Imperatives of Modern Technology on Service Delivery in University Libraries in Nigeria

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Abstract—**This paper discussed the roles of modern technology on service delivery in Nigerian university libraries. The study discovered the utilization of microforms, computer, online public access catalogue (OPAC), telecommunication and internet for delivering services in university libraries such as bibliographic, user education, selective dissemination of information (SDI), acquisition, circulation duties, user education and current awareness services. The study further revealed some factors militating against the utilization of modern technology in delivering services in university libraries which include poor information communication technology infrastructure, irregular subscription to electronic data bases and lack of information technology skills among the library staff. It was recommended that university management should provide enough money for purchase of ICT infrastructure and that more library staff should be trained in the area of ICT-skills.**

Keywords-modern technology; ICT; University libraries; library services; Nigerian introduction

I. INTRODUCTION

Modern technology is a term that is made up of all technologies that is used for dissemination of information.. The emergency of computers and telecommunication technology has popularized electronic access to information. This is because of the competitive merit of modern technology against the traditional method of rendering services to users with the coming of electronic publishing many library and information material resources are now in electronic format. Textbooks, text of monographs, reference books, newsletters, journals, databases, projects, theses and dissertations are now re-produced and made readily available electronically. In a related study [1] ICT is made up of a link for storing information such as tape, flash, desktop computers, and laptops.

In related study [2] stated that information and communication technology is the technology that has highly influenced information in the area of generation, storage, retrieval and transmission. [3] It opined that information and communication technology is a process that people utilize for information assimilation and dissemination [4].

Effective information service delivery service by university libraries mostly depends upon the computer facilities it has, if a university library lacks computer infrastructure in this technology era then it will fail to meet up with the needs of its users. A lot of information has been made available in different formats such as CD-ROM, online databases and e-journals in view of this it has become important for university libraries to be equipped with adequate computer facilities to enable them serve their clientele more efficiently.

In related study [5], the mandate of libraries irrespective of its type to make available information needs of their users in the area of education, political, social and economic endeavor. A study conducted by [6] university libraries perform important function of supporting the universities to achieve their objective. The ongoing electronic revolution in all fields of information and knowledge management makes it imperative for university libraries to find better ways to support learning and research activities within the academia. The core services in the library now cover new dimensions in librarianship which focus more on access to materials in an online environment. The modern technologies adopted in the university libraries such as computers and telecommunication system performs the duties of cataloguing, classification, indexing and abstracting services.

II. ICT FACILITIES REQUIRED FOR EFFECTIVE SERVICE IN UNIVERSITY LIBRARIES

For effective utilization of ICT facilities, there is need for adequate and reliable electricity supply, good communication system, computers and computer environment, literate computer population and technical expertise to maintain and repair equipment. To deliver effective services in University libraries, there is need for the following tools:

A. Internet

The internet is made up of millions of computers linked together around the world in such a way that information can be sent from any computer to any other, 24 hours a day. A network is a group of two or more computer systems connected together. Aina, Mutula, and Tiamiyu [3] opined that internet is a network that all the smaller networks of

institutions are joined together into one big network known as the s internet.

In technical terms, the internet is the worldwide, publicly acceptable network of interconnected computer networks that transmit data by packet switching, using the standard internet protocol (IP). The internet provides a variety of services such as e-mail, discussion groups, remote control and file transfer. It plays a significant role in education, health, political processes, economy, businesses and newsgroups.

B. Telecommuniction

Telecommunications are devices and techniques used for profit profile, function, products, facilities and feedback. Due to easy accessibility by truly global audience, without any language or cultural barriers, websites after business opportunities and bring about job creation, thereby improving the productivity and per capita income of the nation. According to [7] three phases of telecommunications development influence transition to library information system. These include the host centric, the network centric and the end user centric. In the host centric phase, a single processing unit was the basis of all computing, and users were connected to this through dumb terminals. Dumb terminals are keyboards connected to cathode ray displaying tubes, but without memory or disk storage capacity.

