

Implication of ICT's in Libraries of Higher Education Institutes: A Panacea Catapulting Library Development in Africa

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ABSTRACT

The Information Age transformed developed nations in the tale end of the 20th century, and now is poised to have an equally dramatic effect on developing nations. Information and Communication Technology (ICT) has helped higher education libraries improve the provision of library and information resources and services. African libraries are also adopting ICT to improve and also give a positive impact to the development of research and information utilisation. The key success factor of this implementation is mainly of availability and the good quality of grade of services, adequate resources, and communication infrastructure. The paper has analysed the efforts made by the higher education libraries in Africa to recognise, restructure and re-oriented the library facilities and personnel with ICT adoption. In addition, the paper also highlights the various efforts to establish networking and consortia among the libraries, and the implications that could be derived by applying ICTs into higher education libraries. The paper also highlights the reasons why ICT application is taking a snail speed in library development in Nigeria and provides the solutions as a panacea for library development in Africa.

Keywords: Information and communication technology, Africa

1. INTRODUCTION

Seeking access to library resources and information services in higher education libraries all over the world is undergoing tremendous transformation, especially with the advent of information and communication technology (ICT) as tool and enabler. This changes and transformations clearly indicate that there is a dramatic shift from the traditional approach to information provision, access, retrieval, and management to modern methods where computer technology plays a significant role. The application of ICT into the higher education libraries has promoted the information seeking and made it more meaningful, where users can stay in their homes and classrooms to access and interact with the librarians and receive information without physically visiting the libraries.

ICT was in the past very mystified. It was extraordinary and belonged only to the experts and specialists. Yet in the past 10 years, ICT has transformed learning, information organisation, retrieval and dissemination regardless of the distance, removing inhibitions, obstacles, and challenges that were thought

insurmountable¹. It is therefore not surprising that the modern curriculum of library and information science LIS schools, instruction and education policy, library educators and practitioners and LIS students all over the world have been swept off-balance by the new technological transformations taking place around the world. At the LIS schools, methods of instructions and delivery of teaching have been transformed with the aid of ICT and students' learning outcome and performance is changing with aid of the technology; thanks to the Internet as a tool for learning, research and education². Library professionals are today finding it easier to discharge their responsibilities using ICT; they provide and share information without any difficulties, thanks to the information superhighway that is offering many possibilities³.

21st century is the information and knowledge era characterised with the use of ICT to promote teaching, research and learning. Unfortunately, libraries in Africa (Nigeria) are list terms of ICT due to diminishing funding of higher educational institutions, coupled with increased students' enrolment which has led to a decline in the quality of education and library development⁴.

Although, this is an African problem, but it seems it is most prevalent in Nigeria. Higher education libraries in Nigeria are now only a shadow of their former glory. The quality of scholarship and of the knowledge generated is constrained by the limited exposure of Nigerian scientists, academicians, and the scholars to current literature, adequate resources and the use modern technologies. This has resulted in their isolation from global discourse and trends in their fields⁵.

In Nigeria, and most of the countries in Africa, awareness to ICTs started gathering momentum two decades ago. The early exposure came through lecturers, researchers, academics and students who studied abroad and had opportunities of attending conferences on ICTs. This situation is similar to other universities in most of the developing countries. This position is not a surprise, because Nigeria and other countries in Africa have no specific policy for ICT in education. It was only in February 2007 that the Federal Ministry of Education in Nigeria created its ICT department⁶.

2. ICT AND LIBRARIES OF HIGHER EDUCATION INSTITUTES

Higher education libraries today are in an irreversible transformation; technology is spreading every where, even in the academy. The major changes brought by the ICT is the transformation of the higher education libraries into knowledge repositories, and network environments. This concept of the “new” pedagogy has been adopted by the governments, organisations and institutions of learning. The impact of ICT on library development can be felt at different level. Some examples of the ICT applications include libraries services, administration, teaching, resource sharing, and networking⁷. In a nut shell, a semblance of ICT application exist, at the unit levels of the libraries, rather than departmental, and these units are more in the universities and research institutes rather than other higher institutions of learning.

Today, ICT is changing the work of libraries and information centres more than ever. The libraries in the higher education of Africa need this technology because of the advantages these bring. Applying ICT in library processes will increase number of usage of library resources and patronage. A greater demand for library materials, an increase in the amount of material being published, new electronic formats and sources, and the development of new and cheaper computers are some of the reasons for the growing need for ICT in the African libraries. Adebisi⁸ stated that “the application of information technologies in Nigerian higher education libraries has today become an acceptable norm and the

most realistic way and means of providing timely, accurate, and efficient information services. This statement is true because the manual process of rendering services in our libraries is becoming more frustrating due to inefficiency of the library staffs.

