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Internet services in academic libraries

Impact on the use of printed resources and implications for libraries in Nigeria

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Abstract

Purpose – The use of the internet and World Wide Web to source information is now an emerging practice in developing countries and seems to be obscuring the use of printed resources in libraries. This paper aims to investigate the impacts of internet services on the use of prints in academic libraries in Nigeria.

Design/methodology/approach – The design of the study was *ex post facto*. The population of the study was the 131,670 students registered in the library from 2005 to 2014 academic sessions. The instruments for data collection were documentary records, oral interviews and observations. Statistics of past physical transactions at the Nnamdi Azikiwe Libraries University of Nigeria, Nsukka, were consulted and adapted for the study. Tables, graphs and a benchmark for assessment guided the analysis and discussion of the data.

Findings – Readers' registrations, average daily readership and consultation of theses/dissertations were among the physical services that are multiplying and exerting pressures on existing facilities in the library. Books and periodicals consulted were constantly declining since the advent of internet services. Academic libraries in Nigeria should be adequately funded to sustain information and communication technology (ICT) backbone for internet usage and better marketing and stabilization of library services to retain users in academic libraries.

Practical implications – Increased availability of full-text online could force academic libraries in developing countries to cancel much of their online subscriptions. Serious efforts must be embarked by academic libraries to bring back the users to the library.

Originality/value – This article is the first to investigate the impacts of internet usage on printed resources in academic libraries in Nigeria. The originality lies in its contribution to internet use on information resources in academic libraries in developing regions.

Keywords Academic libraries, Nigeria, Internet services, Printed resources

Paper type Case study

Introduction

An academic library is the arm of a university that is traditionally charged with the responsibility to acquire, organize and disseminate resources and services to the teaching, research and recreational needs of the academic community (Echezona *et al.*, 2015). The "Great Age of Libraries", which was characterized by building huge collections and using scientific approaches to manage them, began in the late nineteenth century (Kammourie-Charara, 2012). In the current developed world, libraries have



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transformed from being evaluated on the magnificence of the building and the size of their physical collections to their digital collections and networked services instead.

In Africa and other developing countries, most academic libraries still collect statistics that show the number of registered users, items acquired or borrowed, the number of visits, etc. Though these records still have a place in library management, currently, the stories they tell are no longer the same and, therefore, open to misinterpretation. Some of these measures are becoming irrelevant in the twenty-first century. One reason may be because of the trend in modern libraries that has shown a marked decrease in the number of physical visits to libraries (Asogwa *et al.*, 2015). Libraries are becoming less important for materials they collect or house. Instead, their importance is being measured in terms of the extent to which users' needs are fulfilled (Mayega, 2008). They have transformed from just being buildings to vast collections of online resources that users can access from off-campus, in classrooms, offices or any location around the world, especially in the case of distance learners.

Literature review

The establishment of the University of Nigeria in Nsukka in 1960 marked the birth of the University of Nigeria Libraries. The university libraries consist of Nnamdi Azikiwe Libraries on the Nsukka campus with collections in the faculties of agriculture, education, engineering and veterinary medicine; and the Enugu Campus Library with collections in medicine and law. Obi (as cited in Asogwa, 1990) revealed that at the outset, the library building at Nsukka was planned "to accommodate [a] maximum of 140,000 volumes of books and periodicals, and seating capacity for 450 readers"; however, in 1967, when the library's holdings attained 100,000 volumes, it became apparent that the building was inadequate in capacity for the university. Planning for a larger and more accommodating building commenced immediately.

The proposed new library building complex (currently rated by observers as being the largest in Africa) as expatiated by Nwoye (1981) – the library's University Librarian from 1960-1995 – was envisaged to be an open access library that would bring users into close relationship with its resources, would house approximately one million volumes of print materials and would provide accommodation for 7,500 readers. Nwoye (1981) also envisaged that the new library building would eliminate the clamor for departmental and faculty libraries; that the library would be service-oriented rather than material-oriented; that it would be flexible with special features, such as an automated circulation control system, acquisitions, serials, online cataloguing, electronic theft-detection system, etc.; that there would be a lending desk for circulation; and that there would be provision for the physically challenged to enter into the building.

The vision of the library was "to become a world class centre of excellence in support of learning, teaching, and scholarship" and "to restore the dignity of man". Among other aspirations, the mission of the library, as Nwoye (1981) explained, was to:

- evolve an information and communication technology (ICT)-driven world-class academic and research library;
- become an access point institution to global information resources and services in all subject fields;
- provide the most user-friendly environment for teaching, learning and research;

- provide information services that are user-centered, user-friendly and instrumental to the advancement of teaching, learning and scholarship;
- collaborate with faculties in the common enterprise of knowledge generation, organization, preservation and effective dissemination; and
- provide effective linkage mechanisms that would enable the library's clientele to access information in other knowledge institutions both locally and internationally.

