Application of Information Technology to Library Services at the Federal University of Technology, Akure Library, Ondo State, Nigeria

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Introduction

The term "Information Technology" (IT) has been variously defined. Marshall (1984) defined it as the coming together of computing and telecommunications for the purpose of handling information; the application of technologies to information handling; including generation, storage, processing, retrieval and dissemination. It is also concerned with the acquisition, processing, storage and dissemination of information-textual, numerical, pictorial and vocal. It is a broad-based term comprising the gathering (acquisition), organization (packaging), storage and retrieval (dissemination) of information that can be in textual or numerical (books,

documents), pictorial and vocal forms (audio–visual) or a combination of all the above (multimedia), using a combination of computer and telecommunications devices. Emuakpor (2002) defines it as all forms of technology applied to the processing, storing and transmitting information in electronic form; stressing that the physical equipment used for this purpose include computers, communication equipment and networks; fax machines and electronic, pocket calculator. Ayo (2001) viewed it as the use of computer system and telecommunications equipment in information handling; consisting of essentially three basic components viz: Electronic processing using the computer; Transmission of information using telecommunication equipment; and Dissemination of information multimedia.

It becomes explicit from the above that IT in libraries comprises all the electronic infrastructure and facilities employed by libraries to improve and provide efficient services. Such facilities, in broad term, consist of hardware, software and communication links between the service outlets of different libraries to facilitate the sharing of common resources; especially the library networks. Osundina (1973) pointed out that the library of today should not merely store documents and preserve them; it must also devise means by which the contents of such documents can be rapidly and effectively transmitted for use. Trostinikor (1970) opined that rapid expansion of a mass of diversified information is occurring, which has received the name "information explosion". Thus, the need arose for a scientific approach to information and for elucidation of its characteristic properties, leading to two principal changes in interpretation of the concept of information. One, it was broadened to include information exchange not only between man and man; but also between machine and machine. Ogunsola (2004) explained that the pace of change brought by new technologies has had a significant effect on the way people live, work and play worldwide.

Capron (2000) revealed that mail, telephone, television, radio, books, newspapers and periodicals are the traditional ways users send and receive information. However, data communications system-computer system-also transmits data over communication lines such as telephone lines since the mid-1960s. Internet use has, today, revolutionalized access to information for the business world, libraries, education and individuals. A few of the most popular include E-mail, www (World Wide Web), FTP (File Transfer Protocol) Usenet, and Telnet. All these technological devices are regarded as central to the concept of globalization. The Internet and its technology continued to have profound effects on the promotion of information sharing; especially in the academic world, making possible rapid transactions among businesses and supporting global collaboration among individuals and organizations. These technologies have the potentials to develop "virtual campuses" and "virtual libraries" thus, increasing students' access and participation (Ogunsola, 2004). According to Daniel (2000) Nancy Schiller was one of the first writers to use the expression "virtual library" which she defined in 1992, simply as "libraries in which computer and telecommunications technologies make access to wide range of information resources possible". Today, the concept is referred to variously as "digital library", "electronic library", "community network", or simply "library without walls" (Ogunsola, 2004).

The organization of information/knowledge is an essential preliminary to its effective exploitation and dissemination. As the quantity of knowledge expands, the need to organize it becomes more pressing. A vast number of different means of organizing information have been devised and exploited since the earliest times. With the vast output of new information and ever-increasing degree of specialization in all areas of human knowledge, heavy demands are being placed on library information storage and retrieval systems, which can be scarcely met by the traditional methods except with the use of IT devices. The improvements and changes in computing and telecommunications and the integration of the two fields have had a huge role to play in the methods of information processing and dissemination in academic libraries; thus improving the quality of use to which such libraries are put.

