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Academic Libraries and ICT Development in Nigeria's Tertiary Educational System

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Abstract

In this information age, without doubt Information and Communication Technology (ICT) has given and is still giving shape to librarianship and libraries. Nevertheless, the new librarianship is also shaping the architecture and design of Information and Communication Technology (ICT) to suit the profession thus, providing librarians/information scientist with the challenge to constantly review and adjust their skills, technologies, services, and methods of outreach to clients. In this work, we attempted to gain an understanding of the current and potential impact of ICT on Nigeria tertiary educational system. This work identifies and emphasizes the essence and valuable objectives of ICT development in relation to academic libraries. Modern university libraries employ ICT to speed up their daily activities and to reduce their operating costs hence, this work reveals and thrashes some related issues like challenges faced by librarians, university libraries, and Nigerian library association in the development and implementation of ICT in librarianship and in the sphere of educational system.

Keywords: Academic Library, Information and Communication Technology (ICT), ICT Development, ICT Implementation Challenges.

Introduction

Information and Communication Technology (ICT) has had tremendous impact on all sectors of human activity. It has brought enormous changes and radical transformation in the functioning and management of modern libraries, especially the university library. It has profoundly changed library operations, information resources, services and staff skill requirements and users' expectations.

In the last two decades, Libraries worldwide have undergone significant metamorphosis – from a purely traditional model of manual service delivery system to a more dynamic technology driven system. In Nigeria, this change has become more manifest only in the new millennium. Like a cyclone, the technology-driven environment has enveloped the university library system and is taking it to unprecedented heights in knowledge resource acquisition, management, and communication. Akintunde (2004) observed that, even the vocabulary of librarianship is changing: 'dissemination' is being replaced by 'communication', 'repository' by 'database', 'literature' by 'knowledge', 'search' by 'navigation', etc. This reflects current approach to packaging and the tools used for managing knowledge. Knowledge itself has become more ubiquitous than was ever imagined twenty years ago.

Academic Library

An **academic library** is a library that is attached to an academic institution above the secondary level, serving the teaching and research needs of students and staff. These libraries serve two complementary purposes: to support the academic curriculum and to support the research needs of the university faculty and students. Like any other concept, an academic library has been defined in different ways by different authors. Ekere (2006) describe an academic library as an important agent in the pursuit of academic

excellence in higher institution. According to Tabs (2003), an academic library is an entity in a postsecondary institution that provides all of the following:

- An organized collection of printed or other materials, or a combination thereof;
- A staff trained to provide and interpret such materials as required to meet the
- informational, cultural, recreational, or educational needs of clientele;
- An established schedule in which services of the staff are available to clientele;
- The physical facilities necessary to support such a collection, staff, and schedule.

From the above explanation, it is clear that an academic library is organized to meet and to serve the information needs of the undergraduates, post-graduates, lecturers, and other members of the University community which Abubakar, 2007; and Ifidon 2006 opined. For the undergraduates, the library is supposed to provide information materials and services specifically designed to meet their needs. For the post-graduates students, teaching staff and research fellows, the University library are supposed to provide information resources and services of sufficient quality and diversity to support their research interest. All over the world, pieces of information are generated every second in their millions and they are scattered all over the place. Unless conscious effort is made to acquire this information and package them for easy referral, they may be lost to humanity forever. The academic library performs the function of organizing information and making it accessible. It also promotes the development of reading skills and encourages

long term reading interest and habit.

Information and Communication Technology

Ebijuwa (2005) and Toanyakoha (2005) both define ICT as "tools and as well as means used for collection, capture, process, storage, transmission and dissemination of information". Information and Communication Technology (ICT) can therefore be described as a range of technologies for gathering, storing, retrieving, processing, analyzing and transmitting information. Advances in ICT have progressively reduced the costs of managing information. It enables individuals and organisations to undertake information related tasks much more efficiently. Such advances have equally introduced innovations in products, processes and organizational structures.

