Application of Information and Communication Technology (ICT) in Academic Libraries

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ABSTRACT

The main purpose of the study is to assess Application of Information and Communication Technology (ICT) in academic libraries. The application of ICT has provided more effective and efficient service delivery in the library. The use of ICT facilities is an important tool in the academic libraries as it supports resource sharing among academic libraries, increase effective and efficient service delivery, saves time, provide marketing opportunity of its services, provide speedy and easy access to information and to provide more up to date information to users. ICT facilities in the academic libraries are meant to work towards the actualization of the institution aims and objectives. The article discussed the following areas: to identify the Information and Communication Technologies (ICT) facilities available in academic Libraries; to investigate areas ICT can be applied to in academic libraries; to examine the challenges of ICT application to library services and suggest strategies for improving ICT application to library services.

Keywords: Library Services, Facilities, Application, Information and Communication Technology (ICT) and Academic Libraries.

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Introduction

The concept of the library as a store house of knowledge as embodied in books has been greatly altered by trends in the information, communication technology (ICT) fields. Anaeme (2006), stated that the emerging and fast growing information and communication technology (ICT) application in libraries especially academic libraries have continued to revolutionaries the pattern and scope of library services. Libraries have remained unchallenged until recently as providers of convenient and comprehensive information to meet a wide range of the information needs for the public. Henderson (1992) states that information technology provides numerous benefits and advantages to library users, some advantages he identified include: Provision of speedy and easy access to information; Provision of remote access to users; Provision of round-the clock access to users; Provision of more up to date information; and Provision of information flexibility to be used by any individual according to his or her requirements. Other importance of ICT to the effective organization of materials include: it boosts the service of the library; it facilitates the typical library standard; It brings about standard information and library system; It saves time in processing, organization and retrieval of materials; and Accuracy is guaranteed.

The library as the heart of the academic benefit tremendously from the full implementation of ICTs. The new technology enables the library to perform all its daily operational routines and provide efficient, effective and optimal services to its clientele. One of the major strategies for ensuring competence in the use of ICT to solve library and information problem is training and re-training of librarians in ICT application. Akintunde (2003) argued, the relevance of librarians in Nigerian libraries in the 21st century is dependent more on their ability to recognize and carefully adapt global initiative in the provision of library and information services because of the ever increasing changing role of library and information staff worldwide. For instance, the changing patterns in the use of library services by various categories of library clientele and the closer collaborations and mutual interdependence among libraries require shared responsibility in terms of digital preservation and delivery materials as well as digitization of routines and services. Another strategy Academiclibraries and librarians can take to meet the challenges that ICT can pose to their staff is by ensuring that ICT facilities are adequately provided for both library staff and clientele. Such ICT facilities include television sets, radio, cellular phones, computers, computer network, computer software, satellite resources, video conferencing and teleconferencing media. Busari (2006) classified library ICT resources into the following five categories of technology: capturing technologies, storage technologies, processing technologies, communication technologies, and display technologies. ICT tools and equipment can be utilized for the following library applications: resource sharing, digitized circulation services, subscription, ordering and acquiring information materials, creation and management of databases, electronic mail services, publications, information storage, information analysis and design, (information) networking, selective dissemination of information, advisory services, bibliographic control services, lending and borrowing.

At this point, it is worthy to note that when ICT is mentioned in the library, it is not just about the facilities as an isolated machine, it is simply the Information and Communication Technology application to these libraries that facilitates its operations. ICT application to libraries had been responsible for the changing role of traditional libraries setting of handling information packaged in printed format to that of computer networks dealing with all forms of knowledge. Thus, the information stored in libraries has taken a major shift from volume-limiting paper to limitless multimedia digital form. ICT has been described to be the medium by which the highest

quality service in the library and information profession can be achieved. ICT in libraries has changed the mode of information storage and retrieval such as acquisition, cataloguing and classification, circulation of materials, serials control, management statistics and administration activities such as budgeting. This has ultimately led to the provision of more efficient information services to the users and overall improvement in the performance of the libraries and other related information institution (Chisenga 1995).