The network centric phase emphasizes shift to connectivity. The distributing of computing devices about the network, along with various terminals and other devices that could be introduced into the network environment resulted into more open design of architecture and computing platforms. This phase witnessed the size of smaller, cheaper, yet powerful computing devices, known as mini computers. This phase was a key to the hovering of the cost of computing down to levels that could be afforded by smaller library system.

The end user centric phase was a result the development of the personal microcomputers in the late 1970s and the wide spread use of personal computing in the 1980s and 1990s. In this phase, which is the current phase, users are distributed across vast geographic distances, connected to resources stored on a number of computing devices called servers, e.g. the internet. The globe is now witnessing the weaving of services with modern library services with the modern library services- access to licensed databases, digital libraries, e-books, e-journals and web- based library portals.

In a related study [8] infrastructural and tools for information delivery include: World Wide Web (WWW), library network and resource sharing, CD-ROM, electronic databases, online searching and e-mail.

C. World Wide Web

The web refers to a body of information - an abstract space by knowledge available via the internet. According to [7], it uses the internet to transmit hypermedia document between computer users globally. People are responsible for the document they author and make available publicly. Many organizations now own their Websites or homepage. Currently, CD-ROM Info bank is playing the unique role of making information available on CD-ROM-catalogues, references, encyclopedia, indexing and abstracting journals, etc.

D. Library Network and Resource Sharing

With global resource sharing, the principle of one product for one user at a time has been replaced by networked products that support multiple users simultaneously and allowing multiple access to multiple resources from any workstation. The traditional ways of sharing information resources through microfilming, photocopying and telefacsimile technologies of the 1970s are out-of-date.

E. CD-ROM

Compact Disk Read only Memory technology has been available for the transmission of information via wire optical wireless or radio wave. These systems transfer variety of information including audio, video and telegraphic data. Telecommunications systems facilitate the transmission of a book that has been typeset through satellite to another location for printing. They can also provide aircraft and trains with information about loads and fuel.

F. Electronic Databases

Databases are electronic collection of information in a structural format (file) created for searching of specific topics. This makes the management of information generated by institutions worldwide easy. These electronic data bases hold the key to improved information databases, there are now over 6000 electronic databases available through online services, CD-ROM, diskettes etc. Each library catalogue is convertible to electronic database.

G. Online Searching

This is an access technology for centrally stored information. Online operates on pay - by - use bases and it has additional merits of powerful retrieval capabilities such as scanning many files simultaneously and multiple file searching and short response time.

H. E-mail

Although this is one of the components of internet connectivity which has already been mentioned, nevertheless it is so important for information delivery that it deserves to be re-emphasized. It is basically used for instant communication. Its special features are internationally connectivity, relatively low price, desk facility, high sensitivity to customers and speedy delivery of mails. Additional human intervention characteristic of traditional mail delivery and distortions of message are completely absent.

III. IMPACT OF MODERN TECHNOLOGY ON SERVICE DELIVERY IN UNIVERSITY LIBRARIES IN NIGERIA

Modern technology has multifarious impact on university library services. The coming of modern technology has brought many changes in the methods used by library staff in performing their duties. Library acquisitions, cataloguing and circulation were done manually through paper, pens and card pockets. Spread-sheets, internal databases and other productivity software was never used to manage library data. Recently, the use of information and communication technology in delivering library services has achieved a breakthrough in many dimensions.

A study conducted by [3] stated that major technological breakthrough in university libraries are:

- The coming of printing press and adequate production of documents which bring about wide spread of information. With the advent of printing press libraries are able to store enough material resources for the users' utilization.
- Microforms aid to conserve less utilized information in compressed space for clear delivery of large volumes of material resources.
- Instant access to information. Users normally enter the library e-resources unit and obtain their information needs within the shortest possible time.
- Technological changes brought new dimensions in the performing of library duties Technology has brought about the use of computer, internet and CD Rom in delivering library services.