According to Seifer and Mihalyuk,⁹ Wide spread use of technology is changing the way we work, learn and communicate even the way we carry out our regular daily activities. Based on reality, ICT application in library activities has the ability to change the pattern of information resources access and utilisation, it will also made research and teaching simpler than before. Similarly, Gilbert and Green¹⁰ lamented that “over the past decade, and in particular within the past five years, information technology has become common with the academic enterprise including libraries”.

Today growing numbers of higher institutions in Africa are bringing ICT into their instructional and library activities. Emerging uses of the Internet, as tool for research and information container, and access by faculty and students, especially the new practice of using E-mail to enhance communication, share information and research delivery among students and faculty may provide ways to change the structure of the fundamental business of higher education libraries. Bonzi¹¹ found access to database and use of computers as engine of development in research and facilitators to faculty research/production and dissemination.

Commenting on the role played by ICT in library services, Vitalicy¹² opined that: “networking has made it possible for computers to be connected locally in an institutional or department to form what is referred to as an Internet network”. Looking at the global trend today, universities or higher institutions are now expected to contribute to the development of society by widening access to information via research output, continuing professional development, applied research, contributing to local economy impact and improving social inclusion. Information technology however, provides access to all these.

With all the benefits of ICT there is an issue of “digital divide”—the gap between those who have access to technology (telephones, computers and, increasingly, the Internet) and related services and those who do not have access to these resources. This digital divide exists at all the levels of society, e.g., developed countries vs developing countries. ICT has always been a vital feature of the move towards knowledge society. Now it has become a new tool for information access, organisation, and deliver better services to students and researchers to achieve good learning abilities, but its implementation in higher educational system in Africa

especially in Nigeria is far behind compared to other developed world or developing countries. So far, people awareness of the importance of ICT in Nigeria is not well-known. Some reasons behind this problem can be: understood as low computer literacy, lack of computer resources as well as the limited access to Internet in prime cities only and slow connection¹³.

Convergence of computer and communication technology has brought changes in the social life of people in obtaining and exchanging the information. ICT have the potential to create new types of professional activity and employment opportunities, and enhance the quality of librarians. They have changed the nature of work of librarianship, the range of occupations and skills requirements, making it necessary for librarians and emerging librarians to acquire a broader and more adaptable knowledge base on ICT. Nowadays, ICT terminology, with e- as a preceding letter for short of electronics widely used in many applications, such as e-cataloguing, e-services, e-resources, e-learning, e-databases to mention but a few.

3. EFFORTS AND INITIATIVES IN ADOPTING ICT BY AFRICAN LIBRARIES OF HIGHER EDUCATION INSTITUTES

ICT, as an information and knowledge-based tool, has vast potential for participation, networking and advocacy among African higher institutions libraries. A few libraries have CD-ROM access, but no initiative has been taken to produce information products on CDs. Some libraries have an online connection and are providing external resource sharing on a limited scale. Only a few libraries have started networking or resource sharing or have used the telecommunication system for data transfer¹³.

Despite the development of ICT and the plethora of efforts and initiatives in applying and adopting ICTs in higher education libraries, it is surprisingly that not much has been achieved in African higher education libraries. Such evidences suggested that, the progress made by libraries is very uneven, both among and within countries. According to Rosenberg¹⁴ some university libraries in Africa have embraced the ICTs and made them available to users, others do not have the necessary infrastructure and adequate funding to acquire these. Libraries, which automated some years ago have not been able to upgrade to new systems, so offer only limited services. Libraries, which have advanced the digital facilities have yet not user needs in the digital world and the possibilities of a more dynamic interaction with ICTs. The philosophy of the academic library as a passive repository remains dominant. The necessary changes in service provision and staffing

structures have not taken place. Librarians themselves have not had the opportunities to critically reflect on what has already been developed and express their priorities for the future with regard to digital libraries¹⁴. Few areas of ICT application in African higher education libraries are discussed below:

3.1 Library Automation/Computerisation

One of the key areas where African higher education libraries made giant stride is library automation and computerisation with a view to reorganise, restructure and reorient the library facilities. Various efforts were made in the acquisition, organisation and circulation units of the libraries to manage, acquire and organise the library materials by electronic means (i.e. automation or computerisation). This was accomplished using specialised library management system or software, with modules for cataloguing, acquisition, loans, serials and OPAC, etc.