With this mission, several attempts made in the past to automate the library and to bring internet services to the university community were not achieved because of inadequate funding, shortage of space and shortage of knowledgeable personnel versed in ICT. However, the creation of MIS and networking of the various departments through internet connectivity in 2007 brought with it a profound preference for using the internet in place of physical resource usage by most library users. As the internet data center (the LIONET) was situated in the main library building, the library had the highest network availability and the largest concentration of users. This was because of the library's strategic role in preparing all faculties for university accreditation and uploading of the university's local contents onto the internet for Web metric ranking was handled in the library because of the availability of numerous computer workstations. For example, there are now more than 500 laptop computer network connections in the digital library/e-learning center, as well as 128 and 60 desktop computer workstations in the MTN Library and the Computer Laboratory, respectively. In addition, users are permitted to use their personal computers inside and outside the library premises. All these increased the population of users in and around the library premises.

This changing situation has called on the academic librarians to assume newer roles and perform tasks, such as guiding, facilitating, sifting through information resources and preserving access to information. As the collections of academic libraries have changed, the delivery of services has equally shifted. The shift in library user behavior and interests has prompted academic libraries to add a networked environment as an extension of traditional library services.

Users are migrating in great numbers to the new environment in search of their needed information. Virtual visits and access to library resources are outnumbering physical visits, and "the number of books on and loans from library stacks is no longer an accurate measure of user traffic on library resources" (Asogwa, 2014). As Rao and Babu (Sharma, 2011) observed, as the emergence of the internet as a vast storehouse of information, the role of librarians as the traditional gatekeepers of knowledge is in danger of being bypassed, as their skills are ignored and their advice is sought less.

In Nigeria, before the advent of internet services, library holdings were predominantly in print, but, with the internet:

- Materials in electronic formats are now included in library collections.
- The collection scope has changed from local contents to global networks.
- The use of the internet and World Wide Web has attracted the interest of scholars because of its advantage and convenience over traditional services in libraries.
- Most students have readily taken to using the internet to find their information.
- The perception of the library as a place where researchers must visit to satisfy their research and recreational needs has changed (Echezona *et al.*, 2015).

This paradigm shift has greatly impacted the way people use physical collections in libraries. For example, Umar (2011) noted a dramatic reduction in the level of use and patronage of university libraries in the Northeast states of Nigeria. Solanki (2014) asserted that the powerful figure of the Web has revolutionized the way people were accessing information and opened up new concepts and possibilities in many areas, such as electronic or digital libraries. These changes convinced Kanamadi and Kumbar (2007) to opine that the internet had significantly changed the characteristics of information delivery in libraries and had empowered users to easily access not only the resources in their own libraries but also those in other libraries. The literature has many studies published on user preference for internet resources to physical resources in libraries. In Nigeria, Baro and Asaba (2010) investigated the state of internet connectivity and use in Nigerian university libraries and found that despite the laudable efforts by the National Universities Commission (NUC) to network university libraries in Nigeria, many libraries were still operating without internet connectivity, even as late as 2010. Odusanya (Egberongbe, 2011) and Bamgbala (Adegboye, 2011) found that in the University of Lagos in Nigeria, 58 per cent of the medical and dental students in their final year used the internet in their studies. Mishra (2009) surveyed the use and importance of the internet at the University of Maiduguri in Nigeria and found, among other things, that the internet was very important to a majority of the participants, Google was most frequently used as a search engine, and slow access to the internet was identified as the major problem with internet access in Africa.

Ilo and Ifjeh (2010) studied the impact of the internet on final year students' research projects at Covenant University, a private institution at Ota in Nigeria. The researchers discovered that all of the 150 respondents used the internet for their research. On the kind of sources the students used to access their materials, priority was more on online journals, online books and online newspapers and magazines. Ossai-Ugbah (2010) also examined the extent to which the use of electronic information services by students influenced the academic performance of students in three tertiary institutions in Nigeria.

Uwaifo and Azonobi (2014) surveyed the factors militating against the use of the internet by post-graduate students of the library and information science department at Delta State University in Abraka, Nigeria, and found that: having pre-university computer literacy did not account for better academic performance and students who made use of electronic library services were better exposed to academic materials and performed academically better than those who did not make use of these services. Major constraints were also identified by Ossai-Ugbah (2010), Ajayi *et al.* (2014) and Echezona *et al.* (2015) and included slow speed of library servers and incessant power outages. Also, internet access and automated library facilities were not up and running at all times to meet the varied time students prefer to browse the internet. The researchers recommended that institutions should increase their internet bandwidth and make it available 24/7. These authors, in their various studies, found that factors affecting internet use by academic libraries include:

- Poor skills in ICT caused academic librarians to struggle instead with manual methods and very low levels of computer literacy.