Modern technology is highly of imperative in readers' service division of the library. Uhegbu and Igwe [2] It opined that there is no human endeavour in the contemporary world to which computer cannot be applied. In science and technology, engineering, arts or in librarianship, computer application is relevant. The application of computer into library operations such as acquisitions, ordering, receiving, claims and reporting, settlement of invoices, resources movement among users, records of inventory and so on has made library functions a lot easier. Users can access records of library holding with ease using e-library services from millions of miles away.

Publishers, today package their published records in CD - Rom or even in diskette and send to libraries to look at and make their selections. Cost of information materials, new editions, quantity, publishers' addresses, contents of documents etc. can be accessed online. Bibliographic details and the contents of library sources like bibliographies, year books, annuals, guide books, dictionaries, etc. have had their contents computerized in most automated systems. Even contents of published journals can be found in the computer. All one has to do is to access it online.

Readers' services are benefitting from the immense advantage of computerization. Library catalogues fed into the computer will be able to understand and use library resources prepared and fed into the computer instead of preparing manuscripts that may be affected by weather and climatic change as well as loss either due to human carelessness or misplacement. When any strategy such as user awareness, bibliographic instruction, library arrangement, shelf organization etc. are demonstrated, the reader's services librarian will only have to instruct the computer and the whole information required are released within seconds. Better impressions are created in the minds of the users when issues are demonstrated by the computer than via documented instructions. In addition, library materials are now abstracted and arranged according to subjects in the library and then fed into the computer, so that by mentioning any subject of interest to a user, the librarian will decode the subject content and then match it according to the resources. With a computer, specific search questions and research requests can be searched with ease

A. Online Public Access Catalogue (OPAC)

Catalogue is highly of importance to information seekers. Through OPAC, library users are assisted in locating a wide range of sources of information that are of interest to them.

OPAC is a database that describes documents via bibliographic entries composed from various field of studies. A study related [9] stated that OPAC has replaced the use traditional card format for the following reasons:

- The user can chose any method to access OPAC such as the use of keywords, author or title.
- Through OPAC one can search for any word.
- An author can start his name with either surname or other names and these names can be accessed through OPAC.
- The discard of paper cards has made it easy for the disable library users to make effective use of the library resources.

IV. FACTORS MILITATING AGAINST USE OF MODERN TECHNOLOGY IN DELIVERING SERVICES IN UNIVERSITY LIBRARIES

The following factors militate against the use of modern technology in delivering services in university libraries:

Information and communication technology infrastructure and tools are very poor in most of the university libraries in Nigeria.

A. Funding

There is need for software upgrades, regular subscription to electronic databases etc. for new and improved services but unfortunately many university libraries lack money for regular upgrade and constant subscription to databases.

B. Inadequate information technology skills:

Many of the librarians lack information technology skills and are unwilling to make some investment in learning to use them effectively.

C. Technical expertise:

Inadequate technical expertise is very common in Nigerian university libraries. There are shortages of trained personnel. Very few librarians with computer qualification work in university libraries. These shortages of computer experts in the libraries hamper usage of modern technology in delivery of services.

D. Power Supply

In many Nigerian universities, there is constant power outages which constitute a serious bottleneck to efficient use of modern technology for delivering services where there is generating plants the cost of maintaining them is highly exorbitant.

E. Reference Service

Reference service is a personal service offered to library users by the reference librarian. A study conducted by [5] stated that reference work include a direct personal assistance rendered to a person in need of information for educational, political, social and for economic reasons.

F. Digital Reference Service

Digital reference service is done online through the internet. According to [10] defined digital reference service as an internet based questions and answered service that connects the users with expert in a variety of subject areas.

A study conducted by [7] considered digital reference service as the provision of personal assistance to users through the internet. The virtual reference service can be conducted in various forms such as web forms and instant messaging. According to [11] discussed the use of modern technology in delivering library services through: bibliographic indexing, current awareness, and user education.

