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Application of Technology Resources to Library Information Processing in Academic Libraries in Nigeria

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Abstract

The paper is about Application of Technology Resources to Library Information Processing in Academic Libraries in Nigeria. The electronic age has made users search beyond print media while looking for information resources. Latest research work are sent across the world through electronic means and no serious researcher of this age ever depends solely on print media rather the use of internet, websites, e-mail etc are the language of the day. Functionally, university libraries of the current dispensation provide access to both print and electronic resources to serve users and to increase the visibility of their institutions, and as a measure of prestige. In other words, they must go beyond the border of print collection in information delivery. It must extend to computer resources and other non-print format. The paper concluded that technology resources is indispensable in the 21st century for global access to information materials. Therefore academic libraries in Nigeria must strive to apply these resources to their information processing for total production and distribution of information contents in a quality manner.

Keywords: Technology Resources, Library Information Processing, Academic Libraries, Nigeria

Introduction

The information technology found in Nigerian university libraries today combines computer storage media and telecommunication. In other words, computer does the processing storage and retrieval of information, while telecommunication provides the data/ information from work station to another library. Therefore, ICT provides libraries with capabilities for the location of information, storage and retrieval of information and dissemination of information (Etebu, 2010). Globalization of information is the resultant effect of the advent, application and utilization of information and communication technologies (ICT) for information generation and delivery. The electronic age has made users search beyond print media while looking for information resources. Latest research work are sent across the world through electronic means and no serious researcher of this age ever depends solely on print media rather the use of internet, websites, e-mail etc are the language of the day. Thus, it is difficult to imagine a world without ICT.

Library and information centers in this generation are set out to create access to information not only through print medium but also by electronic means in order to facilitate quick delivery. Both users and librarians benefit immensely from the use of ICT resources in university libraries. Ogunsola (2005) affirmed that it is highly recommended that for survival and relevance of university libraries in Nigeria, ICT should be declared an institutional priority with adequate funding and support. This will make researchers of this age to patronize them for information.

For effective and modern information services, the use of information and communication technology is indispensable. Not only does ICT introduce new ways of information handling, it also brings about change in the very structure of information and its communication concepts like universal bibliography, accessibility to and availability of documents irrespective of location, highly personalized services, matching users needs interests with document databases, full text searches, storage and retrieval with speed and accuracy etc. have all being accomplished to a great extent (Rana, 2008). The students will be able to benefit maximally when the electronic services are in order and the library staff attend to them appropriately.

Technology Resources in Library Information Processing

Prior to the application of ICT to information processing and use in libraries, prints are the predominant of their collections. However, the advent of ICT and its stimulation in libraries have brought about digital resources to support teaching, learning and research. Functionally, university libraries of the current dispensation provide access to both print and electronic resources to serve users and to increase the visibility of their institutions, and as a measure of prestige. In other words, they must go beyond the border of print collection in information delivery. It must extend to computer resources and other non-print format. Consequently, Oketunji (2000) listed ICT resources in library as personal computers, CD-ROM, fax, network, scanners and internet, although, many were left out in the list of the generalities of ICT facilities. However, Ebijuwa (2005) listed ICT infrastructure and tools in the library as internet, telecommunications, world wide web (www), library network and resource sharing, CD-ROM, electronic databases, online searching and e-mail.

In addition, ICT encompasses, a wide range of technology including telephone, fax machine, television, video recorders, CD-ROMs, personal organizers, radio and computer. In several situations, not only a computer and software are use in science research, but digital equipment is connected to computer and used when a digital recording is made, a microphone, digital camera, web cam, computer-controlled microscope and added camera is connected to a computer. E mail, newsgroup, chat room, blogs, wiki, and video conferencing are used for educational purpose. A large number of websites that focus on chemistry were developed for academic purpose. Home project, online book and complete courses in science, physics, chemistry or biology are available on the web. In science research, students use different tool application and also learn what needs are met by theses application and when and how to use different features. For example, the following application tools can be used in science learning, word processing software can be used for organizing idea, writing assignment and project work. Spread sheet can be used to analyze data and modeling. Thus, it is the combination of the software and hardware that form the technologies (Abidoye and Afolabi 2011). Software can be referred to as a collection of related computer programme. It can be seen as the assemblage of computer files and information about the files. It is a repository of different classes of computer programme that are meant for either operation of the computer system (system software) or performing of specific task (application software) (Wikipedia free encyclopedia)