- Inadequate skills to blend traditional methods with advances needed to provide perceived services in the internet era.
- Another factor affecting internet use is the conservative attitudes of some professional librarians in developing countries who still believe that users must visit the library and not vice versa.

In addition, Brook and Tabaei (as cited in [Bamigbola, 2013](#)) and [Haliso and Ogungbemi \(2014\)](#) noted that as the internet is fast gaining the confidence of scholars as veritable sources of information, academic libraries should not lose their role in the information society. [Umar \(2011\)](#) worked on ways to retain customers for information services in university libraries in the Northeast states of Nigeria and found that the following strategies could help in bringing back library users to academic libraries: provision of quality information resources and services, recruitment of competent and qualified librarians, provision of adequate and comfortable reading facilities, provision of accurate information services and a regular need for the evaluation of users. Observations have shown that ever since the penetration of the internet, “students and staff in the University of Nigeria, Nsukka have been enjoying unprecedented Internet access on campus” [[University of Nigeria Nsukka \(UNN\), 2013](#)], and it is feared that this could create a lacuna between physical services and internet services in the library.

Problem statement

Developments in information technology are playing a crucial role in the restructuring of libraries ([Abubakar and Adetimirin, 2015](#)). Academic libraries have shifted from human dependent operations to machine dependent, from mechanization to knowledge processing, from stand-alone systems to network computing and from local LAN to wireless access protocol systems ([Ajayi et al., 2014](#)). Libraries have migrated from document-centered information to user-centered information, from print media to electronic media and from human data capture methods to machine-oriented ([Sharma, 2011](#)). Academic libraries have stopped being the only important source of information and have had to contend with lots of competitors generated by the appearance of other information providers ([Oghenekaro and Olakunle, 2015](#)), and “marketing concepts are increasingly being introduced in library environments to help in better understanding of the users’ needs” ([Adekunmisi, 2013](#), p. 240).

Since its application in libraries, internet technology in the University of Nigeria at LIONET has brought enormous changes in the way professional librarians manage their collections and provide services to users. For instance, statistics have shown that the increases in population of user enrolment and average daily readers in most departments seem to be increasing, resulting in the creation of an accommodation crisis and added pressure on existing facilities. Paradoxically, the same statistics have recently revealed a reduction in borrowing rates for printed materials and other physical activities in the Readers/Public Services area. Could this be a result of internet access on campus 24/7 or the attractiveness and conducive learning environment in the new library building? Though much have been researched and reported on the use of the internet by students in Nigeria and other universities, none of the studies documented the impact of internet services on the use of physical resources in the library. This paper is an attempt to close this gap in the research. In view of this yawning gap, this article proposes to:

- investigate the impact of internet services on physical transactions in academic libraries in Nigeria;
- determine the areas of these impacts on physical transactions; and
- establish the implications for academic libraries in Nigeria.

Findings from this study could guide university administrators and library management in planning for the provision of optimal internet services in university libraries. This study could also enable them to forecast the quality of human resources and infrastructures required in contemporary academic libraries, as well as the kinds of skills and competences appropriate to provide excellent services. Results of this article may provide the NUC with benchmarks for measuring the level of internet penetration, networking and usage in university libraries in Nigeria.

Methodology

The design of this study was *ex post facto*. In an *ex post facto* research design, data are collected after the event or phenomenon under investigation has taken place (Nworgu, 2006). The area of study is the University of Nigeria. This university was purposely sampled because it is among the federal universities which the NUC selected for the NUNet pilot project. Therefore, it is deemed appropriate to have installed internet connectivity that could provide good data to measure the impact of wireless technology on the physical information resources and services in academic libraries. The Readers/Public Services divisions were purposely selected as the area of study, because they have direct interaction with users and have the highest traffic of readers in the library. The aim is to compare the level of printed resources used before the advent of the internet with the usage after the introduction of internet services. The population are the 131,670 registered undergraduates from 2005 to 2014 academic session obtained from the *Annual Reports* of the library. Data collated show that more students (54.3 per cent) registered in the library during the internet era than in the pre-internet one (44.9 per cent), as can be seen from Table II.

Data were collected using observation, oral interviews and documentary records. One of the researchers served in the Public Services department of the library, and has noted with keen interest the changes in user behavior and has kept statistics for more than five years, was inculcated into this study. Staff and students were interviewed orally. Questions asked bordered on the kinds of resources or information they looked for in the library and sources for obtaining them. The Deputy University Librarian in charge of the Public Services division (reference, circulation, serials and branch) was also interviewed. The purpose was to obtain their views about changes in physical transactions and internet services in the library. Documentary records (i.e. statistics of readers, users and loans) kept on all the units of the library were also captured. For example, information pertaining to users' requests was kept daily. Therefore, data collection was based on registered users, books borrowed, periodicals or journals used or consulted, theses and dissertations consulted and average number of daily users of the library and its resources.