In a study Rosenberg found that, library automation began in the early 1990s¹⁴. However, the majority of the libraries have still not completed the process. Most of the libraries in the universities began with cataloguing, but have neither finished that nor moved onwards to other processes. While other libraries have not yet started any automation. Rosenberg further stated that libraries that started the process of automation early are not necessarily those that have successfully completed the process. Unless one could afford to migrate onto new and updated systems, the early start could be a disadvantage. The fully automated libraries are those that either started late with donor assistance or have secured funds to migrate to up-to-date systems. Libraries, which became fully automated in the 1990s but could not afford to migrate find their current software very limiting.

The study of Chisenga¹⁵ on the application of ICT in libraries, found that, although most librarians had Internet connectivity, almost none were offering web-based information services to their users. Lack of funding remains problematic in developing ICT services.

3.2 ICT Facilities

An adequate ICT infrastructure could be a significant factor for understanding the efforts made in applying or adopting ICTs in the African higher education libraries. Evidence from researches has shown that the number of computers provided by each library for public use are not adequate. The findings of Rosenberg shows that 85 per cent of the libraries provide less than one computer for every 100 students and 36 per cent provide less than one computer for every 500 students.

The proportion of library computers connected to the Internet is also much lower. Only 35 per cent of libraries have 75 per cent or over of their computers connected to the Internet, whilst 15 per cent of the libraries are not connected at all.

Okhiria¹⁶ stated that, National Universities Commission (NUC) in Nigeria, as an agency responsible for registering and regulating universities, has prescribed the ratio of personal computer ownership as 1 PC to every 4 students, 1 PC to every 2 lecturers, 1 to persons below the grade of Lecturer, 1 PC to Senior Lecturer and 1 notebook to Professor/Reader. While some universities have met this PC-lecturer ratio, but are unable to meet that of students. Some universities have equally made giant strides in campus wide area networking and e-learning course deliveries¹⁶.

Other ICT facility that existed in the libraries is VSATs, which currently is the most popular method of connectivity in Africa. An OSIWA project in Nigeria is connecting libraries by VSAT and the library consortium in Malawi. Libraries with older established connectivity tend to use leased lines, which connect to VSATs eventually. Speed—with computers grinding to a halt especially in the afternoons—was said to be more of a problem than reliability, although the latter was severely hampered by power cuts in some countries.

Other efforts and initiatives in adopting ICT are in the area of training. Several LIS departments in African institutions have reviewed their curriculum and integrated ICT courses to form part of core courses.

4. NETWORKING AND CONSORTIA ACTIVITIES IN AFRICAN LIBRARIES OF HIGHER EDUCATION INSTITUTES

Enormous efforts and progress has been made in networking and establishing consortia in higher education libraries in Africa to provide access to growing quantities of information resources now produced in electronic format. Support has been provided in setting up the necessary networked infrastructure and providing the requisite hardware and software by different organisations. Most of the libraries received their e-resources either from funded programmes or free of charge (open access, accompanying other material, etc.).

The chief donors were listed as INASP through PERI, eIFL, WHO, FAO, CTA, TEEAL. (The funders of PERI include DFID, NORAD, Royal Danish Ministry of Foreign Affairs and Sida.) UNESCO, and Mc Authur Foundation. Negotiation with publishers has resulted in journals and databases being made available free or at

heavily discounted prices through programmes like AGORA, eIFL, HINARI and PERI.

The PERI programme offers access to over 14,000 journal titles from 11 publishers plus approximately 20 databases, with country licences available in nine countries (Ethiopia, Ghana, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe). Almost all the countries have access to *African Journals Online* (AJOL), which hosts the tables of contents and abstracts of more than 200 journals, with links to full text of over 80 titles. The HINARI (health journals) and AGORA (agricultural journals) programmes are available in all countries, whilst the eIFL programme includes some journal packages, in particular EBSCO with over 10,000 titles.