Purpose of the Study

The general purpose of the study is to assess Application of Information and Communication Technology (ICT) in academic libraries

Specifically, the following objectives guided the study:

1. To identify the Information and Communication Technologies (ICT) facilities available in academic Libraries.

2. To investigate areas ICT can be applied to in academic libraries.

3. To examine the challenges of ICT application to library services

4. To suggest strategies for improving ICT application to library services

LITERATURE REVIEW

There is a wide range of available technologies to choose, when applying it to library. Oketunji (2001) stated that the ICT facilities available for library use include: personal computer, CD-ROM, telefascmile, (fax), network, electro-copying (scanning), and internet. Combining the technology and services, Daniel and Mattew (2000) described the new development as tools for information delivery in the new millennium. Such technologies are explained thus:

Computer: A Computer is a machine that follows instruction in order to process data, solve a specific problem or accomplish a particular task. It can also be defined as a programmable machine, which responds to a specific set of instructions in high speed and in a well-defined manner. It can also execute a pre-recorded list of instructions called a programme.

CD-ROM: Compact Disk Read Only Memory (CD-ROM) is an information technology with great potential for academiclibraries. The application of computer to the production of abstracting of the producers of indexing and abstracting services have their data base available on CD-ROMs, which they compile from world literature on particular disciplines. The services provided current awareness information to library users. Crane and Lott (2004) reported that CD-ROM can be used in libraries to store a variety of things including music directories, books, periodicals, computer application, etc. It is of high quality and very resistant to hostile climate, hence it is often more secured than print materials.

Internet: The internet is a global collection of many different types of computers and computer networks that are linked together. It enables individuals, organizations, companies and polytechnics libraries and government to share information across the world. Nnanna (2000) refer to the internet as the information superhighway.

Electro-copying: Scanners work on the principle of reflection. Muir and Oppenheim (1993) described electro-copying as copying printed materials, by scanning into an electronic database, in which the text is stored in either image or character encoded form. It can be reproduced either on a screen or by a printer; electro-copying allows a copy of the document to be stored in electronic form, where it can be viewed on a visual display unit (VDU). It can be reproduced in paper form for the library users. Cochrane (1992) stated that application of electro-copying in a library require personal computer scanner and electro-copying application software. Oketunji (2001) observed that the challenges of collecting, processing, disseminating and preserving clippings in our libraries in this millennium cannot be met by skilled hands any longer; a new technique in the use now in some libraries is electro-copying.

Network: Network is a type of information and communication technology that allows the link of separate computers to share their resources together. Oni (2005) described network as a way of connecting computers so that they can communicated with each other and share resources like printers and storages space. Ogbonna (2003) added that networks provide opportunities for resource sharing, resource sharing communication, data and full text searching among libraries in the network. Cochrane (1992) defined network as a system of physically separate computers with telecommunication links allowing the resources of each participating institution to be shared by each other.

ICTs Application in Libraries

Libraries have remained unchallenged, until recently, as providers of convenient and comprehensive information to meet a wide range of the needs for the public. Libraries had been the sole keeper of information (Pugh, 2000). The fifth law of library science according to Ranganathan (1963) is that the library is a growing organism. Growth must imply change and libraries are faced not only with an unprecedented rate of change, but also challenges to their existence in contemporary society (Weiner 2003). Aina (2004), have extensively discussed ICTs applied to libraries including personal computer application, CD-ROM searching, telefascmile, networks, electro copying, electronic mail, online-searching and the internet. ICT application in libraries all over the world have brought about more efficient technical services and improved reader's services. In fact, ICT application in libraries has made available more services than ever been known before. This was why Ihediwa (1999) opined that the society is moving into a paperless society where automation is the order of the day. This means that the use of various technologies will soon be seen as the major source of information in libraries.