Akintunde (2004) defines ICT as a terminology which has overtaken Information Technology (IT) because of its appropriateness and its relevance. He went further to say that information technology was the terminology used in the 80s and the 90s but since this decade, Information Communication Technology (ICT) has taken over.

From the above definitions, we can understand that the convergence of three strands of technologies such as computers, microelectronics and communication constitutes the Information and Communication Technology (ICT) for the purpose of acquisition, processing, storage, analysing and disseminating information in all its forms (vocal, pictorial, textual and numerical) in the library and its application to all aspects of our lives, including the office, the factory and the home.

Objectives of ICT

ICT plays an important role in storage,

retrieval and dissemination of information to users via developments such as economic storage capacities of files on video disc, telecommunication and satellite communication facilities, etc. One of the objectives of ICT as stated by Suriya (2011) is to provide better means of transmission of data in the form of written or printed records, electronic, audio or video signals via wires, cables and telecommunication techniques. Secondly, the main objectives of ICT in an Academic library or Information Centre is supporting information-handling system (such as information storage, retrieval, dissemination e.t.c.) especially in academic and research works. Furthermore, it supports the technical works of libraries such as technical processing, circulation services, and supporting management information services for librarians, especially analyzing library statistics. Also, ICT supports orientation courses for practicing librarians, supporting correspondence studies and library extension services and continuing education programmes for teachers of Library and Information Science.

ICT Development

Information and Communications Technology (ICT) as a terminology has overtaken Information Technology (IT) because of its appropriateness and its utilitarianism. Whereas IT was used to describe the new technology in the mid-80s up to mid-90s, focusing on the computer, ICT since the beginning of this decade, is a new concept that emphasizes the use of technology for development. Information and Communications Technology emphasizes the use of the computer and other technologies such as telephone to process, transport, and transfer voice and other data singularly or mixed with least interference or distortion of content.

According to Akintunde (2004), Information and Communications

Technology Development is therefore an attempt to improve on the various modules of the technology towards higher level of convergence, in order to respond more effectively to the need to communicate data or information. The improvement is more efficient if it involves both users and the industry. Users like librarians and their clients provide feedback to the industry on their products.

The appropriateness of different ICTs in various cultural settings is also considered under ICT Development. For instance, where real-time online Internet access is affordable and normative in more developed societies, countries like Nigeria do not have sufficient national and private infrastructural support for this. The support includes human and material resources such as skilled manpower, electricity, and telecommunication services. The awareness of ICT technology and resources also varies from culture to culture. So, ignoring these support may only lead to frustration in ICT development.

However, ICT Development goes beyond the improvement of technology and providing necessary infrastructure. It includes the adaptation of ICT by librarians and other users in effectively and efficiently delivering services to clients. It also involves the training of clients in the effective utilisation of ICT resources. Thus, librarians and clients require training from time to time on current ICT technology and resources.

Information and Communication Technology Development therefore encompasses both the human and material effects and counter effects of the deployment of ICT. It results in better adaptation and uses of the technology (Akintunde, 2004).

Academic Libraries and ICT Development

University libraries as tools for ICT Development therefore raise a number of critical issues. One of these is the role of the university library in appropriating ICT.

Another is the causative effect of the library's use of ICT.

The University library uses ICT in several ways, such as:

- Management of Library Administration;
- Processing of library materials;
- Developing online resources;
- Accessing online resources;
- Developing offline resources;
- Accessing offline resources;
- Providing service to clients.

These services require appropriate software as well as equipment. In the recent past, an increasing number of university libraries in Nigeria have bought off the shelf software for cataloguing, circulation, and, even complete management of the library. Many of these softwares were developed outside the country but purchased from country representatives of the vendors. This is more a case of technology deployment than development. The problem with this approach is that skills in the maintenance of such software are not really developed. However, the training usually given to library staff to operate the software is a measure of skills development, even though the creative instinct is not essentially stimulated.