Regarding consortia, efforts were made by individual countries such as South Africa, Nigeria, Kenya, and Botswana. In Nigeria, the Nigerian University Libraries Consortium has negotiated with the Education Tax Fund to pay for the subscription to EBSCO for all higher education institutions in Nigeria from 2005 onwards. The National Universities Commission in Nigeria is perhaps the nearest that African countries have got to establishing something similar to INFLIBNET. A Nigerian Digital Library is underway, with a lot of local resources digitised and put on the website with plans to establish a national virtual library. In South Africa, similar forces have transformed the country's library and information services sector with the establishment of the first formal library consortium.

However, in most African countries, there are no consortia that could carry out this cooperation and networking among the libraries. Consortia in South Africa have certainly taken on roles wider than cooperative purchase of e-resource licences. They have organised purchase of common library management software, established union catalogues, provided training, and designed a common information literacy course for students. However, consortia in other African countries are in their infancy. They would require a lot of support and the funding of paid rather than voluntary staff, if they were to expand their role.

5. IMPEDIMENTS TO ICT APPLICATION IN AFRICAN LIBRARIES OF HIGHER EDUCATION INSTITUTES

ICT is not very well spread and utilised in African institutions of higher learning, especially in Nigeria, mainly because of poor communication network, limited access to ICT hardware and software, and government's ineptitude to provide adequate funds to run the libraries. This consequently has made an injury

to the educational system and its development in Nigeria and Africa in general. There are recognised ICT-related knowledge gaps or digital gap so to say between Africa and the West. In Nigeria, policy makers are increasingly calling for the need to go for ICT in higher education, and not be left behind. Due to the scramble, traditional approaches to information access and provision are being abandoned, before even the efficacy of these ICT fads in library activities are proven.

There is no doubt that the application and use of ICT in African higher education libraries is increasing but at chameleon step which impose several problems among which are:

- ✘ A serious neglect of ICT resources acquired over a period of years, which need upgrading or are out of usage. They differ in models, ages, efficiency, compliance with latest software and other characteristics and this increases the complexity of managing the ICT resources.
- ✘ There is crunch trained and experienced technical personnel to manage, control, and maintain available ICT resources, this means that their utility values, effectiveness and efficiency, cannot be ascertained.
- ✘ There is lack of theoretical knowledge, practical management, control and maintenance of these units being managed, controlled and maintained virtually on *trial* and *error* basis. Some of the technicians are untrained or semi-trained in the real sense.
- ✘ Most of the ICT technical staff are cross breed from other technical fields such as electronics, librarianship or mechanics, that switch over to managing computers, creating a continuity and credibility gap between professions.
- ✘ ICT users in Africa are yet to fully become accustomed and to familiarise with the new ICT technology so as to appreciate and make it one of their own daily instruments for information access and delivery.
- ✘ There is lack of computer culture in the African higher institutions libraries which impedes rapid diffusion of the new technologies.
- ✘ Lack of knowledge on the importance of ICT is another biggest problem facing the African libraries.
- ✘ There is lack of access of ICT to all members of staff and students. More often than not, the African

higher education libraries are competing against some back street Internet cafés and dubious ICT centres.

It must be noted that the manner in which ICT was introduced in African libraries was unsystematic, and this is a major problem. It was initially a gradual process, uncoordinated, and in most cases disorganised. The library management often had little control over the acquisitions of ICT as agreements were largely made by the federal government and contractors or bilaterally between international agencies and the respective departments concerned. Up-till-now, there exist very low budgets for the development and management of ICT in libraries and LIS departments leave alone the main university expenditure. This points to lack of recognition by the university management of the importance of ICT to the organisations. Often, there are no policy frameworks, at either organisational or national level, to guide the adoption of this technology to realise its full potential benefits. These, among other problems, causes the ill development and have rendered the application of ICTs into libraries very slow that its impact cannot be seen or measured.

6. ICT AS A PANACEA TO LIBRARY DEVELOPMENT IN AFRICA

With the dwindling financial support, it is unlikely that things will improve much. These examples clearly highlight the ICT-related predicaments faced in the African higher education libraries, and also that the solutions attempted to date are inadequate and lack relevance. One concludes that there is a compelling need for alternative solutions to the ICT problems found in African continent.

ICT application has brought new changes in the library process, but the pleasures they are causing do not seem to pervade the entire members of African higher institutions. It is mainly the youth who are really interested. Of course ICT is a tool; it is a facilitator of research and information delivery. Everyone can use the ICT equipments, especially computers and the Internet like any useful device. One however needs to be literate. It has been argued that application of ICT's in higher education libraries does not carry the obverse dialect of panaceas and instant fixes now deluging the modern development. Carnival of ICT in libraries is now dominating and overtaking our daily lives. ICT is panacea because it incite, in a greater sense, new tasks and new challenges for the practices of information providers, designers and users pedagogy more specifically. Indeed, we are being compelled at every point to reconsider what pedagogy means in these circumstances.

