

Application of Information and Communication Technology (ICT) in Delta State Polytechnic Libraries, Nigeria

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Abstract

Purpose: This study was carried out to find out the purpose, areas and extent of application of ICT facilities in Delta State Polytechnic Libraries.

Design/Method/Approach: Four research questions were formulated to guide the study. The population of the study consists of 94 library staff which includes professionals, para-professionals and system analyst from the three polytechnic libraries in Delta state. Questionnaire and observation checklist were the instrument for data collection and *descriptive method of analysis was used to analyze the data.*

Findings: It was discovered from the study that the three Polytechnic libraries under study possessed some of the ICT facilities in their libraries. The study also found out that library staff from Ozoro, Oghara and Ogwashi-Uku Polytechnic libraries are of the view that the purposes of ICT application are to increase the range of services offered, allow easy integration of activities, facilitate library co-operation and networks, saves time and generate money, increase efficiency, and also help to speed up the process of document delivery. The major areas/sections where ICT is applied in the libraries understudy are cataloguing, circulation reference section, reprographic unit and administration. It was also discovered that the extent of ICT application in Ozoro Polytechnic library are high in sections like photocopying, bibliographic searches, lending short loan service, registration of users and charging and discharging of library materials. In Oghara Polytechnic library, the extent of ICT application to library services which are rated high are photocopying, referral services, and registration of users, while the extent of ICT application in Ogwashi-Uku library is extensively low, only photocopying, lending, short loan service, as well as registration of users is rated high.

Implication: The study established that ICT application is critical for the following information service delivery approaches: increase the range of service delivery; easy integration of activities; facilitates library cooperation and networks; saves time and generate funds; increases efficiency; and speed up the process of document delivery.

Originality/Value: This is about the first empirical evidence on the status of ICT application in polytechnic libraries in Delta State with strategic suggestions that: 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 connection, intranet system, procurement of all relevant ICT components, ICT policy in the library and the provision of qualitative bandwidth are critical for enhanced ICT application in the libraries studied.

Keywords: Application, Delta State, ICT, Libraries, Nigeria, Polytechnics

Paper type: Empirical

Introduction

Academic libraries perform the function of supporting the objectives of their parent bodies which include: teaching, learning, research and cultural development. Arua (2001) defined academic libraries as those libraries of tertiary institutions of learning such as universities, polytechnic, colleges of education, colleges of agriculture. Edeka (2000) outlined the roles of an academic library as to provide information materials required for the academic programmes of the parent institutions; research information

resources in consonance with the needs of faculty and research students; and information resources for recreation and for personal self-development.

Polytechnic libraries are grouped as academic libraries that select, search, organize, maintain and preserve library resources. They are established to meet the needs of its students and members of the academic staff. The services render in polytechnic libraries keeps widening to include acquisition of books and other media, reference service, serial control, cataloguing and

classification then making them available to information seekers. Thus, the library became the centre where information seekers meet their demands from the collection which has been properly processed for that purpose. Libraries acquire books, journals, audio-visual materials and other learning resources that are desirable for the proper transmission of knowledge.

The conception of the library as a store house of knowledge by some writers has greatly been altered by trends in the Information, Communication Technology (ICT) fields; much emphasis is placed on access. Anaeme (2006), highlighted that the emerging and fast growing ICT application in libraries especially academic libraries have continued to revolutionaries the pattern and scope of library services. ICT has been found to be beneficial in many professions as it facilitates the ease with which activities are carried out. The information environment has changed rapidly with technological developments to facilitate easy accessibility to information by different users. The developments in Information and Communication Technology (ICT) have revolutionized changes in information processing, storage, dissemination, distribution and access. ICT in the library involves the Information and Communication Technology facilities use in libraries to perform library operations. This has resulted to a paradigm shift from the traditional library system of handling information packaged in printed format to a technological system. ICT in the library operations has changed the format of library operations and services; much emphasis is placed on access as against ownership of the collection. The easy and speed of access to information resources has increased tremendously. This necessitated a study on the application of ICT facilities in Delta state polytechnic to find out the ICT facilities available, the purpose of ICT application, the areas it is applied and the extent they are used in the polytechnic libraries understudy.

There are three Polytechnic libraries in Delta State, established in November 2002 together with their institutions; they include Ozoro Polytechnic library, Ogwashi-Uku Polytechnic library and Oghara Polytechnic. The Ozoro Polytechnic library has 28 systems altogether, 20 of the systems are laptops while the remaining 8 are desktop computers connected to a central printer. The library has internet access and uses

Xlib as their library Management System for cataloguing, circulation and acquisition services.

In Ogwashi-Uku Polytechnic library, there are serious arrangements for an electronic library, there are ICT facilities. The records available at the office of the digital library project of Oghara Polytechnic, shows that the library has acquired up to 100 systems together with two central printers. Efforts are being made to computerize the library and get connected to the internet. If these efforts are sustained it may be the best e-library among the Polytechnics Libraries in Delta State.