Internet is a vast store of information that can be highly relevant, detailed and up to date. It provides a variety of services such as e-mail, discussion groups, remote control and file transfer which are of immense importance to researchers. Maran (1996), Fajola (1998), Akanmu (2011), Williams and Sawyer (2003), Tinio (2003) and Anasi (2005) in Atuh (2010) listed ICT resources as: Internet (e.g. mail, list serves, world wide web), which help in conceptualizing

research and usage of information, computers (e.g. Pentium III processor, 1.7GHz speed etc) which helps in data analysis, database and preparation of research work and preservation of documents, networks (e.g. Local Area Network, Wide Area Network), online libraries and virtual libraries. Storage devices such as primary and secondary devices (include floppy diskettes, CD-ROM, flash drive) could be used to store large amount of data or information, conveniently carry data or information about, distribute information or packages to a large number of people and in sending and receiving data or information or packages to a large number of people. Presentation system / facilities are used for presentation of research reports which comprise of multimedia or digital projector, laptop / desktop computers, for enriching presentation of research report / facsimile. Eseyin (1997) in Ebijuwa (2006) asserted that users can exchange private messages with friends, publish journals electronically, set up a “show-reading group” and access data in all possible forms: software, bibliographic records, electronic texts, statistical graphs and whole data bank on enormous variety of subjects.

Tiwari (2007), opined that the past brought recognizable information format such as books, journals, film, and other fixed media. However, electronic information resources have taken over now. They include the millions of web pages and databases produced all over the world by individuals, companies, institutions, and government agencies. These creations represent a variety of information types, including descriptive materials, corporate reports, datasets, educational offerings, theses and dissertation in electronic form. Electronic version of traditional journal is being released into the internet for the purpose of research. Many traditional publishers now make their material available in electronic form. For example, Elsevier Science, at <http://www.elsevier.com>, offers electronic versions of over 1000 of its journals. In fact, Elsevier’s full text is made available through The University Licensing Programme (TULIP).

Also many professional associations (e.g., the Association for Computing Machinery, at <http://www.ams.org>) also offer electronic versions of their professional journal. The university library can subscribe to all these sources for the use of research student in sciences.

In relation to information technologies, Anunobi and Okoye (2008) stated telecommunications as devices and techniques used for profit profile, functions, products, facilities feedback, etc while web refers to a body of information is an abstract space by which knowledge are made available via internets. With global resource sharing, multiple users have access to multiple resources from any work station. ICT forms a good channel through which university libraries form a consortium, whether through a consortium or by independent subscription, they now acquire and disseminate electronic portal and databases. The consortium of Nigerian university libraries has subscribed to EBSCO host and different internet portals which include Access to Global Online Research in Agriculture (AGORA), Health Internet Work Access to Research in the Environment (HINARI), Database of African theses and dissertation (DATAD), and many offline databases including MEDLINE. These are global information resources which could be accessed through academic library gateways (Anunobi and Okoye, 2008) .Others are Common Wealth Agriculture Bureau (CAB), TROPAG, ERIC (Educational resource information centre), RURAL POPLINE all these are electronic journals and databases which enhance good research resources.

Use of Technology Resources

As researchers continue to demand for electronic resources for their research, librarians also need to be more aware of the different existing portals for the enhancement of easy access. As such, Zhou (2003) and Lakos (2004) in Gbaje (2007) explained portal as doorway or customized learning and transactional web environment, devised purposely to enable an

individual end-user to personalize the content and look of the website for his or her own individual preference. From the view of O'Leary (2000) in Gbaje (2007) academic library are by far the most prolific creators of library portals both in general and in zone of specific area of library practices.

Gbaje (2007) affirmed that in Loughborough University, a research team notes the benefits of library portal to both user and library staff as follows because it helps in:

- Providing a single point of access to library resources.
- Allowing teaching staff to direct students to useful resources more easily.
- Promoting the resources held by the library, including subscription.
- Improving navigation to library resources.
- Providing more effective access to e-resources.
- Improving service delivery.