Many academic libraries had, at different times, planned to automate their activities, but had to drop the plans mid-way due to certain inadequacies, which Madu (2002) enumerated to including: Economical, Manpower problem, Political instability, Capital, Geographical isolation, Social cultural and Exposure. Consequently, libraries especially those of tertiary institutions have had difficulties in their attempts at achieving full application of IT in the conduct of their operations; thereby failing to benefit maximally from such adoption. The justification of this study thus lies in the central and critical role that IT plays in education generally and library operations in particular as attested to by Nwizu (2008) that the use of audiovisual and electronic resources has broken the barriers of time, distance, and locale, which impeded the growth of formal education, just as Adeyemi (2004) emphasizes that students use these resources to complete major assignments. This position was supported stressed further that "Audiovisual and electronic resources have the potential for enhancing student learning. The role of these resources in teaching and learning is one of the most important and widely-discussed issues in contemporary education policy".

Thus, the objectives of this study are to: identify the Information Technology devices available at the Federal University of Technology, Akure, Library; know the effects of their application on library staff's job performance; know the number of trained staff available and competent to handle these devices; ascertain funds' availability to the library for proper handling and maintenance of the devices and; know the constraints encountered in the application of the devices in the library.

Statement of the Problem

It has been observed that the application of modern information technologies to academic libraries' activities and services in Nigerian tertiary institutions seems inadequate probably due to a variety of factors, including human factors, fear, and the state of infrastructural development of the country. Not a few library practitioners also believe that there is hardly much benefits that can be derived from the use of IT applications thereby giving preferences for the manual library operations. Those who are aware of its benefits are afraid of being eliminated from their jobs; though knowing that its application to library routines such as administration, acquisitions, cataloguing and classification, circulation, information retrieval and serials control would facilitate effective and efficient job performance. This study therefore investigates the availability of IT facilities at the Federal University of Technology, Akure, Library. Hence, the study is focused essentially on the Federal University of Technology, Akure, Library. Other tertiary institutions in the state would not be included in the study; their exclusion being a result of the fact that the availability and use of IT devices in their libraries fall short of the requirements of this study.

Research Questions

This study sets out to provide answers to the following research questions:

1. What IT devices are available at the Federal University of Technology, Akure, Library?

2. What effects have their application on the job performance of the library staff ?

3. What is the number of trained staff available to handle these devices in the library?

4. What amount of funds is available for proper maintenance of the devices?

5. What are the constraints to the effective application of the devices in the library?

Literature Review

Strategies for Adopting Appropriate Technology

Oni (2004) pointed out that a wealth of management issues must be addressed before IT can be incorporated into the library setting. It was tagged "Effective Implementation of IT", which involves: knowledge of recent technological trends; an analysis of library specifications and requirement; a delineation of library goals and objectives; management commitment and support and ongoing user education. She listed some questions which must be addressed in any consideration of application of IT to include: What are its key capabilities, advantages, and limitations in terms of library goals? What are effective planning strategies and techniques? What are the technological requirements and alternatives? These questions are further explained thus:

- Capabilities: The key capabilities have to do with weighing the advantages against the limitations to determine the final selection.
- Planning: In planning for IT implementation, the following should be determined:

  - Who will use the particular IT system?
  - What are projected applications?
  - What is the available budget?
  - What are the merits and limitations of particular IT systems in terms of library requirements?
  - What kinds of communication capabilities are required?
  - What resources are needed to support this technology?
  - How will the system be interpreted into the existing library environment?

Also, a feasibility study has to be conducted to establish the potentials of the IT project with greater accuracy, and its likelihood of success. The following questions can aid in conducting the feasibility study:

- What are the total estimated costs for the system?
- Are personnel skilled in implementing, operating and maintaining the IT system?
- Does the vendor provide materials for and actually conduct training sessions?
- Are attitudes of key decision makers positive towards the new technology?
- Is support for the use of the particular IT widespread or confined to a few individuals?
- Are staff and administrative expectations concerning benefits of the IT reasonable?