In accessing online resources skills of browsing and navigation are developed. Browsing is a general survey of sites/resources that are online – usually Internet or Intranet resources. Navigation is a more systematic assessment of online resources. Skills developed during these processes include the use of Universal Resources Locators (URLs) as well as Portals creation. Portals are most useful sites that have been aggregated into a folder or another site developed, such that easy access to the resources is enabled. In the process of developing both online and offline resources, librarians learn to create and manage personal

and subject web sites. This is a skill that is continuously required from librarians in the digital age. In the process of developing this skill, exposure to the different software and applications such as dream weaver, Hypertext Mark-up Language (html), FrontPage, java, and visual basic for developing web sites are acquired. The ability of librarians to acquire these skills and deploy them in their jobs saves a lot of money for the institution because there would be no need to hire and pay a consultant to do the tasks. Furthermore, it is a human capacity building approach for the library. The skills can be transferred to other libraries through cooperative approaches. In other words, the entire library system gets developed in ICT in the process.

On the causative effect of the library's use of ICT, experiences like that of Bingham University Karu, proves the extent of awareness of ICT resources and the desire to access and utilise them by the library's clientele. Also, libraries of some Federal Universities in Nigeria like, University of Nigeria Nsukka, Ahmadu Bello University Zaria, University of Ibadan and University of Jos amongst others are leading light in the use of ICT to deliver services on campus. The library's use of ICT – computers, development and uploading of materials on the Intranet, attracts curiosity by lecturers and students. It stimulates the development of websites for most faculties and even administrative units on campuses of Universities in Nigeria.

Librarians play a leadership role in navigating for literature on the web and quite a number have been adequately trained in the use of Microsoft Power Point for making presentations. They have also acquired adequate skills in digitisation. After in-house training, they can now take digital photographs and scan documents for the World Wide Web (WWW). The effect is that lecturers are particularly challenged that librarians could do these and many of the

lecturers/departments could call on the library to train their staff.

One of the ICT facilities currently in use and being demonstrated to lecturers and students is the eGranary which forms the *Widernet Project*. The eGranary is a collection of over Thirty Million documents – full text journals, books with audio and graphics that have been downloaded from the World Wide Web (WWW), with copyright permissions obtained. Each of the documents fully indexed and searchable using powerful built-in search engine. The eGranary Digital Library - also known as "The Internet in a Box" - provides millions of digital educational resources to institutions lacking adequate Internet access (eGranary-Widernet Organisation, 2013). These institutions are able to access full texts in the various disciplines offered in many other universities. Library staff are involved in the development of eGranary, so it helps in sustainability. Demonstration of the technology is being done in the faculties and departments for awareness. The eGranary is on the Intranet, with a back up in the library. Through a process of garnering permissions, copying Web sites, and delivering them to intranet Web servers to partner institutions in developing countries and other places around the globe, it delivers millions of multimedia documents that can be instantly accessed by patrons over their local area networks at no cost. The eGranary is much more than just static information, the digital library contains built-in tools for subscribers to upload and edit local materials as well as create and edit their own websites, which are stored locally.

Report has it that the response of both lecturers and students, to the eGranary especially in academic environment that uses it has been very encouraging. It is a technology that other university libraries in Nigeria and other countries where there is poor infrastructure can benefit from. It saves the cost of bandwidth, Internet access, and

down times, because eGranary is placed in the local Intranet. So all those documents which are current, can be accessed at practically no cost to the librarian, lecturer, or student. The quarterly updating of eGranary makes it a very useful database. Libraries that are unable to subscribe to online books and journals, couple with poor funding for the purchase of hard copies, eGranary as an ICT tool can form the library. It has helped to promote not only the image of the library, but also ICT.

Libraries therefore play a significant role in the development of ICT. In the United Kingdom, for instance, the Durham Public Library has nearly 200 public access computers in libraries within its network. See <http://www.durham.gov.uk/durhamcc/usp.nsf/pws/libraries>. They offer free access to:

- The Internet;
- Email facilities;
- Range of software application including Microsoft Word, Access, Excel, Power Point, Publisher and Coral-draw;
- Scanning facilities;
- Video conferencing.