ICT application to library operations cannot be over-emphasized. Akintunde (2006), maintains that the application of ICTs in Nigerian tertiary institutions shows that there is some consciousness of the significant role that ICT can play in delivery library services. It is gratifying to note that most academiclibraries in Nigeria have embraced ICT. The essence of ICT is its power to help individuals and societies achieve greater access to knowledge and ideas for the benefit of humanity. The role of information service delivery is to support organization, institutions and research by facilitating access to a library's extensive range of information services (Omekwu 2006) .It is obvious that, the great changes and innovations recorded so far in the 21st century libraries and information centers in terms of information service delivery may be the starting point, that could be attributed to Onwubiko (2006) succinctly asserted that, academic libraries in Nigeria must embrace the technological innovations that may be available in the era. This will, to a large extent, enhance their service delivery.

ICT further allow a new, easy and better method of carrying out a number of library operations. Traditional library services have consequently been displaced by new proactive ICT services, the efficiency and relevance of any library in the 21st century Nigeria is dependent on the effective delivery of qualitative service to users as well as recognition and careful adaptation of global initiative in the provision of library and information services such as the unfolding hi-tech information superhighway environment. It has been established that ICT components such as computers, internet, CD-ROMs, e-mails are relevant in the delivery of information service in libraries when applied to it.

Challenges of ICT Application to Library Services

There is the issue of frequent change in the designs of information technology as Oketunji (2001) stated that one of the problems libraries using information technology may be facing is frequent changes in technologies. New models of information and communication technologies

are invented frequently, so libraries that don't have enough funds may not be able to face the competition. Also Madu and Adeniran (2000) noted that frequent changes in information technologies have not helped matters as some of the equipment and accessories easily become obsolete. This implies that those who are experts in one system of information and communication (ICT) will need continuous training for them to be relevant in the field or else they may no longer be useful.

Financial constraints - ICT application in libraries is a capital-intensive venture both in acquisition, installation, maintenance training and sustainability. As a result, not all libraries do have funds to venture and sustain ICT on their own. Omekwu (2004) pointed out that initial investment in system study, design implementation, procurement of hardware and software could be very expensive. He added that even after full implementation of ICT, areas of further expenditure include system maintenance or replacement. Anckar and Walden (2001) identify lack of financial resources as one of the most important barriers inhibiting libraries from fully capitalizing on ICT. In another dimension, Bourgouin (2002) views available financial resources as one of the determinants of ICT implementation.

Problem of Infrastructural Facilities- another problem associated with the implementation of ICT in libraries is the problem of poor infrastructural facilities in majority of our academic libraries compared to what obtains in industrial economics and even in many Asian as well as Latin American countries. Gbaje (2007) maintains that bandwidth connectivity and their providers are deployed using expensive technology like VSAT and radio. These connections are very slow and erratic to support the uploading and downloading of electronic resources. On the other hand, Steinmuller (2001) in report of his experience of ICT in developing countries cautioned that its usability among library operations is only possible where relevant facilities are available.

Erratic power supply- ICT equipments depends solely on electricity power supply for functionality and effective performance. Omekwu (2004) added that the epileptic power supply causes serious damage to the computer hardware and crashing of huge databases. This is one of the reasons why many information professionals are not enthusiastic about computer-based Library system. Pertinently, frequent power outages remain a problem in the country and constitute a serious problem to automation. This makes the cost of running power generating plants prohibitive for libraries.

The problems of old library staff who have become so used to the manual methods try to resist the introduction of the new technologies. Ifidon (1999) also stated that the potential of library staff resistance to the introduction of computer technologies is on the high side, he further added that the potentials of users' resistance and failure to adopt the use of on-line information have not come to an end. Womboh and Abba (2008), express that is very wrong conception and belief, pertinently, library staff has to fend for themselves if they want to join the ICT train. Otherwise, the train of the ICT will leave them behind, and obviously it will put them out of their jobs. Aina (2004), while admitting the high cost of ICT training is enormous and only few employers could afford to send staff on training on a regular basis, there should be the possibility of improving, one's career from ones work place.