Benchmark for assessment

The impact of the internet on the use of printed resources in the libraries may either be positive or negative, great, minor or of no significance. It is important to note that the use

of library resources begins with a user's registration. In considering its impact on user registration, the number of registered users before and during the internet era was compared (Table I).

The criterion of assessment is if the figure obtained during the internet era was less than or equal to (\leq) 549, it is considered of no significant impact. This implies that internet services have had little effect on traditional library services provided; if >549 , this demonstrates an impact, implying that internet services are eroding conventional library services and, therefore, require serious plans to save traditional services from total collapse. The level of impact is measured by determining the difference between the figures obtained before and after internet services were introduced. If the absolute value of the difference ranges from 550 to 1,499, the impact is minor and, if it is equal to or more than (\geq) 1,500, there is great impact.

Findings

Table II presents the difference between the number of registered students before and during the period of internet services. It reveals that from a total of 131,670 students who registered in the library within the period of ten academic sessions, 59,123 (44.9 per cent) were obtained during the pre-internet five-year period, whereas 72,547 (55.1 per cent) were after the onset of the internet era for a five-year period. This result implies that the provision of internet services has had some effect on the use of physical resources. It attracted a large population of students into the library building, which consequently resulted in demand for more space, stress on the staff and pressure on other library facilities. This could be attributed to the convenient reading environment in the library, the desire to use the printed resources or greater availability of computer workstations and speedy internet network. The increased population could also be a result of the fact that possession of a library card is a *sine qua non* for entering the library building. In determining the level of the impact, it was found that the difference between the two periods

S/N	Impact assessment rating	Decision	
1	≤ 549	No significant impact	Table I. Assessment rating
2	550-1,499	Impact	
3	$\geq 1,500$	Great impact exists	

Pre-internet		Internet		Level of impact	
Year	Registered	Year	Registered	Absolute value of difference	
				of total	Interpretation
2005	11,235	2010	18,896	/13,424/	Great impact
2006	12,308	2011	17,784		
2007	12,912	2012	15,903		
2008	10,884	2013	10,122		
2009	11,784	2014	9,842		
Total	59,123 (44.9)	Total	72,547 (54.32)		

Table II.
Impact on registered users

(13,424) exceeds 1,500, which is the minimum benchmark for a great impact, and, hence, the impact of internet services on registered users is considered very great.

Impact on average daily readers

Average daily readers are the users who are physically present in the library. In the Nnamdi Azikiwe Libraries, this statistic is collected three times daily from Monday to Friday. This was obtained by an on-the-spot enumeration of all the physical readers present in the library every workday and keeping a record of these numbers. Table III below presents the statistics and the impact of internet services on the population of daily readers.

Table III shows that there is a large increase in the population of readers inside the library once internet services started. This suggests that the provision of internet services has resulted in more reader visits and use of library facilities. This development is becoming an emerging issue in the current Nigerian university libraries. For instance, Mishra (2009), Ajayi *et al.* (2014), Momoh and Abdulsalam (2014) and Abubakar and Adetimirin (2015) found that many students preferred to use the internet to physical resources at the universities of Maiduguri, Zaria, Sokoto, and Osun because of speed and convenience. To measure the level of internet impact on physical collections, the difference between data obtained during the two respective periods was 62,915 more, therefore implying great impact. Consequently, this causes heavy traffic – and may even overload the system – as many of them log in to the internet at the same time.

Though there has been an increase in the number of daily readers, Table IV reveals that there was no corresponding increase in the volume of printed books borrowed, as

Table III.
Statistics of readers before and after the introduction of internet services

Year	Pre-internet		Internet		Level of impact	
	Year	Daily readers	Year	Daily readers	Absolute value of difference of total	Interpretation
2005		13,235	2010	33,725	/62,915/	Great impact
2006		13,562	2011	32,941		
2007		15,011	2012	31,010		
2008		24,507	2013	31,072		
2009		37,708	2014	39,190		
Total		104,023	Total	166,938		

Table IV.
Statistics of books loaned before and after introduction of internet services

Year	Pre-internet		Internet		Level of impact	
	Year	No. borrowed	Year	No. borrowed	Absolute value of difference of total	Interpretation
2005		6,999	2010	5,395	/12,140/	Great impact
2006		6,891	2011	4,015		
2007		6,709	2012	3,552		
2008		6,033	2013	3,321		
2009		5,116	2014	3,325		
Total		31,748	Total	19,608		

more books were drawn from the library before the internet services than during the internet era. The decline in the volume of books borrowed may mean that readers were spending more of their time on internet access. This is evident in the observed number of readers entering the library with their laptops and those clustering at the online public access catalogue section, whereas others were perching at the periphery of the wall and surfing.