Purpose of the Study

The general purpose of the study is to assess the extent of Information and communication technology application in Ozoro, Oghara and Ogwashi-Uku Polytechnic libraries in Delta State. Specifically, the following objectives guided the study:

1. To identify the Information and Communication Technologies (ICT) facilities available in Delta State Polytechnic Libraries.
2. To find out the purpose of ICT application in Delta State Polytechnic libraries.
3. To investigate areas ICT can be applied to in Delta State Polytechnic libraries.
4. To examine the extent of ICT application in Delta State Polytechnic libraries.
5. To examine the challenges of ICT application to library services in Delta State Polytechnic libraries.
6. To suggest strategies for improving ICT application to library services in Delta State Polytechnic libraries.

Research Questions

The following research questions were formulated to guide the study:

1. What are the Information and Communication Technologies (ICT) facilities available in Delta State Polytechnic Libraries?
2. What is the purpose of ICT application in Delta State Polytechnic libraries?

3. What areas of the library operations do ICT applied to in Delta State Polytechnic libraries?
4. To what extent are ICTs applied in Delta State Polytechnic libraries?
5. What are the challenges of ICT application to library services in Delta State Polytechnic libraries?
6. What are the strategies for improving ICT application in Delta State Polytechnic libraries?

Review of literature

Information and Communication Technology has demonstrated its impact on the library resources, systems and operations. It has provided one of the best innovations in the history of libraries; and it is changing the shape of libraries and the role of librarians at an unprecedented pace. Etim (2002) elaborated merits of information technology to libraries in the following dimensions: It allows easy integration of activities;

- It facilitates library cooperation and networks;
- It helps to avoid duplication of efforts within and between libraries;
- It helps to increase the range of service offered;
- It may save and generate money; and
- It increases efficiency.

Mosuro (2000) stated that interaction with technology around us has influenced the information seeking behavior of users of library and information centre. According to him, the following benefits of information and communication technology accrue to the users:

- Speedy access to information without having to wade through large volumes of paper;
- ICT allow searching by combining different criteria, thereby leading to retrieval of specific relevant information;
- Users can access information remotely in a network environment. Time is thus saved from moving from place to place;
- Users can communicate with other people with similar interest with whom they share information, ideas and concern;

In addition, the application of ICT to library operations also reduces or eliminates the tedious and energy sapping task associated with manual operations in the library. The result, according to Madu (2004) is that the library staff will have more time, which can be used to attend to more library users and perform more professional duties.

Ramzan and Singh (2009) also identified that ICT allows easy integration of various library activities, increases efficiency in acquisition, access to data, cataloguing, classification, information retrieval and dissemination. It eliminates uninteresting and repetitive work; increases the range of services; provides marketing opportunities; facilitates cooperation and the formation of networks and resource sharing in libraries.

ICT Facilities in Academic Libraries

There is wide range of technologies available in the library; Oketunji (2001) stated that the ICT facilities available for library use include: personal computer, CD-ROM, telefacsimile, (fax), network, electro-copying (scanning), and internet. Combining the technology and services, Daniel and Matthew (2000) described the new development as tools for information delivery in the new millennium.

A computer is an electronic device that: accept data and instruction (Input); Processes data according to instructions given (processing); Stores the processed data (storage); and Display the result of the processed data (output). The use of computer has permeated all aspects of human life such that no aspect is left unturned by computer revolution. It is a technology that is affecting the sectors of education, economy, health, manufacturing industries and libraries inclusive. In education, computers are used in teaching large number of students thereby solving the problem of distance learning programme through the application of computer technology, (Mabawonku, 2003). In the economic sector and to be specific, the banking sector –computers are now used in conjunction with other technologies to provide efficient and effective banking services thus solving the problem of long queue of line by customers. This can be seen from the use of ATM by customers to withdraw money even at a door stop.

Library staff use computer and other technologies to meet their personal and user

needs. Staff use computer for word processing, browse, receives or send e-mail etc. Compact Disk Read Only Memory (CD-ROM) is an information technology with great potential for libraries. 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. According to Compton (1994), CD-ROM is required in libraries because of its high storage capacity. It is highly durable and not susceptible to computer virus.

The internet is a global collection of many different types of computers and computer networks that are linked together. It enables individuals, organizations, companies, libraries and government to share information across the world. Nnanna (2000) refer to the internet as the information superhighway. Ehikhamenor (2003) described the internet as an information superhighway of information infrastructure to emphasize the expectation that it would transform the way information is created, manipulated, stored, retrieved, transferred and utilized. The internet is the fastest growing computer network with millions of users worldwide and has been found to assist users to easily obtain and share information available worldwide.

The internet is employed in the library for technical functions, information services and Web pages (Younis, 2002), In another development, Ibegwam (2002) looks at internet communication and outlines requirements for participation in the global inter-communication. She highlights that the internet has revolutionised communication the world over.

Internet connectivity according to Oketunji (2001) has made it possible for many public and university libraries to have their catalogues of available books online thus enabling researchers to find books that are not located within their library.

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 communicate 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.

