increasingly important in the online world. It is generally accepted that due consideration of privacy issues promote user confidence and economic development. However, the secure release, management and control of

personal information into the cloud represents a huge challenge for all stakeholders, involving pressures both legal and commercial aspect.

7. *Security*: It is clear that the security issue has played the most important role in hindering Cloud computing. Without doubt, putting your data, running your software at someone else's hard disk using someone else's CPU appears daunting to many. Well-known security issues such as data loss, phishing, botnet (running remotely on a collection of machines) pose serious threats to organization's data and software, (Dillon, Chen and Chang 2010).
8. *Bandwidth Shortage* - Because cloud computing services are based on the Internet, all of the application data will be transmission based on the telecommunication network, which determine the quality and quantity of data that can be transmitted in a second; increasing data transmission raise very tall requirement for bandwidth. Shortage of bandwidth causes delay in transmission, causing worries among users, and adding concern to the stability problem of internet service.
9. *Power Supply* - The erratic nature of electric power supply in Nigeria is another major set back that needs to be addressed for the successful implementation of a electronic library. Most Libraries, Internet cafes and computer networks are operated using generators which significantly increase the cost of service delivery. Providing a reliable electric power supply has to be part of the planning and deployment of a network infrastructure.

Opportunities of Digital Library

The opportunities that abound in the digital library system include:

1. *Portability*: Thousands of materials can be stored on very small storage device like micro SD Card and cloud based storage sites like iCloud by Apple, One drive by Microsoft, google drive by Google, drop box etc.
2. *Virtually indestructible*: E-materials could be stored on cloud where they cannot be destroyed by fire or natural disaster making materials safer than one can imagine.
3. *Mobility*: digital materials could be stored on digital mobile devices like smart-phones and tablets thereby giving patrons unprecedented level of mobility and flexibility.
4. *Versatility*: Materials could be opened and read on different types of electronic devices
5. *Increased collaboration*: cloud computing provide collaborative platform for researchers to discover and share knowledge with peers and facilitates to find and access millions of journal articles, patents and e-books, for the users tagging, sharing and discussing of these contents with their peers
6. *Availability/accessibility*: This will increase availability of materials from anywhere within and outside a particular environment.
7. *Conservation of space*: digital materials can help libraries conserve storage spaces in their library, as thousands of e-materials can be saved on cloud or single storage device that is hundreds of times smaller than a physical book. Also readers need not to converge in one place inside the library.

8. *Increased Awareness* (New materials can be displayed on large screens in the library as well as displayed (advertised) on the home screen of the library application as well as on its website.
9. *Sharing*: Social media has been the norm of the day, most students these days are on social media where they share information, new arrivals and links to materials could be shared by a student to interested pairs.
10. *The Librarian*: The work of the librarian has been made easy as he can easily refer user to links instead of physical locations and amount of time needed to label locations of materials will be reduced.
11. *Tele-worker*: The librarian needs not to be in his office to work as he can access the back end of the library application whenever and wherever he/she is.
12. *E-books* are cheaper to acquire than physical books and can easily be shared for readers, they also cannot be stolen away or damaged like physical books.

Discussion

The idea of “bookless library” has been articulated sometimes ago and it is still the norm of the day, the emergence of digital materials has seen libraries transforming from complete print material to what is now referred to as hybrid library. In almost all academic libraries, one can find that print materials are being used along-side electronic material, and the latter is gaining popularity among young library users.

One factor behind the growing trend among libraries to greatly reduce print holdings is changing patron preferences. While print reading remains more popular than e-reading, data show that the latter is rapidly gaining in popularity, apparently at the expense of the former. According to a November 2012 Pew Internet study, 23 percent of all Americans (16 or older) had read an e-book in the previous twelve months, up from 16 percent in late 2011. At the same time, the percentage who had read a printed book dropped from 72 percent to 67 percent. According to the same study, 33 percent of Americans now own either a tablet or a designated e-reader (such as a Kindle or Nook), compared to 18 percent of the previous year (Rainie and Dugga 2012).

In fiscal year 2010, American academic libraries added more e-books (over 32,000,000) than print items (27,000,000) to their collections (Phan, Hardesty, HugandSheckells, 2011). Libraries are, of course, already adapting to the various intellectual and technological trends driving the shift from print to digital reading. However, there are a number of important reasons why academic libraries need to preserve collections of print materials. These could be as a result of many challenges stated earlier in this article needed to be overcome to develop bookless library; such as funding, technological gap, digital rights licensing, security and privacy. Instead of pursuing the creation of digital or bookless libraries, academic librarians could focus on maintaining hybrid collections, containing both print and digital materials. Such holdings should be rooted firmly in the realization that print and digital are distinct yet complementary formats, each serving a different type of user need.

Conclusion

In conclusion, the digital age is here and academic libraries must continue to alter its collections, physical spaces, selection practices, and internal procedures to accommodate the digital age and the evolving needs of its patrons. Print and digital should be seen as complementary media, serving different reading and research needs, and not simply as interchangeable. The print materials are declining and technology is improving by the day which indicates that the phasing out of print material is inevitable but it will not happen anytime soon, print material still remains part and parcel of the library.

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