G. Bibliographic Services

Bibliography is defined as a list of published information resources. The modern the technology can assist library in rendering bibliographic services such as compilation of bibliographies and reading list of various types. The service is better when rendered in a timely way. Hence, when bibliographic services are rendered manually, it brings about delays, difficulty, errors as well as library staff and patron's dissatisfaction. To avert these setbacks, many have resorted to the use of ICTs in rendering bibliographic services.

H. Indexing Services

An index may be defined simply as a pointer to the content of an original document which may be a book; journal, reference material etc. the indexing could be by author or subject. With the aid of ICT, database of print and audio-visual materials can be created for modern library users. Hence, the use of ICT has become sine-qua-non. By so doing, libraries can cope with the problems of increasing cost of information materials, space requirements for easy access to them. Many of the electronic resources can be accessed by library staff and users.

I. Current Awareness Services

Current awareness services (CAS) has to do with keeping information seekers up-to-date in their various areas of information needs. The library ensures that the users' needs are satisfied through enlightenment or awareness programmes or channels such as routing of periodicals, current contents of information resources, list of on-going and anticipated seminars conferences, and workshops. The library could also access a wide range of web-based current awareness service and download them into database. The library users could access them for current information; some examples of Web-based Current Awareness Services are Entry Point, My ZD-Net IDEAL Alert, Wiley Book Notification service, Listserv, Wibzines.

J. User Education Services

It is one thing for a library to be established, it is another thing for its resources to be put to optimal use by information seekers, hence, the need for user education service. The need for user education to be done through e. mail, and bulletin. The information content of these channels may include use of the different sections, technical service unit and readers'

service division. The resources i.e. information, human and physical resources in the division are highlighted and explained. By so doing, information seekers become conversant with them thus library patronage is encouraged.

K. Selective Dissemination of Information (SDI) Services

SDI services as a peculiar type of current awareness service, is a sine quo-non especially in this era of information explosion or influx of information in circulation. It is a mediated information service useful to a wide range of library clientele. As the name implies, an information seekers' needs are selected from a wide range of up-to-date documents by the librarian. The selected information is disseminated to him. The librarian can keep the user's profile i.e. name and information needs of the user in a computer as a database file. Also is the document profile which is made up of what the selected/required document contains. There is the need to further match the user and document profile, and the catching is as done by the computer. Also, the outcome or result of the matching is communicated to the library clientele with outcome or result of the matching is communicated to the library clientele with the aid of ICT. It could take the form of sending an email to the user finally; the user gives a feedback to the librarian through an e-mail. The feedback is aimed at knowing if the disseminated information is useful or not, to the information seeker as well as the reason for the user's decision. It is very obvious from the foregoing that ICT makes SDI services to be rendered in an easy, timely and reliable way when compared to the manual method of information dissemination.

L. Document Delivery Service

Documents contain different kinds of information. If the documents needed by information seekers are not seen by them, the information in the documents may not be known to them. The library offer documents dissemination services to their clientele. The usage of the manual method in document dissemination has not yielded positive results. As such ICT method documents delivery services have become easy, timely and very reliable. Current collections owned by automated libraries can be searched on the internet by their counterparts. The document can be received by the subscribing library in soft copying or electronic form. It is obvious from the foregoing discussion the ICTS have impacted positively on library services to a wide range of information seekers into the society.

V. CONCLUSION

The paper discussed how information and communication has played a great role in service delivery in in Nigeria in the areas of cataloguing, acquisition, and reference service and circulation duties. Challenges encountered by librarians regarding the use of modern technology in delivering reference services were discussed

VI. RECOMMENDATIONS

- Nigerian universities management should give automation of university libraries great priority.
- Network and resource sharing should be undertaken by Nigerian university libraries.

- Nigerian government should ensure that there is constant power supply.
- University library staff should be given opportunities for training in information and communication technology.
- Nigerian universities management should provide enough funds for regular subscription to electronic databases.

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