An added effect is that academic libraries in Nigeria are experiencing shrinking budgets. Consequently, “they face [the] problem of acquiring up-to-date resources” (Echezona and Chigbu, 2015) and “many cannot purchase current books nor subscribe to current academic journals” (Umar, 2011). This result has reaffirmed the result of a study by Applegate (2008), who found that the average US academic library had noticed the decline in the overall number of physical transactions by 2.2 per cent.

The implication is that it could create an access divide between the use of printed and online resources. The figures in Table IV exceeded the minimum benchmark of 549. This suggests that some impacts exist. Results show that the internet era had 12,140 more book checkouts than pre-internet figures. As this figure exceeds the maximum mark of 1,500, this could be interpreted to mean that internet services in the library exerted a great impact on the library’s physical collections. This result has disproved the belief that an increase in population of registered users could mean corresponding increases in demand for materials in the library. This may be what prompted Mayega (2008) to warn that libraries are becoming less important for the materials they house; rather, their importance is being measured in respect to their fulfilment of users’ needs.

Table V reveals that theses and dissertations were used more during the internet than before. This development could be because these resources are not accessible online. They are limited in number, are not able to be borrowed or photocopied and are not available in the market/bookshop. Consequently, users must be physically present in the library building if they want to consult them. This result is strengthened by Rao and Babu’s findings (as cited in Echezona and Chigbu, 2015). They believed that electronic media is still not always as dominant as printed media, because there are still lots of printed pages in libraries, such as thesis and dissertations, which cannot be sold in bookshops or markets. The authors noted that with the advent of the internet in the past two decades, there were expectations that libraries will die, but they did not. Instead paper-based resources would continue to co-exist with the digital resources in the library for the foreseeable future. In view of this development, unless theses and dissertations are digitized, internet services would not reduce or change the level of physical consultation of special collections resources in academic libraries. It is believed

Year	Pre-internet		Internet		Level of impact	
	Year	No. consulted	Year	No. consulted	Absolute value of difference of total	Interpretation
2005		9,113	2010	8,329	/9,865/	Great impact
2006		9,213	2011	10,276		
2007		10,001	2012	12,108		
2008		8,991	2013	12,193		
2009		7,989	2014	12,266		
Total		45,307	Total	55,172		

Table V.
Statistics on the use of theses/dissertations before and during internet services

EL
34,5

that when customers are satisfied with the quality of resources and services provided, they are likely to visit libraries frequently.

Table VI shows that internet services have depopulated the number of users of physical materials consulted in the library. This finding was corroborated in studies by Arif and Mahmood (2012) and Echezona *et al.* (2015), who found that the technology imperative has introduced new methods of accessing information and consequently changed the information seeking behavior of users. This suggests that users no longer hold special loyalty to physical collections in academic libraries. This is evident on the level of reduction in number of physical journals used once internet services were introduced. Abubakar and Adetimirin (2015) had already predicted that the internet could have great influence on the nature of infrastructures and information services being provided in libraries. In view of that, Oghenekaro and Olakunle (2015) recommended that academic librarians should possess appropriate ICT skills, good attitudes and competences to survive in the competitive information environment.

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Summary

Data in Tables II through VI are summarized in Table VII to give a snap-shot of the overall impact of internet services on the use of printed materials in the library. From this summary table, it is discernible that the internet has both positive and negative impacts on the physical transactions measured in the library. This could be interpreted from the differences in the sum of the total between the pre-internet and the internet periods, which exceeded the minimum benchmark for an activity to be accepted as an

Table VI.
Statistics on journal
articles consulted
before and during
internet services

Pre-internet		Internet		Level of impact	
Year	Journals	Year	Journals	Absolute value of difference of total	Interpretation
2005	3,591	2010	2,859	/12,290/	Great impact
2006	3,942	2011	1,611		
2007	4,726	2012	1,025		
2008	4,562	2013	1,883		
2009	4,359	2014	1,514		
Total	21,180	Total	8,890		

Table VII.
Summary of
Tables II-VI

Impact variables	Pre-internet	Internet	Level of impact	
	No.	No.	Absolute value of difference	Interpretation
Registered users	59,123	72,547	/13,424/	Great impact
Average daily readers	104,023	166,938	/62,915/	Great impact
Books loaned	31,748	19,608	/12,140/	Great impact
Journals consulted	21,180	8,890	/12,290/	Great impact
Theses/dissertations	45,307	55,172	/9,865/	Great impact

impact. This suggests that since the advent of internet services in Nigerian university libraries:

- There were more registered users and a great influx of readers into the library building than previously.
- More theses and dissertations were used.
- Fewer books were checked out from the library and less physical journals were consulted during the internet era than before.

The results depict that internet access in the Nigerian university has greatly affected conventional services in the library. It has led to the establishment of other information providers who made physical libraries cease, they being the only source for information. Other sources now include the internet and service providers, telecommunication operators, e-journals, e-book providers and online vendors, such as Agora, Hinari and EBSCO. Simmonds and Andaleeb (Adeniran, 2011) envisaged this scenario when they predicted that the presence of the internet would bring about a situation in which users could desert library buildings but still have access to library resources.