Attama (2002) identified two types of library computer networks, Local Area Network (LAN) and Wide Area Network (WAN). Local Area Network (LAN) is a computer network that usually covers a limited range such as the boundary of a building or an institution. A wide area network is communication networks that are regional or nationwide in coverage with minimal distance among major metropolitan areas. When different libraries within a geographical area (nation state or region) decide to interconnect themselves through computer and telecommunication facilities, such an arrangement is regarded as wide area networks (WAN). Sisson (1990) delineates two functions of a network: (i) it integrates institutions into a coordinated whole and (ii) it provides the network users with needed data from various sources and in different formats. Duchene (1987) stated that a network is a systematic organization of units, interconnection for the purpose of achieving some goals that more than one of the units can achieve separately. Haverkort and Ducommun, (undated) (cited by Nelson and Farrington) (1994) explains a network as an organization set up to organize the exchange of knowledge and experience among people working in the same area. The role of a network is to discover where innovations are to be found while the idea behind a network is that people learn from sharing and talking.

Omekwu (2001) highlights that cooperation rather than competition should be the driving philosophy behind networking. Information explosion, information technology development, scarcity of funds, etc provide the premise for networks. Participation in networks enhances the quality of services to the clientele system, and cost reduction through the economy of scale phenomenon. Local Area Network, National and International Network are the various patterns for networking. The author identifies the problems of networks in developing countries to include lack of political will, improper coordination, incompatible standards, poor

energy distribution and communication systems, and low rating of information services

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 implies 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 in libraries to include personal computer application, CD-ROM searching, telefacsimile, 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 enhanced the library services than ever been known. This was why Ihedira (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 polytechnic libraries 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.

Study on ICT application to library services by Emojorho (2009), surveyed the application of ICT in classification and retrieval of information reveals that the application of ICT enhanced collection management in the area of speed and easy access to information.

Nwachukwu (2006) studied on utilization of computer technologies in Federal University Libraries and discovered that, there is dearth of computer facilities in federal university libraries in Nigeria; the computer technologies available are not adequately utilized; these technologies were not effectively applied in essential library operations; the university library staff members possess poor computer skills.

Fagbami, and Ogunjobi (2009) studied and examined the availability of Information and Communication Technologies (ICT) facilities in Agricultural Research Institutes in Ibadan, they showed that Research Scientists in the various Research Institute have access to some ICT facilities like laptops, and personal computers. Other ICT facilities are not available due to inadequate funding, poor infrastructure, management problem, and lack of qualified personnel to manage the ICT centers etc. In another related study, Alabi (1985) dealt on computerization of library services in Nigeria university libraries, it was established that there is poor application of computer technologies in Nigeria libraries as a result of several factors ranging from conservation to lack of personnel and support facilities.

In another study titled Automation of Library and Information services in developing countries, Afam (2005) aimed at finding out the

extent, achievement, prospects and problems areas in library automation the findings of the study, showed that what is on ground in terms of facilities are quite negligible. Onome (2008) in a study on ICT application in special libraries in Nigeria it was discovered that the more intensive library operations like cataloguing and circulation are not yet ICT complaint. Rather, these technologies are scantily applied in reference services.

In another related study, Igben and Akobo (2007) examine the current state of information and communications technologies (ICT) in libraries in River State; The findings show that there is awareness of ICT in libraries in River State, and that libraries are now more conscious of the need for maintenance agreement for ICT. ICT facilities in the libraries were found to be inadequate, which shows that the pace of ICT development in the libraries is still very slow. Insufficient funding is regarded the greatest obstacle to the implementation and utilization of ICT followed by inadequate number of staff with ICT skills.

Abubakar and Baba (2008) studied the use of computer among library staff in four University of Technology Libraries in Northern Nigeria. Their aim was to determine the availability and use of computers by library staff. They identified erratic power supply, inadequate computers as problems militating against effective use of computers by library staff.

Methodology

The design adopted for this study was a descriptive survey, The population of the study consists of library staff both professional, para professional librarians, and system analysts in Ozoro, Oghara and Ogwashi-Uku Polytechnic libraries which is based on the records available at the office of the Polytechnic librarians of the institutions in 2010/2011 academic session. The population for Ozoro Polytechnic library consists of 15 para professional librarians, 11

professional librarians, and 5 system analysts giving a total of 31 library staff. Oghara library staff consists of 14 para professional librarians, 10 professional librarians, and 4 system analysts, giving a total of 28 library staff, while Ogwashi-Uku polytechnic library consists of 23 para professional librarians, 8 professional librarians, and 4 system analysts which amount to 35 library staff respectively, giving a total of 94 library staff in three polytechnic libraries. The instrument for data collection for this research was observation check list, to identify ICT facilities available in the three polytechnic libraries under study and a questionnaire to elicit information on ICT facilities available in the library, purpose of ICT application in the library, areas of ICT application in the library, and the extent of ICT application in the library. The instruments were administered by the researchers on the respondents and were retrieved on completion by the researchers. The data were analyzed using mean score, percentages and frequency table. The responses were based on a 4 – point rating scale, a midpoint of 2.5 which is the criterion mean was accepted as positive responses, and any percentage that ranges from 50% and above was regarded as positive

Findings

RQ 1; What are the Information and Communication Technologies (ICT) facilities available in Delta State Polytechnic Libraries?

Table 1 (checklist) shows the number of ICT facilities that are available in Delta State polytechnic libraries which is shown from the checklist. The table reveals that out of twenty – one (21) items listed above, nineteen (19) are available in Ozoro polytechnic library, eighteen (18) are available in Oghara polytechnic library, while seventeen (17) are available in Ogwashi-Uku polytechnic library respectively. This shows that the libraries under review have different levels of availability of ICT facilities.