ICT application to higher education libraries is a panacea not a magic solution. Not everything works and nothing is easy. There are no “push-button” solutions. For higher education libraries to be effective, specific technology must be carefully matched to the need and the environment. Significance of information revolution will equal that of the Industrial Revolution of the 19th century. At that moment, having coal and iron ore and the ability to harness them in steel mills was the critical step. Using this raw material to build better looms and spinning machines established the comparative advantages which put some European countries ahead of the rest of the world. Today, ICT revolution or information revolution is the turning point which will lead to information society. Information society is a knowledge society that is characterised with the use of technology to pursue development.

Clearly, applying knowledge to everyday business means that the people must understand and master the requisite technologies. This requires creating a labour force that is capable of dealing with information technology as panacea as such governments-in-charge of higher education in Africa needs to bear the following in minds which serve as a panacea to the library development in Africa.

- (i) It is imperative to transform the nature of LIS education toward building higher-order cognitive skills, more inquiry and project-focused modes of operation, and more collaborative working styles, and toward creating “smart library professionals”.
- (ii) ICT can play an important role in the process of librarianship: By opening access to a wealth of information, by facilitating the process and by engaging the interest and attention of the users.
- (iii) “Technological fluency” may stand alongside as one of the essential skills for a successful life. Word processors became the paper and pencil of the information age. Spreadsheets replaced the slide rule of engineers and the calculating machines of office workers. Databases replaced cabinets and shelves full of papers. Those unable to operate these new tools are handicapped in the modern world.
- (iv) Technology provides no “magic bullet.” Indeed, the introduction of technology on a large scale often creates new problems to be addressed. There is a price to be paid. The ticket for admission to information technology is expensive. In addition to resources, it requires concerted effort on the part of many actors in society. This is no minor challenge.

- (v) The goal should be the “mindful introduction” of technology into library operation, not flooding the mind and the school system with everything that technology can offer.

The cemetery of failed experiments is large. Supply-driven initiatives, the result of enthusiastic salesmanship on the part of technology zealots, do not work. Not all things work in all contexts. Selectivity is essential. Understanding what the new technology can offer in each case is vital. Successful experiments start with a well-identified need, for which new technologies may be the appropriate answer. Most experiments to introduce ICT have taken place in mature and rich economies, where the resources are ample and the librarians are well qualified. But the path for African countries, which lack those resources, remains largely uncharted.

Panacea, African countries should focus, first on areas where technology has been clearly shown to be cost-effective in library operation. Several countries have had ample experience with the use of interactive radio, with broadcast television and with satellites. Indeed, broadcast radio and television have respectable and predictable cost-effectiveness in many areas of basic library operation.

They have been shown to be effective at early ages. They tend to enhance equity, since they can reach a large pool of users and youth at modest per-participant costs. In several cases, these initiatives have been created and supported by the private sector, unburdening the governments from their everyday operations and their costs. However, these solutions work best when integrated into national educational strategies.

7. CONCLUSION

The rapid technological developments that portrayed the present information age have left a great impact on higher education libraries in Africa. The winds of technological change have been blowing in our direction not only in the universities but even at secondary and primary education. The ICT now is playing a momentous role in the development of libraries. Even though, the technological absorption has been slow and full of hitches; understandable because of the differences between developed and developing countries.

It can be said that much of what ICT has to offer and its potential to the higher education libraries has not yet been fully deployed and exploited in African universities. Lack of funds has been a serious impediment in the course of ICT acquisition, adoption, utilisation, and management. Outdated technologies that were first

acquired in early 1980s, through 1990s are merely guarding our libraries, thereby creating systemic complexities that are increasingly becoming difficult to sustain. Some universities have achieved a high degree of development with respect to ICT, in particular the acquisition of hardware and software and the setting up of local area networks (LANs) mainly as donations. It should be noted that technological changes take place very often and there is a clear need to keep abreast of the changes when they occur without losing out on quality. However, this process is either not well-established or if established it is not enforced, hence and its introduction and application will improve the quality of service to users. This would enable the integration of a range of ICT's in the enhancement of activities into the library operation with range of multimedia resources, as well as through a web environment.

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