Lack of technical skills- presently, there is a low level of ICT skills among information professionals in the country; most of them have little or no skills to work with computers and above browsing or surfing the internet to access and retrieve information. Ashcroff and Watts (2005) reveals that lack of ICT skills, shortage of technology literate staff in libraries, lack of skilled human resources to install and manage technology and networks and poor funding to attract such staff or to develop such skills in existing staff constitute a problem to ICT implementation. Most traditional librarians have

low ICT skills and sometimes have technology phobia. The issue of phobia has been of serious concern, more especially to the traditional librarians who show fear in handling computers and its associated equipments. This assertion was confirmed by Oketunji, (2001) and Omekwu,(2004) who disclosed that the conservative disposition of library staff to the introduction and use of ICT in library operation and services pose a threat to their jobs.

Strategies employed to enhance ICT application in academic libraries

Strategies for enhancing the application of ICT facilities in the libraries, it was observed from literature that good number of them addressed solution of ICT.

The findings agreed with Ngurukwem (2006), that adequate provision of ICT facilities in the libraries will lead to maximum application of the library operations to enhance effective library service. Also adequate ICT facilities are made possible through adequate funding of the library. That is, if libraries are adequately funded, adequate application of ICT facilities will be applied to library services. Apart from grants from the government, other sources of generating money should be sort by the library to address the problem of funding. Akintunde (2006), suggests that Nigeria academic libraries must seek for alternative funding if significant progress will be made in deploying ICTs.

Strategy to improve on infrastructural facilities in the library is in line with Okore (2005) that infrastructure development will help to accommodate many users which would help to improve the problem of allocating few hours to every library users. The findings is in line with Akintola (2003) and Akintunde (2003), that it is by training and retaining of librarians in ICT skills acquisition and application that enhance their ICT competence. Ukachi (2008) is also in support of this finding that there is need for training and retraining of library staff on ICT.

The identified strategies are in line with Langshak, Daze and Dutse (2003), alternative means of generating power supply should be provided to improve power supply in powering ICT systems which include photo voltaic technology. This could be a remedy to the problem of low, unstable and erratic power supply. Ibrahim and Abdullahi (2008) recommended provision of solar energy.

Also, computer and intranet system can also be used as a strategy to enhance effective ICT application in the library, the findings is in line with Younis (2002) who opined that the internet and intranet system is employed in the library for technical functions, information services and web pages, and it is perceived by a supplement to library collections, as a substitute for databases on CD-ROMs, and a way of saving on subscription charges for printed journals.

Furthermore, another strategy to be adopted for effective ICT application in the library is the procurement of relevant ICT spare parts which is supported by Musoro (2000) that procurement of relevant ICT facilities is necessary if the library want to be ICT compliance. ICT policy in the library is also another good strategy to enhance the implementation of ICT in the libraries. This is supported by Strassner (2004) who opined that policy is a set of rules to accomplish decision making, also Whitten (2001) sees policy as rules that governs some processes in the library and which serve as the basis for decision making.

Conclusion

The application of ICT to library operations has come a long way in a short time. The development of ICT has changed the mode of information storage and retrieval as well as dissemination of information to library users. This study has also been able to identify some purposes of applying ICT facilities in the academiclibraries by library staff. It was observed that the libraries under study applied ICT to some library service to a greater extent, while some areas of library services either they are not properly applied or are not used at all. However, this research work has also be able to identify the challenges facing the implementation of ICT in pacademic libraries ranging from inadequate funding, lack of

infrastructural facilities, incompetent personnel, erratic power supply, management problems, high cost of maintenance, software problems and frequent changes in technology. The researcher, observed that for enhancement of ICT facilities application in libraries, there is need for adoption and implementation of strategies which include: the increment of funding of ICT in libraries, recruitment of more qualified staff, training of staff on ICT facilities, constant power supply, provision of adequate technical support, internet connect, intranet system, procurement of all relevant ICT components, ICT policy in the library and the provision of qualitative bandwidth.

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