As any IT system will consist of a number of separate components that can be implemented separately or integrated into turnkey unit, knowledge of the particular IT equipment configuration is important so as to reduce the chances of technical problems when the system is in operation.

Application of Information Technology to Library Services

In libraries, several systems have been developed for their various house-keeping chores and more still are being designed and refined, due to the technology of large-scale integration. These are known as microcomputers; designed to handle any of the library processes like acquisitions, cataloguing, serials control, circulation control, bibliographic control, or Selective Dissemination of Information (SDI) (Ogunsola, 2004). IT is applied to the operation of libraries and information centres to ensure that information delivered is timely, accurate, precise and

relevant (Madu, 2002). The concept, Library Automation, thus became popular and of which Cobin (1985) explained that "in the traditional manual library system, staff perform the various tasks required to complete each operation, but if a computer is used to perform some processing operations, an automated library results". Bierman (1980) in Madu (2002) defined library automation as "the use of computers and associated technology to do exactly what has been done in libraries with the justification of reduced cost and or increased performance. Thus, automation helps in the acquisitions, organization, storage and dissemination of information in libraries. Generally, IT applies to library services in a number of ways, which include: Acquisitions, Cataloguing, Circulation, Serials and User Services

Information Technology in Nigerian Academic Libraries

The demand for distant education in Nigeria is increasing, although this is still based on the traditional technology of print media. Thus, there is the need to integrate IT into the distant education programme. Majority of higher institutions in Nigeria, even those with good Internet connectivity, are still at a low level of integration of ICT in teaching, learning, research, library, information and managerial services (Ogunsola, 2004). Ekong (2005) pointed out however that in some of the first generation university libraries, University of Benin Library, Kashim Ibrahim Library (ABU), University of Nigeria Nsukka Library and a few others, digitalization is taking place in many of their libraries and library information networks are established with connectivity through the university campus network to the Internet. The Centre for Learning Resources (CLR) Covenant University, Ota has been placed on the platform of full application of ICT because funds are made available for such innovations. Ogunsola (2004) explained that some Nigerian University campuses are now jam-packed with IT facilities. It is no longer strange to see lecturers and students doing their research and other academic works using various IT devices like e-mail and the Internet. Students can absorb more information and take less time to do so with the use of IT. Ogunsola (2004) declared that librarians or any member of the academic community at Obafemi Awolowo University Library can now easily find information concerning any book in the Library of Congress in the US.

University libraries can be transformed into a new information services unit, proving electronic cataloguing, OPAC, electronics acquisition/serials control, electronic inter-library loan and calculation functions (Ogunsola, 2004). Nigerian academic libraries should not be left out of this global educational revolution. Ekong (2005) pointed out that one is also happily to note that both the Federal Government of Nigeria and International funding agencies are now interested in the general development of ICT in Nigerian universities. The Federal Ministry of Education embarked on the establishment of the National Virtual (Digital) Library Project, to provide, in an equitable and cost-effective manner, enhanced access to national and international library and information resources and to share locally available resources with libraries all over the world using digital technology; among other objectives. A model Virtual (Digital) Library at the National Universities Commission (NUC) will be the laboratory of the university–based libraries.

Research Methodology

This is a survey research design. Its population comprised all the active users of the Federal University of Technology, Akure (FUTA) Library, registered undergraduates and postgraduates, amounting to nine hundred and twenty-nine (929) as at the time of data collection. From this number, a total of two hundred and two (202) was sampled representing 21.74%. The Convenient sampling technique was adopted for administering the questionnaire on the two hundred and two (202) students present in the library at the time of data collection. These student-users come from different departments in the institution with levels ranging

from 100 to 500.