Conclusion

The role of librarians has changed in the digital library era. It is important for professional librarians to acquire new skills required for developing and managing digital libraries. Library and information professionals are required to acquire such knowledge and skills, as the library is one of the highly IT-influenced service professions. The empowerment of library and information professionals with IT skills is aimed at providing services that are expected by the clientele in the new environment.

Implications for academic librarians

Internet access in Nigerian universities has led to increased competition between librarians and other information providers, thereby tasking professional librarians to improve the quality of the resources and services they provide. This is because the perception of the library as a place where users must go to satisfy their academic needs has changed; as Echezona *et al.* (2015) put it, “the mantra of the academic library as the center of university education must be reviewed in line with the prevailing circumstances”. In view of this, academic librarians in Nigeria must find ways to bring users back into the library or stand the risk of becoming redundant.

Competitive information services are a threat as they are better equipped with sophisticated technology to provide much needed information than academic libraries are. In the pre-internet era, the practice was for users to build their workflow around the libraries; currently, to retain users or bring users back, the reverse should be the case. Librarians must build services around the users’ workflow (information and service needs). Academic libraries must redefine their concept of user services. In the pre-internet era, library users focused on librarians helping them to identify and retrieve needed resources in the library building. Currently, the emerging technologies are not only redefining the concept of ownership of information but also packaging and accessing information sources, as well as how libraries and librarians operate with regard to information services.

To minimize the exodus of users from academic libraries, there needs to be additional marketing of information services and products. In the business world, goods or

services that are not advertised to create awareness with effective marketing may not be well patronized. As this study has revealed that library users in Nigeria prefer technologically driven libraries and information services, academic libraries are not fully positioned now to meet the demand. There is an urgent need to adopt market-oriented library services by providing both tangible (printed resources and internet access) and intangible products, such as offering of assistance services that would add value to the library and meet users' information needs.

Academic librarians are shifting their budget priorities toward the provision of modern ICT infrastructures to meet the expectations of students in Nigerian university libraries. Unfortunately, academic libraries are inadequately funded. The effects of inadequate funding highlighted by [Komolafe-Opadeji and Haliso \(2012\)](#) include libraries lagging behind global trends; lack of current books, journals and other information resources; library shelves stocked with old and irrelevant books; lack of user attraction; little or no professional library activism; and unreliable electricity supply.

[Hardy \(2010\)](#) argued that as the availability of information has expanded exponentially, well-trained academic librarians ought to be positioned to help readers navigate and evaluate their collections and diversity; thus, libraries need to change from "places just to get stuff to places to make stuff, do stuff, and share stuff" The rapid technology changes and advances in information provision require an ever more adaptive and sophisticated workforce in libraries. The rise in digital information and internet services has provided an opportunity to evaluate and elevate the role of librarians that will lead to the emergence of a new breed of librarians who contemporary writers referred to as cyberlibrarians (i.e. librarians who specialize in locating information on the internet).

Libraries in the digital age need a stronger technological type of librarianship. The current scenario in most academic libraries is to hire people with compliance in IT to fill in library positions that require advanced computer skills. Thus, [Riley-Huff and Rhoads \(2011\)](#) and [Riju \(2014\)](#) recommended that several librarians in more traditional roles should transform their skills to be able to undertake new roles or be more technology-centric. [Komolafe-Opadeji and Haliso \(2012\)](#) recommended that the easiest way for libraries to address the challenges of dealing with digital materials is to create a position of electronic resources librarian and hire a smart and energetic librarian who can handle everything associated with digital resources.

Academic libraries have evolved from focusing on the management of physical resources and related services to transforming resources and services into digital formats. Therefore, academic librarians who are experts in traditional library services should know that the internet brought a challenge to keep their knowledge and skills relevant in the twenty-first century. It, therefore, calls for the need to retrain and re-skill to fit in well into the new dispensation. As technology continues to have an impact on the delivery of information services, [Choi and Rasmussen \(Riju, 2014\)](#) noted that traditional academic library systems have come to embrace the digital library model. That is why [Dhiman \(2010\)](#) and [Solanki \(2014\)](#) observed that librarianship has arrived at a watershed in history when the nature of the profession could change dramatically depending on how academic librarians respond to the challenges in their environment.

University administrators and academic librarians must know that the greatest challenge to internet services lies in a steady power supply. Apart from inadequate power supply, which has been a recurrent issue in Nigeria, it has been observed that the

internet network is always faster when students are on vacation and slower when they are on campus. This implies that the present bandwidth is inadequate and calls for a more powerful one to carry the load. As the primary raw material of modern technology, which has for many decades crippled industrial and technological development in Nigeria, steady availability of power and internet access is another way of bringing users back into academic libraries.