Table 1: Observation Checklist on ICT Facilities in Delta State Polytechnic Libraries

ICT FACILITIES		Ozoro Polytechnic Library		Oghara Polytechnic Library		Ogwashi-Uku Polytechnic Library	
		A	NA	A	NA	A	NA
1	Connected computers	√	-	√	-	√	-
2	Stand-alone computer	√	-	√	-	√	-
3	Telephone	√	-	√	-	√	-
4	Telefascmile equipment	-	√	-	√	-	√
5	Newtwork facilities	√	-	√	-	√	-
6	Online database	√	-	√	-	√	-
7	Machine Readable Catalogue (MARC)	√	-	-	√	-	√
8	Photocopiers	√	-	√	-	√	-
9	Printers	√	-	√	-	√	-
10	Scanner	√	-	√	-	√	-
11	Internet facilities	√	-	√	-	√	-
12	E-mail	√	-	√	-	√	-
13	CD-ROM	√	-	√	-	√	-
14	DVD ROM	√	-	√	-	√	-
15	Online public Access Catalogue (OPAC)	-	√	-	√	√	-
16	Projectors	√	-	√	-	-	√
17	Library based software eg. X-LIB	√	-	√	-	-	√
18	Flash Drives	√	-	√	-	√	-
19	Local Area Network (LAN)	√	-	√	-	√	-
20	Wide Area Network (WAN)	√	-	√	-	√	-
21	Wireless Internet Access	√	-	√	-	√	-

Key: A= Available, NA= Not Available.

RQ 2; What is the purpose of ICT application in Delta State Polytechnic libraries?

Table 2: Mean responses of the library staff on the purpose of applying ICT in polytechnic libraries under study.

S/N	PURPOSE	SA	A	D	SA	Mean	Decision
1	Increased the range of services offered	63	14	7	-	3.66	A
2	It allows easy integration of activities	80	4	-	-	3.95	A
3	It facilitates library cooperation and networks	78	5	1	-	3.91	A
4	It saves time and generate money	67	10	7	-	3.57	A
5	It increases efficiency	69	14	1	-	3.80	A
6	It help to speed up the process of document delivery	70	14	-	-	3.83	A

Table 2 reveals that the purpose of ICT application in Ozoro , Oghara and Ogwashi-Ukwu Polytechnic Libraries as indicated by the respondents which is based on the mean score of 2.5, are thus: Increased the range of services

offered; It allows easy integration of activities; It facilitates library cooperation and networks; It saves time, and generate money; It increases efficiency; and it helps to speed up the process of document delivery.

RQ 3: What areas of the library operations are ICT applied in Delta State Polytechnic libraries?

Table 3: Mean responses on library staff on areas where ICT is applied to in Delta State Polytechnic libraries as presented in table 5 below:

Library Sections	Ozoro Polytechnic Library						Oghara Polytechnic Library						Ogwashi-Uku Polytechnic Library					
	SA	A	D	SD	Mean	D	SA	A	D	SD	Mean	D	SA	A	D	S D	Mean	D
1 Acquisition	4	4	21	-	2.41	R	3	4	17	-	2.42	R	4	2	23	2	2.19	R
2 Cataloguing	21	5	3	-	3.62	A	5	4	15	-	2.58	A	3	3	23	2	2.16	R
3 Circulation	16	-	13	-	3.10	A	3	1	20	-	2.30	R	-	-	31	-	1.00	R
4 Serials	4	6	19	-	2.48	R	3	1	20	-	2.30	R	-	-	31	-	1.00	R
5 Africana	-	-	29	-	1.00	R	-	-	24	-	1.00	R	-	-	-	-	0.00	R
6 Reference	11	1 0	8	-	2.10	R	7	7	10	-	2.88	A	4	2	23	2	2.26	R
7 Bindery	-	1	28	-	2.04	R	3	3	18	-	2.38	R	-	-	31	-	1.00	R
8 Reprographic unit	28	1	-	-	3.97	A	15	1	9	-	3.36	A	31	-	-	-	4.00	A
9 Administration	21	1	7	-	3.48	A	19	1	4	-	3.63	A	31	-	-	-	4.00	A

Key: A=Accepted, R= Rejected, D= Decision

In answering research question 3, mean score in Table 3 shows that the responses in Ozoro Polytechnic indicated that acquisition, serials, Africana, reference and bindery sections do not apply ICT based on the mean score of 2.5, while cataloguing, circulation, reprographic and administration do apply ICT based on the mean score of 2.5 and above.

From the mean score above from Oghara Polytechnic library, it shows that acquisition, circulation unit, serials section, Africana, and bindery section level of ICT application is very

low based on the mean score of 2.5 while cataloguing unit, reference section, reprographic unit and administration do apply ICT.

Furthermore, the mean score also reveals in Ogwashi-Uku Polytechnic library that acquisition, cataloguing, circulation, serials, Africana, reference and bindery sections level of application of ICT is extensively low, while the reprographic section and administration do apply ICT in the library based on the mean score of 2.5.

RQ4: To what extent are ICTs applied in Delta State Polytechnic libraries?