With the embrace of modern technology, digitized document are reproduced using latest digitization technologies (such as scanners and digital cameras) and stored in a digital form. Therefore what is digitization? It is therefore, regarded as the conversion of print resources into electronic form meaning that information can be accessed from homes, offices or any workstation connected to the internet server as far as the network is at alert. Digitization has offered the opportunity of global access to digital information on-line and it enhanced the preservation of the material or resources. Also, the issue of space constraint is reduced and resource sharing is easily facilitated. It generally improves access to library resources. Digitization makes the invisible to be visible. Several users can access the same material the same time without any hindrance. It removes the problem of distance as researchers do not have to travel to libraries that possess the hard copies of library materials before they can access and

use such materials. When a library digitizes its collection it is referred to as digital library. A digital library can be made to serve a region. Fabunmi (2006) cited (Mc Cook, 2004) gave example of the South Oregon digital Archives that provides a wealth of research materials on the regional ecology and indigenous people of South Western Oregon and North Eastern California in Paris A large number of libraries in higher education institutions in the developed countries are now digital with the availability of electronic journals and other periodicals to aid to research work for students, lecturer and researchers.

Library Technology Services in Academic Library

Campbell (2006) as cited in Anunobi and Okoye (2008) observed that numerous creative and useful services have evolved within academic libraries in the digital age such as:

- providing quality learning space
- creating metadata
- offering virtual reference services
- teaching information literacy
- choosing resources and managing resources license
- collection and digitizing archival materials
- maintaining digital repositories.

Then, Saka (2010) emphasized that the advent of ICT services have made libraries to be able to preserve their collection through electronic method – information on printed format can now be recorded in computer using CD, diskette, flash drives and through digitization of library collection. And it was added that it is this digitization of library materials that has helped to prolong and preserve their life span. Therefore, it is discovered that library materials and information resources in general are used and preserved better if they are digitized and this can

only be done if the required technologies are in place. Okiki and Asiru (2011) therefore stated that libraries all over the world should make available a wide variety of electronic information sources (EIS) for use by undergraduate, post graduate researchers and staff in their respective institutions. They added that the pressure on the library and information centers is in sourcing, acquisition and repackaging of these sources as well as the provision of necessary guidance to end users.

The ICT approach used in university libraries attempts to deliver numerous applications such as wide-area network applications, local area networks, online information services (the internet), online databases, library databases, CD-ROMs, online access catalogues, retrieval networks (digital online archives), mainframe computers, micro computer labs, and digital content services (Ghuloum and Ahmed, 2011). ICT have brought unprecedented change and transformation to academic library and information services in general. Conventional library and information services such as online public access catalogue (OPAC), user services, reference services, bibliographic services, current awareness and services document delivery, inter library loan, audio visual services, and custom relation can be provided more efficiently and effectively by using ICT as they offer convenience of time and place, cost effectiveness, faster and most up to date dissemination and end users involvement in library process. Due to these advantages, academic libraries should endeavour to keep ICT in focus and it is therefore expected of all academic libraries in Nigeria to provide patrons access to library data bases (internet) and to ensure that information flows from Nigerian institution to the global databases for accessing via internet (Aina, Adeogun and Ogundipe 2010).

There is need of greater use of information resources and information technology to support the vision, mission and objectives of the technologically oriented university to enhance

the quality of services offered. Therefore, having a library computer information system will offer enhanced services in the area of sharing information and communication besides easing access to information resources, courses and faculty member. Thus, Kaftanzoglon (2011) opined that research is mainly carried out by the research centers and public universities and the latter play a most important role, not only in conducting basic research but also in “producing” scientists and researchers. They contribute for 50% of the researcher’s effort. In the light of this, library which is the most conspicuous research center in the university provides resources of various types to enable researchers carry out their research work. Part of these resources is the information and communication technologies.

Researchers make use of ICT product and services for email and document exchange, electronic journals, locate and collect data, for online data bases, career development, preparing manuscripts, proposal and papers, update knowledge, blogging and casual internet surfing. The less used services among both male and female users were web OPAC/OPAC, blogging, and electronic books (Kaftanzoglon, 2011). The ICT has proved to be a great asset to many users. Majority of researchers use ICT to enhance access to current information, improved professional competence, access to wide range of information and quick access to information. Users really feel the emergency of ICT has a great impact on every walk of research and has improved the quality of research. (Patil, 2000).