There is a need for modifications in the acquisition policy of academic libraries in Nigeria. This is because library services are dependent on meeting the information needs of the users. Therefore, an acquisition policy that emphasizes more on the provision of internet infrastructures is imperative in Nigerian university libraries in the twenty-first century. The need to maintain a hybrid library is imperative, because information repositories on the internet are heterogeneous, inconsistent, ephemeral and sometimes incomplete. Paper-based books and journals in the library should be digitized and hosted on the campus intranet and bibliographic databases provided for users to access. Rather than rendering academic librarians redundant, the digital revolution has come to make librarians in Nigeria all the more essential. Therefore, to succeed in tomorrow's librarianship, academic librarians in Nigeria will continue to multitask in an environment of constant and rapid change. The successful academic library of the twenty-first century will be the one that has found new ways of meeting the needs of its stakeholders.

References

- Abubakar, D. and Adetimirin, A. (2015), "Influence of computer literacy on postgraduates use of e-resources in Nigerian university libraries", *Library Philosophy and Practice*, Paper 1207, available at: <http://digitalcommons.unl.edu/libphilprac/> (accessed 23 August 2015).
- Adegbore, A.M. (2011), "University faculty use of electronic resources: a review of the recent literature", *PNLA Quarterly*, available at: www.unilib.unl.edu (accessed 2015).
- Adekunmisi, S.R. (2013), "Strategies for marketing library services and information products in Nigeria", *Global Advanced Research Journal*, Vol. 2 No. 2, pp. 240-245.
- Adeniran, P. (2011), "User satisfaction with academic libraries: academic staff and students perspectives", *International Journal of Library and Information Science*, Vol. 3 No. 10, pp. 209-216.
- Ajayi, S.A., Shorunke, O.A. and Aboiyade, M.A. (2014), "The influence of electronic resources use on students reading culture in Nigerian universities; a case study of Adeleke University, Ede, Osun State", *Library Philosophy and Practice*, available at: <http://digitalcommons.unl.edu/libphilprac/> (accessed 23 August 2015).
- Applegate, R. (2008), "Whose decline? Which academic libraries are deserted in terms of reference transactions?", *Reference & User Services Quarterly*, Vol. 48 No. 2, pp. 176-189.
- Arif, M. and Mahmood, K. (2012), "The changing role of librarians in the digital world: adoption of Web 2.0 technologies by Pakistan librarians", *The Electronic Library*, Vol. 30 No. 4, pp. 469-475.
- Asogwa, B.E. (1990), "Factors affecting worker productivity in university of Nigeria Nsukka: a study of Nnamdi Azikiwe Library", Unpublished DPA Thesis, University of Nigeria, Nsukka.
- Asogwa, B.E. (2014), "Libraries in the information age: a measure of performance, competencies and constraints in academic libraries in Nigerian universities", *The Electronic Library*, Vol. 32 No. 5, pp. 603-621.

- Asogwa, B.E., Ugwu, C.I. and Ugwuanyi, F.C. (2015), "Evaluation of electronic service infrastructures and quality of e-services in Nigerian academic libraries", *The Electronic Library*, Vol. 33 No. 6, pp. 1133-1149.
- Bamigbola, A.A. (2013), "Application of marketing strategies and mix to digital information service: Nigerian university libraries perspectives", *Library Philosophy and Practice*, Paper 961, available at: <http://digitalcommons.unl.edu/libphilprac/> (accessed 23 August 2015).
- Baro, E.E. and Asaba, J.O. (2010), "Internet connectivity in university libraries in Nigeria: the present state", *Library Hi Tech News*, Vol. 27 Nos. 9/10, pp. 13-19.
- Dhiman, A.K. (2010), "Librarian to cybrarian: changing roles and responsibilities of library professionals", *7th Convention Planner, Tezpur University, Assam*, INLINET Center, Ahmedabad, pp. 435-441.
- Echezona, R.I. and Chigbu, E.D. (2015), "Assessment of strategies for retention of users in academic libraries in the Southeast of Nigeria", paper presented at the 53rd National Conference and Annual General Meeting of Nigeria Library Association (NLA), Oshogbo, Ogun state of Nigeria, 26-31 July.
- Echezona, R.I., Ibegbulem, I.J. and Nwegbu, M.U. (2015), "Bring back the users in academic libraries in the digital age", paper presented at the 53rd National Conference and Annual General Meeting of Nigeria Library Association (NLA), Oshogbo, Ogun state of Nigeria, 26-31 July.
- Egberongbe, H.S. (2011), "The use and impact of electronic resources at the University of Lagos", *Library Philosophy and Practice*, available at: <http://digitalcommons.unl.edu/libphilprac/> (accessed 23 August 2015).
- Haliso, Y. and Ogungbemi, J.I. (2014), "Internet verses library: coping strategies for academic librarians in Lagos state Nigeria", *Information and Knowledge Management*, Vol. 4 No. 1, pp. 58-64.
- Hardy, L. (2010), "The future of libraries", *American School Board Journal*, Vol. 197 No. 1, pp. 22-26.
- Ilo, P.I. and Ifijeh, G. (2010), "Impact of the Internet on final year students research: a case of Covenant University Ota, Nigeria", *Library Philosophy and Practice*, available at: <http://digitalcommons.unl.edu/libphilprac/> (accessed 7 March 2010).
- Kammourie-Charara, H. (2012), "Challenges facing academic librarians with examples from Lebanon", paper presented at Elsevier Library Connect Seminar, Lebanese American University, Beirut, 17 April.
- Kanamadi, S. and Kumbar, B.D. (2007), "Impact of the information technology innovations on resources and services of management institute libraries in Mumbai: a librarians' approach", *Journal of Academic and Special Librarianship*, Vol. 8 No. 1, available at: http://southernlibrarianship.icaap.org/content/v08n01/kanamadi_s01.htm (accessed 7 March 2013).
- Komolafe-Opadeji, H. and Haliso, Y. (2012), "Defective information services in Nigeria's academic libraries: is marketing the way forward?", *Ozean Journal of Social Sciences*, Vol. 5 No. 3, pp. 79-86.
- Mayega, S. (2008), "Library information services in the digital age", *Fourth Shanghai International Library Forum (SILF 2008)*, Shanghai, 20-22 October.
- Mishra, M.K. (2009), "Use and importance of the internet at the University of Maiduguri, Nigeria", *First Monday*, Vol. 14 Nos 2/3, available at: <http://firstmonday.org/ojs/index.php/fm/article/2301/2118> (accessed 5 October 2014).