Table 4: Mean responses on library staff on the extent of ICT application in Delta State Polytechnic libraries

S/No	ITEM STATEMENT	Mean OZPL	D	Mean OGPL	D	Mean OG-UPL	D
1	Current Awareness Services (CAS)	2.24	R	2.25	R	2.45	R
2	Provision of bibliographies	2.45	R	1.88	R	1.16	R
3	Photocopying	3.66	A	3.71	A	2.90	A
4	Referral services	2.48	R	2.79	A	2.10	R
5	Displays	2.14	R	2.25	R	1.13	R
6	Bibliographic searches	2.62	A	2.33	R	1.39	R
7	Selected Dissemination of Information (SDI)	1.00	R	2.25	R	1.00	R
8	Lending	2.83	A	2.25	R	2.90	A
9	Indexing and abstracting services	2.21	R	2.25	R	1.90	R
10	Short loan service	3.62	A	2.08	R	3.39	A
11	Registration of users	3.38	A	3.63	A	4.00	A
12	Charging and discharging	3.16	A	2.25	R	2.39	R
13	Inter Library Loan	2.24	R	2.13	R	1.90	R
14	Exchange of Information	2.48	R	2.29	R	2.45	R

Key: A=Accepted, R= Rejected, D= Decision

In answering this research question 4, using the mean score, it shows that the extent of ICT application in Ozoro Polytechnic library is low in the following library services such as Current Awareness Service (CAS), provision of bibliography, referral services, displays, Selected Dissemination of Information (SDI), indexing and abstracting service, inter-library loan and exchange of information, while the extent of application in the following services such as photocopying, bibliographic searches, lending, short loan, registration of users and charging and discharging are high.

In Oghara Polytechnic library, the extent of ICT application based on the mean score in table 5, is relatively low in the following services; Current Awareness Service (CAS), provision of bibliographic, displays, bibliographic searches, Selected Dissemination of Information (SDI), lending, indexing and abstracting service, short loan service, charging and discharging, inter-library loan and exchange of information, while the extent of ICT application are high in services like photocopying, referral service and registration of users.

Also in Ogwashi-Uku Polytechnic library, the extent of ICT application in Current Awareness

Service (CAS), provision of bibliographic, referral services, displays, bibliographic searches, Selective Dissemination of Information(SDI), indexing and abstracting services, charging and discharging, inter-library loan and exchange of information are extensively very low, while services such as photocopying, lending, short loan and registration of users do apply ICT to enhance their services in the library.

RQ5: What are the challenges of ICT application to library services in Delta State Polytechnic libraries?

To identify any challenges of applying ICT to library services in Delta State Polytechnic libraries from library staff, the mean scores were computed and analyzed.

Table 5 indicates that, the challenges of ICT application to library services in Ozoro, Oghara, and Ogwashi-Uku Polytechnic libraries base on the mean score in the above table are; inadequate funding, lack of infrastructural facilities, incompetent personnel, erratic power supply, management problems, high cost of maintenance, software problems, and frequent changes in technology

Table 5: Mean responses of the library staff on the challenges associated with ICT application in Delta State Polytechnic libraries.

Challenges	Ozoro Polytechnic Library						Oghara Polytechnic Library						Ogwashi-Uku Polytechnic Library					
	SA	A	D	S	Mea	D	S	A	D	S	Mea	D	SA	A	D	S	Mea	D
1 Inadequate funding	28	1	-	-	3.97	A	22	2	-	-	3.92	A	20	6	5	-	3.49	A
2 Lack of infrastructural facilities	22	4	3	-	3.76	A	8	14	2	-	3.25	A	26	5	-	-	3.84	A
3 Incompetent personnel	24	4	1	-	3.79	A	19	3	2	-	3.71	A	31	-	-	-	4.00	A
4 Erratic power supply	29	-	-	-	4.00	A	20	4	-	-	3.84	A	20	6	5	-	3.49	A
5 Management problems	20	9	-	-	3.69	A	16	6	2	-	3.59	A	30	1	-	-	3.97	A
6 High cost of maintenance	20	8	1	-	3.66	A	17	6	1	-	3.67	A	28	3	-	-	3.90	A
7 Software problems	20	8	1	-	3.66	A	12	10	2	-	3.58	A	26	5	-	-	3.84	A
8 Frequent changes in technology	24	4	1	-	3.79	A	14	9	1	-	3.54	A	20	6	5	-	3.49	A

Key: A=Accepted, R= Rejected, D= Decision

RQ6: What are the strategies for improving ICT application in Delta State Polytechnic libraries?

To answer this question, mean scores of the respondents on the strategies for improving on ICT application in Delta State Polytechnic

libraries were computed and analyzed. The result as presented in Table , indicated that items 56-68 on strategies to be adopted to solve the problems that hinder effective application of ICT in Ozoro, Oghara, Ogwashi-Uku Polytechnic libraries base on the mean score in table 7 are; increased ICT funding in libraries, more

qualified staff needed in the library, training of library staff on ICT facility, constant supply of electricity, provision of adequate technical support, internet connect, intranet system,

procurement of all relevant ICT components, ICT policy in the library and provision of qualitative bandwidth.