Also, the head of ICT department at FUTA was interviewed as part of the study's sample; to collect other relevant data, which the students may not have full knowledge of. The study sample (202) from the population (929) was considered justifiable against the backdrop of the position of Edem (2005), referring to Krejcie and Morgan's sampling formula, which suggests "a sample size of 384 will be sufficient for a population of 100,000; 370 for 10,000 and 248 for 700". Similarly, Ali and Denga (1989), while accepting that there is no universal rule for determining the appropriateness of sample sizes, state that a sample should be about 15-30% of the population. Thus, the sample size of 202, which represents 21.74% of the study population, is considered appropriate and adequate for this study. The *Information Technology Application on Library Services and Use Questionnaire (ITALSUQ)* was the major instrument for data collection complemented by the Interview.

Data Presentation and Analysis

Table 1 – Use of Information Technology Facilities

Facilities	Frequency	Percentage
Internet	150	74.3
Computer	131	64.8
Audio-Visual	41	20.3
Fax	3	1.5

N=202

Table 1 shows the respondents' use of available IT facilities in the institutions' library; in which Internet use had the majority response (74.3%) followed by Computer use (64.8%) while Facsimile use had the least and those who do not make use of any of the facilities at all due to some reasons (13.4%). These reasons include, essentially, ignorance of the students on the availability of the facilities (92.2%) and their inability to make use of the facilities (5.2%). As for access to the Internet facilities, most respondents (80.7%) claimed unfettered access.

Table 2 – Experience in the Use of Internet

Responses	Frequency	Percentage
Whenever I use the Internet, I find what I want	120	59.4
I can usually find what I want, but with frustrations	34	16.8
I generally avoid the Internet	19	9.4
The Internet is frustrating, I find it difficult to find the information	14	6.9
Others	15	7.4
Total	202	100

Table 2 above shows what the users experience when using the Internet facilities to where a considerable response (59.4%) claimed satisfactory use; 6.9% having

difficulties, alongside the 9.4% that generally avoid its use. Only 44.1% of those using it do so quite frequently.

Table 3–Problems Encountered when Using Information Technology Facilities

Responses	Frequency	Percentage
I don't know how to use them	18	8.9
Nobody to attend to me	20	9.9
Frequent power failure	85	42.1
Network failure	27	13.4
None	16	7.9
Others	36	17.8
Total	202	100

The above indicate several problems encountered by users when using Information Technology facilities in their institutions' libraries; the most significant of which is the frequent power failure (42.1) aside from constant network failure for the Internet use (13.4%). There are several other problems (17.8%) ranging from "inadequate computer systems", "inadequate space to accommodate users conveniently", "not being allowed to use any external storage device like flash drives or diskette", "inability to sometimes locate needed information on the Internet" as well as "the slow response of the server or the systems". All these are in spite of the claim by the majority (84.2%) that they previously had orientation o the use of the IT facilities.

Table 4 – Information Technology Courses Offered

Courses	Frequency	Percentage
Use of computer	143	70.8
Information Technology	64	31.7
Use of Internet/world wide web	41	20.3
Others	50	24.8
None	15	7.4

N=202

The table above indicates various Information Technology courses offered by respondents. They include: Use of Computer (70.8%); Information Technology (31.7%); Use of Internet/world wide web (20.3%); other Information Technology – related courses (24.8%). These include Library and Information Retrieval, Information to General Computing and Desktop Publishing, Dbase IV, FORTRAN. Computer Applications while 7.4% of the respondents have not offered any Information Technology courses.

Table 5 – Use of e-materials

E-materials	Frequency	Percentage

Index	58	28.7
Abstract	47	23.3
Database	66	32.7
Others	27	13.4
None	68	33.7

N=202

From the table above, 28.7% respondents use Index; Abstract (23.3%); Database (32.7%); other e-materials than those listed (13.4%) and those who do not use any at all (33.7%). However, 74.8% do not use the CD-ROM; due to such reasons as its non-availability in the libraries, ignorance about its availability and being able get needed information in books available in the library".