- Momoh, M. and Abdulsalam, D.O. (2014), "Information management efficiency in universities in Northern Nigeria: an analysis", *World Journal of Social Sciences*, Vol. 4 No. 1, pp. 107-116.
- Nworgu, B.G. (2006), *Educational Research: Basic Issues and Methodology*, 2nd ed., University Trust Publishers, Nsukka.
- Nwoye, S.C. (1981), "University of Nigeria Nsukka Libraries: brief for the proposed new library building at Nsukka", *Nigerian Libraries*, Vol. 17 Nos 1/2, pp. 36-47.
- Oghenekaro, A.P. and Olakunle, A.S. (2015), "Client retention in a competitive environment: the information perspective", *Pyrex Journal of Library and Information Science*, Vol. 1 No. 1, pp. 1-4.
- Ossai-Ugbah, N.B. (2010), "The impact of automated library services and usage on student's academic performance in Nigerian universities", *International Journal of Library and Information Science*, Vol. 2 No. 9, pp. 169-176.
- Riju, J. (2014), "Knowledge and skills for the digital era academic library", *Journal of Academic Librarianship*, Vol. 40 No. 2, pp. 163-170.
- Riley-Huff, D.A. and Rholes, J.M. (2011), "Librarians and technology skill acquisition: issues and perspectives", *Library and Information Technology*, Vol. 30 No. 3, pp. 129-140.
- Sharma, P.L. (2011), "The changing role of librarians in digital library era and need of professional skills, efficiency and competency", available at: <http://hdl.handle.net/123456789/2443> (accessed 10 August 2014).
- Solanki, M.R. (2014), "Challenges for academic library in the 21st century", *International Journal of Research in Humanities and Social Sciences*, Vol. 2 No. 1, pp. 22-24.
- Umar, L. (2011), "Customer retention strategies for information services delivery in university libraries in the Northwest states of Nigeria", *Samaru Journal of Information Studies*, Vol. 11 No. 1, pp. 67-75.
- University of Nigeria Nsukka (UNN) (2013), Annual Report, University of Nigeria Press, Nsukka.
- Uwaifo, S.O. and Azonobi, N.C. (2014), "Factors militating against the use of the internet by postgraduate students", *Journal of Library and Information Science*, Vol. 6 No. 2, pp. 14-18.

Further reading

- Choi, Y. and Rasmussen, Y. (2009), "What qualifications and skills are important for digital librarian positions in academic libraries? A job advertisement analysis", *The Journal of Academic Librarianship*, Vol. 35 No. 5, pp. 457-467.
- Ezema, I.J., Ugwuanyi, C.F. and Ugwu, C.I. (2014), "Skills requirements of academic librarians for the digital library environment in Nigeria: a case of University of Nigeria, Nsukka", *International Journal of Library and Information Science*, Vol. 3 No. 1, pp. 17-31.
- Yaya, J.A., Achonna, A.U. and Osisanwo, T. (2014), "Competitive intelligence: a tool for effective job performance in academic library", *Sky Journal of Educational Research*, Vol. 2 No. 4, pp. 20-27.

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