Table 6: Mean responses of library staff on the strategies for improving ICT application in their libraries.

STRATEGIES	Ozoro Polytechnic Library						Oghara Polytechnic Library						Ogwashi-Uku Polytechnic Library					
	SA	A	D	SD	Mean	D	SA	A	D	SD	Mean	D	SA	A	D	SD	Mean	D
1 Increased funding of ICT in libraries	27	2	-	-	3.97	A	22	1	1	-	3.86	A	28	3	-	-	3.90	A
2 More qualified staff needed in the library	26	3	-	-	3.70	A	18	6	-	-	3.75	A	24	6	1	-	3.74	A
3 Training of staff on ICT facilities	26	1	2	-	3.83	A	14	9	1	-	3.54	A	21	9	1	-	3.65	A
4 Constant supply of electricity	27	2	-	-	3.93	A	24	-	-	-	4.00	A	22	4	5	-	3.55	A
5 Provision of adequate technical support	29	-	-	-	4.00	A	18	6	-	-	3.75	A	31	-	-	-	4.00	A
6 Internet connect	20	1	8	-	3.42	A	21	3	-	-	3.86	A	31	-	-	-	4.00	A
7 Intranet system	22	4	3	-	3.66	A	20	3	1	-	3.79	A	28	3	-	-	3.90	A
8 Procurement of all relevant ICT components.	21	4	4	-	3.60	A	22	1	1	-	3.86	A	26	-	5	-	3.68	A
9 ICT Policy in the library	18	2	9	-	3.31	A	15	5	4	-	3.46	A	24	6	1	-	3.74	A
10 Provision of qualitative bandwidth	19	6	4	-	3.52	A	16	5	3	-	3.67	A	27	3	1	-	3.84	A

Key: A=Accepted, R= Rejected, D= Decision

Discussion of findings

The findings of the study is discussed based on the research questions

ICT facilities available in Delta State Polytechnic libraries

The data analysis shows that different ICT facilities are available in the libraries. The facilities are connected computers, stand-alone computer, telephone, network facilities, online database, photocopiers, printers, scanners, internet facilities, e-mails, CD-ROM, DVD-ROM, projectors, library based software eg Xlib, local area network LAN, wide area network WAN, and wireless internet access. Table 2 shows that Ozoro and Oghara Polytechnic libraries are rated high in terms of the ICT facilities available in their libraries, while Ogwashi-Uku Polytechnic library is rated low in terms of the ICT facilities available. The findings seem to agree with Oketunji (2000), Williams (2008) and Nwachukwu (2009), which mentioned the usefulness of ICT facilities that should be available for effective library services. This could also be attributed to Onwubiko

(2006) succinctly asserted that, academic libraries in Nigeria must embrace the technological innovation that may be available in the era.

It was observed that different ICT facilities are available in the library. From the result of the research question one, it is clear that any polytechnic library that does not have the facilities mentioned above (earlier) is living in the past. The statement above affirmed in the light of the fact that insight into the new information society (generation) and present day development of electronic libraries, Nigeria libraries cannot, but join their counterparts Okiy (1998).

Purpose of ICT application in the polytechnic libraries

The result presented in table 3 indicated the purpose of applying ICT facilities to library operations in Ozoro, Oghara and Ogwashi-Uku polytechnic libraries. Among these purposes include the increment in the range of services offered, easy integration of activities, facilitates library cooperation and networks, saves time, and generate money, increases efficiency and

help to speed up the process of document delivery. These findings agreed with Etim (2002) who asserted that the purpose of applying ICT to libraries is to allow easy integration of activities; facilitates library cooperation and networks; to increase the range of service offered; save time and generate money; and increases efficiency. Madu (2004) also stated that the purpose of applying ICT to libraries is that the library staff will have more time, to attend to library users and perform more professional duties.

Areas of ICT application in the polytechnic libraries

On the areas of library operations where ICT can be applied it shows that in Ozoro polytechnic library, ICT were not properly applied in library operations like acquisition, serials, Africana, reference section, and bindery unit. While other library sections in Ozoro polytechnic library such as cataloguing, circulation, reprographic, and administration, ICT is fully applied. However, from table 4, it can be observed that for the entire library sections listed, some of the items of the units had mean score less than 2.5, which is an indication that ICT is not properly applied in such sections, while the sections with mean score of 2.5 and above shows that ICT application is rated high.

On the other hand, ICT application to library operations in Oghara polytechnic library, responses shows they are not applied in acquisition, circulation, serials, Africana, and bindery unit, while sections like cataloguing, reference, reprographic unit and administration are the only areas where ICT is being applied to in the library. Also, from table 4, it was observed that those library sections that the mean score is less than 2.5 are rated low, while those that are above 2.5 are rated high in terms of ICT application in the library.

Furthermore, ICT application to library operations in Ogwashi-Uku polytechnic library indicated that library sections such as acquisition, cataloguing, circulation, serials, reference, and bindery unit level of ICT application is rated very low. The sections where ICT is applied in Ogwashi-Uku polytechnic library are the reprographic unit and administration which is deduced from the mean score in table 4. The researchers observed that ICT is scantily applied in the polytechnic libraries under study.