Interview Report

The Federal University of Technology Akure Library has an ICT Department headed by an ICT expert who responded to the interview questions. The report indicated that the library was once fully automated with all its functions computerized, when it was in its temporary site. Now on its permanent site, services are partially automated and presently has such facilities as Computers, V-sat, MODEM, Server, CD-ROM, Slide Projectors, Camera, Radio and Television, CD and DVD machines. The effects of the facilities on library services and/or library staff's job performance and use by students as revealed by the study are that it lessens and/or hastens the work of the librarian; Online resources serve as supplement to those available in the library; and it makes research easier for the users.

The library is presently working on its Internet with which downloaded information e.g. e-journals could be shared locally among users offline. The library does not share its resources with other libraries online but works are on at making it possible. The library's ICT section performs CD-ROM services i.e. burning of CDs for users who may have sourced for information from the Internet and wanted it on a CD-ROM or a user who brought a CD from outside and wanted to copy from it to another one. Regarding softwares, the Library began its automation process with the use of TINMAN – TINLIB (the Information Navigator Manager and the Information Navigator Library) but due to deficiencies in the use of TINLIB, the software was changed to GLAS (Graphical Library Automation System). These are designed in developed countries to suit their practice of librarianship, but which may not absolutely suit the practice here in Nigeria. Thus, the library is planning to adopt a software called SLAM (Strategic Library Automation Manager)–referred to as a customized software that can be adjusted anytime to suit library operations anywhere.

IT is being used partially on all the housekeeping chores of the library; including Acquisitions, Cataloguing and Classification, Circulation, Reference Services, and Serials Control and/or Management, all of which are still complemented with manual operations. The number of staff handling these facilities is considered sufficient against the number of facilities available and those using them. Available funds are inadequate for proper handle and maintenance of these devices. Grants were received from external organization like Open Society Initiative for West Africa (OSIWA) and Education Trust Fund (ETF) on different occasions purposely for the development and use of IT facilities in the Library. Problems encountered by the Library-ICT staff include adequate funding and non-compliance of some students to the code of conduct in the section.

Students newly registered students with the Computer Resources Centre (CRC) of

the University are given a ticket each with which he gains access to the library's Internet facilities. After this, a continuous orientation will be given on how to effectively utilize the available facilities and if there arises any problem, they are prompted attended to. There is a user code of conduct that is pasted at the entrance of the section for everyone; items on which include:

- CD-ROM, diskettes, flash drive and other storage devices are not allowed in the ICT room until further notice.
- Do not tamper with any of the systems when not responding. Please call the attention of the staff on duty so as to avoid embarrassment.
- Do not print any document by yourself. Call the attention of the ICT staff on duty.
- There should be maximum of two users to a system, and
- Online chatting is strictly prohibited.

Conclusion

The application of IT to services delivery of the Federal University of Technology Akure, Library, still has room for improvement, thereby making its impact limited. Several problems were identified for this condition–inadequate funding; insufficient facilities and constant power failure; among others; hindering the maximization of its expected benefits. Aramide and Bolarinwa (2010) corroborated the prevalence of these problems at the National Open University of Nigeria (NOUN), Ibadan Study Centre where they found that "the major constraints hindering the use of audiovisual and electronic resources include poor power supply, poor infrastructure, lack of adequate skill, high cost, and unavailability".

Recommendations

Based on the conclusions above, it is recommended that:

1. Provision of funds on a regular basis. The mandatory 10% of the budgetary allocation of the University set aside for the University Library should be so disbursed and monitored for judicious utilization. If this is realized, the Library Management should make automation top on its priority list and pursued conscientiously and to a logical and beneficial end.

2. There should be provision for alternative power supply by having a dedicated generating plant for the library use to offset the adverse effects of constant power outage that has come to stay in Nigeria. This is especially important because of the total dependence of the IT use on electric power supply.

3.. Students also need to be trained on how to use these facilities towards achieving academic excellence. This may be through continuous orientation and the inclusion of such courses like: Use of computer for Information retrieval, Use of Internet/world wide web and IT applications.

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