Also, the Leicester County Council has a similar programme through what it calls "the peoples' network". See http://www.leics.gov.uk/libraries/internet_services/peoples_network.htm. The Tonypandy libraries, on the other hand, have a project, which they describe as "ICT for Learning Project". See http://www.rhonddacynontaff.gov.uk/libraries/whatson_ict_for_learning_project.htm.

These three examples illustrates how even public libraries can be instrumental to the development of ICT by empowering their publics.

The actuality that academic library can be instrumental to the development of ICT, and vice versa cannot be over emphasised. It is thus important to also

consider critical issues, especially in the deployment of ICT for educational development. Hawkins (2004), identified some lessons which are useful for our purposes and also made the following findings:

- Computer laboratories in developing countries take time and money, but they work;
- Technical support cannot be overlooked;
- Non-competitive telecommunication infrastructures, policies, and regulations impede connectivity and sustainability;
- Lose the wires (in other words, go wireless);
- Get the community involved;
- Private-public sector partnerships are essential;
- Link ICT and education efforts to broader education reforms;
- Training, training, training;
- Technology empowers girls;
- Technology motivates students and energizes classrooms.

Proper understanding and internalising of these findings will significantly affect how academic libraries integrate and utilise ICT.

Impediments for Librarians in Nigeria

Librarians, on their part, do have a shift to make too as earlier pointed out. Some of the challenges librarians in Nigeria must face include that of:

- Accepting that ICT can no longer be divorced from the profile of the librarian;
- Training in the use of computers and other ICT resources;
- Retraining in the use of computers and other ICT resources;
- Training and retraining users in the

adaptation, exploration, and exploitation of ICT for teaching and learning;

- Considering and implementing leadership and organisational change to meet up with present challenges.

Since these issues go beyond library budgets, University Librarians may have to focus more on fund raising and project management in order to be effective and efficient in delivering services (Nyerembe, 2001). Librarians will have to be more proactive in utilising ICT. Waiting for sponsorship before embarking on self-development will have to be re-considered. The good thing about ICT is that most of the resources also have "how tos" (operating manual), so that the individual is never left blank about procedures for use.

Impediments for Nigerian Academic Libraries

Academic libraries in Nigeria have the most challenging environment to work with presently. The most immediate demand appears to be that of formulating ICT Policies that will drive the adaptation and adoption of ICT. In a workshop on ICT for Teaching, Learning and Research – A Workshop for African Universities, organised by the Partnership for Higher Education (http://www.foundation_partnership.org), some of the conclusions on the place of ICT Policies are:

- ICT policies create an enabling environment for implementation;
- They are required for optimal transformation;
- They enable the long-term viability and sustainability of ICT use;
- They raise awareness of ICT use in the institution.

The workshop went further to identify

implementation issues as consisting of the following:

- Strategic and operational plans are cyclical and should be considered an ongoing process;
- Setting realistic priorities is important;
- ICT policies should be linked to other policies and strategies within the institution, including a change management strategy.
- Mobilizing sufficient human and financial resources is imperative;
- Piloting draft policies in advance of final implementation might help bring about consensus;
- It is essential to have top management actively involved as ICT champions. But establishing an ICT Policy should not rely on a top-down approach. If all stakeholders are involved, they will feel a sense of ownership.

Another challenge for University libraries in Nigeria is that of ICT budget. This has to be clearly stated as a separate budget head. Information and Communications Technology is a capital intensive investment. Thus, in budgeting, sustainability must be built into it. The formulation and implementation of ICT Policy provides a good background for funding issues. The present funding situation of University libraries in Nigeria will need to improve in order to adapt and adopt ICT. Fund raising involving external funders, collaborative activities and partnerships are therefore inevitable. These are critical issues to contend with if libraries in Nigeria will serve as tools for ICT development.