These findings were in agreement with the findings of Alabi (1983), who dealt on computerization of library services in Nigerian university libraries. From the findings, it was established that there is poor application of computer technologies in Nigeria libraries as a result of factors like conservation to lack of personnel and support facilities. The position of this study is also supported by the findings of Ubogu (1988) on the use of micro-computer in special libraries in Nigeria. It was found out that the more intensive library operations like cataloguing and circulation are not yet computer technology compliance. Rather, this technology is scantily applied in reference services or operations. Therefore, the advantage of ICT application in polytechnic libraries is to facilitate library operations as well as satisfying user's information needs.

Extent of ICT facilities applied in the polytechnic libraries

Based on the analysis on the extent of ICT application in the polytechnic libraries under study, it was observed that in Ozoro polytechnic library, ICT are applied in the following library services to a greater extent: photocopying, bibliographic searches, lending, short loan service, registration of library users and charging and discharging. Also in Oghara polytechnic library, photocopying, referral services, registration of eligible users has ICT application to a greater extent. Furthermore, the extents of ICT application in Ogwashi-Uku library are: photocopying, lending, short loan service, and registration of users. It therefore concludes that only few library services in the polytechnic libraries under review apply ICT to a great extent, others are under applied. This findings is supported by Okonkwo (1998), Sharp (2002), that mentioned, there is no doubt that ICT facilities use has become a must for both library staff and users if they must live up to the research/scientific expectations.

However, the researchers are of the opinion that more ICT facilities should be applied by the library management because it will immensely improve library services and information needs to a great extent in the polytechnic libraries in Delta State. There is also the need for maximum application of ICT facilities because this is the only means of meeting information needs of users.

Challenges associated with ICT application in Delta State polytechnic libraries

According to the analysis done on the challenges associated with the ICT application in the polytechnic libraries under study, Table 6 identified numerous problems associate with application of ICT in the libraries.

Inadequate funding: The findings are in line with Omekwu (2004) who pointed out that initial investment in system study, design implementation, procurement of hardware and software could be very expensive. Ancker and Walden (2001) identify lack of financial resources as one of the most important barrier inhibiting from fully capitalizing on ICT application in libraries.

Lacks of infrastructural facilities have been identified by the library staff and users in the polytechnic libraries under study as one of the problems that inhibit the application of ICT in the libraries. These inadequate infrastructural facilities will lead to giving a limit space for ICT facilities by an individual. Alakpodia (2010) reveals that academic libraries in Nigeria have possibly the single most difficult access hurdle is lack of necessary infrastructure to provide needed services.

Incompetent personnel constitute a great problem which is in line with Ashroff and Wattes (2005) who reveals that lack of ICT personnel (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 in libraries. Also 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 user's resistance and failure to adopt the use of online information have not come to an end.

Another problem confronting the implementation of ICT application in libraries is erratic power supply. Gbaje (2007) observes that the erratic nature of electricity supply will not support the successful implementation and maintenance of a virtual library. Also, Omekwu (2004) added that the epileptic power supply

causes serious damage to the computer hardware and crashing of huge databases.

Yet another problem confronting ICT implementation is management problem. When management is not guided with a good ICT policy in the library, it therefore affects the implementation of ICT in the library. This is in line with Whitten (2001) when he opined that for a library to be ICT compliance, there is need to be a good ICT policy formulated by library management, and such policy should be strictly adhere to suit the library users information need. He sees management policy as a rule meant to coordinate and govern the procurement, use, management and maintenance tools in academic research libraries; he concluded that library management without a good ICT policy will fail.

Moreover, most librarians are running away from the implementation of ICT in their libraries because of the high cost of maintenance. This was supported by Tejiri (2009) when he asserted that the high cost of maintaining ICT facilities is on the high side. Omekwu (2004) is also of the view that initial investment in system study, design, implementation, procurement of hardware and software could be very expensive, he further added that after implementation of ICT, areas of further expenditure include system maintenance or replacement.

Lastly, the problem of software and frequent changes in technology is still another major problem confronting the implementation of ICT in most libraries today; this is in line with Oketunji (2001) when he stated that one of the problems libraries using information and communication technologies may be facing is frequent changes in technologies. New models of ICT are invented frequently, so libraries that don't have enough funds may not be able to face the competition.

The researchers observed that these identified problems are capable of preventing any efforts the library staff and users are making for the enhancement use of the available ICT facilities within their domain.

Strategies employed to enhance ICT application in Delta State Polytechnic libraries

Following the results and analyses on the strategies for enhancing the application of ICT facilities in the libraries, it was observed that table 7 identified good number of them.

The findings agree 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. If libraries are adequately funded, adequate 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 are 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.

The researchers agreed that if all these strategies are implemented, maximum application of ICT facilities in the libraries is guaranteed.

Implications of the study

The findings of this study have implications for the following:

In libraries where there are no adequate ICT facilities, this implies that it will result to non-achievement of the library objectives. The polytechnic libraries management should ensure that there are adequate ICT facilities in order to enhance library services in the polytechnic libraries studied.

The study established that ICT application is critical for the following information service delivery approaches:

- a. Increase the range of service delivery;
- b. Easy integration of activities;
- c. Facilitates library cooperation and networks;
- d. Saves time and generate funds;
- e. Increases efficiency; and
- f. Speed up the process of document delivery.