On a general note, Aina, Adigun and Ogundipe (2010) pointed out that library patrons use e-library resources to search articles, access reference materials, conduct research and send e-mails. Various users visit the library for different purposes. Some come for research work, others just want to read newspapers or magazine and go away. Whenever they come, internet is always a good resource for them to use. Also, Dhanavandan, Esmail and Mani (2008) in a study

conducted analyzed that ICT tools are used by researchers for e-group, e-mail, fax, internet, video-conferencing and voice. They also added that ICT is used for professional settings which include professional issues, developments, update of knowledge, interacting with friends and experts, resolving disagreement, facilitating important decisions, communicating with old friends and keeping confidential or sensitive information. Although, this is the social aspect of the use of ICT in academic environment. The academic reason why most user use ICT is quite different. Some use computer to do arithmetic calculations previously done with paper and pencil, slide rules, abacuses, or roomful of people running mechanical calculator. Benefits offered by the earliest computers were more quantitative than qualitative; bigger computations could be done faster, with greater reliability, and perhaps cheaper (NAS, 2000).

Ozoemelem (2009), analyzing the level and purpose of ICT utilization among some users emphasizes that some of them are experienced with the internet search engine CD ROM topic maps, site maps and online databases. For example, ICT is used to capture and explore experimental data. In this regard, Denby and Holman (2002) asserted that data loggers are used to collect the data and a wide range of data loggers and associated sensors and software have been developed for use in sciences. When it is used effectively, data logging allows students to concentrate on experimental technique and control of variable, and to concern themselves with what is happening in the experiment rather than data collection. They also see trends emerging as the experiments proceeds. Data logging is particularly useful for remote monitoring collection of data on field work. For example, it helps in monitoring very fast changes, slow changes, measuring changes very accurately, measuring changes that are difficult to calculate using conventional equipment such as high temperate, infra red and ultraviolet radiation and gas volume. Data loggers work with special software that enables data gathered to be stored,

retrieved and displayed. Most of the graphs plotting facilities have features that allow students to interact with the data and graphs, sometimes in a very powerful and sophisticated manner.

There is a range of camera devices that can be used among users. They include flexible neck video cameras, digital cameras, camcorders, webcams, and digital microscopes. Camcorders can be used by one group of students during a class practical to record their experiment. The camera can be fixed in place on a tripod, so that there is a clear area of bench in focus on which the experiment is performed. Toward the end of the session, the recorded images can be replayed through a TV monitor or a data projector. Camcorder can also be used as data collection devices with experiments. In addition, cameras are some of the cheapest forms of camera available. They lack the facilities and optical quality of other cameras, but do provide a cheap alternative for gathering electronic images in sciences. They are very satisfactory for recording slow changes and can be used for such application in biology for example. The long timescale of recording that is possible with a webcam can be creatively to extend the boundaries of student experimental observations. Students can connect to the website and view the images using a computer in library and therefore follow the course of the experiment over a weekend or other extended period.

Globally, information published daily is growing larger and it becomes difficult for students to assess and use, if ICT services is not in use. For library to cover a wide subject area and number of patrons with an adequate service, ICT facilities are needed. New services are coming up in library, for instance, union serial lists and catalog and these service are better handled in an online environment as such ICT becomes very important to them. All are being done to make the access to information resources wider and orderly for users' satisfaction.

Consortium of Academic Library Technology Resources

Consortium of library resource has become very necessary for the generation of the present academic libraries. The consortium will ensure that each library has access to the OPAC of other libraries, CD-ROM databases, electronic journals, full text databases, reference resources and important document of other libraries. With this collaboration, the use of ICT as a medium of learning gives learners personal empowerment skills independently. In the library, as researchers are allowed to personally search for information online, they easily gain the skill better on their own and this helps them develop confidence on the use. As such library users need computer and information literacy skills to effectively use the rapidly growing and changing information resources. However, some library users believe that keyboard and mouse operations only enable them to effectively utilize electronic information resources. Unfortunately, this is not the case. A person who knows all computer hardware and software, and every key stroke may not be information literate at all. Although there are some overlaps between Information Literacy (IL) skill and computer literacy (CL) skills. These are different concepts. Computer literacy skills relate to computer hardware and software (keyboard, mouse, printer, file management ,word processing, spread sheet ,data bases, internet etc) while Information Literacy focuses on efficient and effective use of information sources to obtain required information. Hence, lack of information literacy skill has been pointed out as one of the major causes of underutilization of electronic information resources in many African libraries (Emmanuel and Sife, 2008). As a result of this, university libraries are acquiring different ICT

facilities to meet up with the new challenges especially in this 21st century and ensuring to educate the users on the importance of ICT skill for competency in information search and use.

Conclusion

Technology resources is indispensable in the 21st century for global access to information materials. Therefore academic libraries in Nigeria must strive to apply these resources to their information processing for total production and distribution of information contents in a quality manner. As such, they can form a consortium for a wider network of services and delivery.

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