Impediments for Nigerian Library Association

The Nigerian Library Association has its own challenges as the leader that provides direction to its constituent members. Training

and setting of standards appear to be the more critical issues. Training and retraining of University Librarians, divisional heads of libraries as well as other library staff should be pursued. Standards are important for ICT development because most of the resources will eventually be shared either online or offline. There should be standards for minimum acceptable configuration of hardware, network accessories. These standards will facilitate the sharing of files. There is also a need for standard on the number of library users per computer, and the protocol for online communication.

The association also should have an influence on the Library schools so that the curriculum of library schools in Nigeria would reflect the trend in the global market. Collaborative schemes can also be worked out among library schools so that zoning of specialised ICT courses can be undertaken.

The Library Association can play a most significant role in consortium building as cost of software is very high. Individual libraries might not be able to pay for licenses of their library software. Apart from cost-saving, the platform of consortia can also be used to develop human capacity, which can be co-sponsored by external donors.

Impediments in the Implementation Of ICT In Africa Academic Libraries

Suriya (2011) stated that, some of the barriers facing the implementation of ICT in libraries which after careful research and survey, observed that same is being faced by most African University Libraries. These are:

- Inability of the conventional libraries to cope with the tools of the ICT in library operations;
- Unfamiliarity of the ICT trained librarians with the conventional operations of the libraries;
- Problems relating to the ICT training of the conventional strand personnel and the updating of the technically

qualified strand;

- Shortage of finance, inadequate training etc.;
- Material shortages in hardware and software;
- Confusion in the use of conventional library techniques/procedures and ICT based library procedures etc.;
- Problems of quality maintenance, assurance, standards, comparison, refinement and evaluation of the systems;
- Shortage of professionals in consultancy and institutional expertise (for imparting training in the ICT based skills);
- Problems of access to information faced by librarians and users through networks;
- Other miscellaneous problems include: power failure, lack of telecommunication infrastructure, internet charges etc.

ICT in Academic Libraries and Education

We are in the era of information explosion in which large amount of information is being generated at every moment. The ability to collect, store, retrieve and disseminate large amounts of information needs the application of ICT. New information is a very vital tool or basis for power, possession of which reveals political, economic and social advantages over other groups. If ICT is not acquired and applied, then the society becomes handicapped, because the socio-economic development of a nation depends upon the availability of adequate infrastructure to access the modern information (comprehensive, worldwide and up-to-date) which is an essential ingredient for day-to-day decision-making process. Gopal (1991), opined that a democracy survives only on the Oxygen of Information.

Most of the discussions and initiatives on ICT in Education tend to focus on the use of

ICT for teaching and learning only (Becta, 2004). This emphasis on instructional applications of ICT in education has an antecedent. From the earliest times, educational interest in technology was always centred on the instructional application of such technology to improve teaching and learning. The indispensability of ICT in education research in particular includes:

social and political responsibilities.

Summary and Conclusion

There is a symbiotic relationship between the academic library and ICT, such that any development in ICT accelerates library development. In the same vein, any development in the academic library today can only be through the deployment of ICT. Thus, it is imperative that librarians and libraries in Nigeria in particular, should accept the paradigm shift that has confronted our traditional practice of librarianship. Academic Libraries, more than ever before, have become an integral part of ICT in education, governance, health, and social services. Moreover, the status of librarians has soared because of their abilities and potential to organise knowledge and communicate this in most acceptable format to users.

Reference

- Learning how to optimise the creativity of African Scientists through participation in international networks and working with data sets;
 - Accessing various kinds of research information, which would necessitate a link to the libraries group;
 - Learning new methods for disseminating knowledge produced in Africa and using them;
 - ICT applications run through the entire gamut of the educational research process. The advocacy for the dispensability of ICT in educational research can be further strengthened by the following arguments that tends to underscore the values derivable from applying ICT in educational research;
 - It reduces time and cost of conducting educational investigations;
 - Data sets and library resources can be shared by institutions from different locations;
 - Data sets, irrespective of size can be stored and retrieved when needed;
 - Educational researchers have easy access to current literature materials;
 - Researchers from different locations can collaborate more easily etc.
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