The implication of these results is that information service delivery will be critically jeopardized without appropriate application of ICT facilities.

The findings on those areas where ICT are not adequately applied to in the polytechnic libraries under study implies that the librarians in those libraries would be operating in a traditional context, thereby applying its existing process rather stimulating new demands. They will equally be made to understand and face technological challenges and potentials benefits of taking on board new approaches to information handling.

The findings that reveal the extent of ICT application in the polytechnic libraries under study as extensively low, implies that the pace in which information and library service will be disseminated will be very slow, as well as dissatisfying library users information needs.

It was also established that library staff in the polytechnic libraries under study were able to identify some problems facing the implementation of ICT in their libraries such as inadequate funding, lack of infrastructural facilities, incompetent personnel, erratic power supply, and management problem, high cost of maintenance, software problems and frequent changes in technology. The implication of these results is that it will reduce the quality of the academic research and their output.

The study also reveals the strategies for enhancing effective application of ICT to library services such as increased funding of ICT in the libraries, more qualified staff needed in the libraries, training of staff on ICT facilities, constant supply of electricity, provision of adequate technical support, internet connect, intranet system, procurement of all relevant ICT components, ICT policy in the libraries and the provision qualitative bandwidth. The implication of these results is that there is urgent need to implement these strategies; otherwise the librarians will face the challenges of application of ICT to library operations.

Recommendations

Based on the results obtained from the study, the following measures are recommended to enhance ICT application in the libraries:

1. There is need for the polytechnic management to provide adequate ICT facilities in the polytechnic libraries under study for effective service delivery.
2. On a regular basis, training programmes should be organized for library staff to enhance their competency skills in ICT.
3. Adequate fund and other means of generating money should be established because without adequate fund, more ICT facilities will not be purchased.
4. There is urgent need for the improvement of power supply in the libraries in order to enhance maximum use of the ICT facilities because they depend on light (electricity) to function.
5. There is need for more infrastructural facilities to be put in place in order to accommodate more users and also to help reduce the problem of giving the users time frame for ICT facilities use.
6. A good ICT policy should be formulated to enhance effective ICT application in the libraries under review.

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- 6 A good ICT policy should be formulated to enhance effective ICT application in the libraries under review.

Conclusion

This study has also been able to identify some purposes of applying ICT facilities in the polytechnic libraries 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 polytechnic libraries of Delta State, 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 researchers 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

- Afam F. (2005). Library automation: problems and prospects. *Paper presented at the workshop on library automation in Nigeria university libraries*. 7-9th June, University of
- Alabi, G.A. (1985). Information Technology: Whither Nigerian Libraries and Documentation Centres. *Leading Libraries and Information Centres* 1(2) 27-35.
- Ibegwam, A. (2002). Internet Communication: e-mail and Medical Research, in Madu E.S. and Dirisu M.B. (eds), *Information Science and Technology for Library Schools in Africa*. Ibadan Evi Coleman Publications 47-57.
- Mabawonku, I (2003). *The Application of Information Technology Distance Learning in, Case Study of three Nigerian Universities* Nigeria Libraries 37(2) 34-45.
- Nwachukwu, O. A. (2009). Use of Information and Communication Technologists (ICT) for Effective Library services in Nigeria Army Training schools. Unpublished MLS project, University of Nigeria, Nsukka.
- Nwachukwu, V.N. (2006). Utilization of Computer Technologies in Federal University Libraries in Nigeria. *An unpublished Ph.D Dissertation*.
- Okentunji I. (2000). Application of Information Technologies in Nigeria libraries: problems and prospect. Ibadan National Association of Library and Information Science Educators.
- Okiy. R.B, (1998). Nigerian Universities Libraries and the Challenges of Information provision in the 21st century. *Library Bulletin: Nigeria University Library System*, 3(1&2): 22-24.
- Okonkwo, R.K (1998). The Challenges of Information Technology and Globalization for the Nigeria. Financial system. *NDIC Quarterly* Vol.8 (2/4). September/December. 18-31.
- Omekwu, C.O. (2006). Nigeria Libraries and the World Summit on the Information Society: Issues, Imperatives and Implication. *A Compendium of Paper Presented at the 44th Annual Conference and AGM of the Nigerian Library Association*, held at the National Centre for Women Development, Abuja, 18-23 June, p.77.
- Omekwu, C.O. (2004). Planning for Library and Information Centre Computerization in Developing Countries Management and Service. Ibadan: Eni Coleman Publication.
- Onwubiko, C.P. (2006). Emerging Tools in the Provision of Library and Information Service in the 21st Nigeria. *The Research Librarian*, 1(1), 16-27.
- Sharp. K (2002). Internet librarian: Traditional role in a new environment, 66th IFLA 13(7), 1-6.
- Tiamiyu, M.A. (2000). Developing Automated Libraries Systems in Developing Countries: Issues and Strategies, in Tiamiyu, M.A. and Ajibola (eds) *Library Automation for the Information Age Concepts Technologies and Strategies*. Ibadan: Fundamental Publications. P.14
- Ubogu, T. (1988). ICT and the new millennium Development Goals. *An International Journal. The Information Technologists* 3(2).97-98.