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ADOPTION AND APPLICATION OF ICTS IN ACADEMIC *LIBRARIES* IN OYO STATE, NIGERIA

By

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Abstract

The study investigated the extent to which government - owned tertiary institutions' libraries in Oyo State have deployed ICTs in their operations. The descriptive survey research design was adopted for the study. Purposive sampling technique was used to select six (6) libraries from the eight (8) tertiary institutions' libraries in Oyo state, Nigeria. Total enumeration was used to cover all the one hundred and fifty five (155) professional and para – professionl library personnel working in the selected libraries. Questionnaire was the main instrument for data collection. However, information gathered from interviews and observations were used to complement what the questionnare provided. Data gathered were analysed by using descriptive statistics of simple percentages and frequency counts. The findings revealed that in all the libraries, computers, Internet, photocopiers, and printers were ICT facilities readily available for use. Also, Internet services were found to be the most common ICT - based library and information services rendered. Based on the findings of the study, it was recommended that the government and the parent institutions should support the ICT drive of the libraries by providing all the necessary human, technical and financial support for full application of ICTs in the libraries.

Key Words: Adoption of ICTs, Application of ICTs, Tertiary Institutions, Libraries

Introduction

Academic libraries established in tertiary institutions like universities, colleges of education and polytechnics have been described as the hub of academic activities. These libraries are responsible for the provision of information needs of their parent institutions in support of learning and research activities.

In the past, before the advent of Information and Communication Technologies (ICTs), the physical building of a library, the physical collections, and the number of users that trooped the library to consult the materials were among the factors used to measure the effectiveness of libraries. However, in this present era of rapid innovations in technology

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and change in the global ICT revolution, emphasis is no longer on ownership of physical buildings and materials stocked in the library but provision of access to research - based information. To this end, Simmond and Andaleeb (2001) have rightly observed that providing quality services in academic libraries is now a major issue among academic libraries who see the library more in terms of the provision of an access to quality service than as just a physical place.

The decline in the use of traditional library services and resources as a result of the global ICT revolution which permit access to online information outside the library location has been widely reported in the literature. Carlson (2001) revealed that as technology becomes increasingly available and digital information expands on a daily basis, academic library use is on the decline. He reported that research libraries on college and university campuses are finding that gate counts and circulation of traditional materials are falling at many college libraries as students find new study spaces in dorm rooms or apartments, coffee shops, or nearby bookstores. Similarly, Nwezeh(2010) conducted a study on the use of ICT in Nigerian Universities with particular reference to Obafemi Awolowo University, Ile-Ife and has reported that 100 percent of the respondents (staff and students) make use of the Internet. 90 percent of the students indicated that they make use of the Internet in Cyber Cafes while only h 1.3 percent use the Internet in the University Library. The reason for this was that the library provides Internet services between 8am – 4pm while the cyber café outside the library is open for 24 hours in a day. Further studies on the use of ICT like the Internet by the faculty members that show strong preference for accessing information outside the library location include Ojokoh and Asaolu (2005) and Akande (2011) which reported students' high preference for using Internet facilities in Cybercafe than in other locations. Summmarily, Nwezeh and Shabi (2011) in their study on the use of library services and resources in academic libraries have shown that the problem of under utilization of library resources is a global one.

The panacea to improvement of library usage by patrons is provision of cutting edge digital resources and services using modern ICT facilities in this present competitive environment in which libraries operate. Information and communication technologies facilitate access and use of information available in electronic format through the use of computers. The advents of ICTS and electronic resources have changed the information seeking process, pattern and behaviour of users. Researchers, students and lecturers now rely more on electronic information resources which are easily accessed, searched, retrieved,

stored, and communicated. With the use of IT tools, collaboration is easier in the process of research and communication. According to Issah, Ayodele, Abubakar and Aliyu(2011), " 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 application of ICTS in academic libraries, particularly computer and Internet technologies, can create a platform for information handling including generation, storage, processing, retrieval and dissemination. Information and Communication Technologies can be defined as the techniques, methods, and tools used to access information and to communicate with others. The term refers to electronic and computer based technologies (Anglo and Wema, 2010).

Academic libraries have been pragmatic in their response to the global changes in patrons' information seeking pattern and behaviour caused by the ICT revolution. In Troll(2002), it has been reported that academic libraries are changing in response to changes in the learning and research environment and changes in the behaviour of library users. Libraries are adding new digital resources and services while maintaining most of the old, traditional resources and services. According to Lukasiewicz (2007), in order to remain a dynamic and important component of the university, academich libraries must embrace change and create digital resources that offer *innovative* reference services. Also, Sing and Piki (2009) have advised libraries to shift their focus from traditional library activities of collecting, processing, storing and accessing information to offer customer-centred automated information services, generated by using online/offline databases, e-resources, e-journals, networks and consortia.

Haliso (2011 opined that all the functions and services that academic libraries used to provide manually can be provided now through the use of ICTS which can do things better and faster. Little wonder that Nigerian academic libraries especially the university libraries have taken bold steps to embark on automation of their library functions. Adegbore (2010) reveals that although efforts at automating manual processes in University of Ibadan, University of Lagos and Ahmadu Bello University, Zaria, started in the mid 1970s and 1980s, serious application of information technology to library processes started in the early 1990s. He attributed the failure of individual efforts at library automation to lack of technical know-how relating to software development and maintenance of hardware. Factors like funding, technical knowledge, power supply, low level of ICT skills, lack of commitment have been

identified by Okiy (2005); Chisenga (2006); Nwezeh (2010) as hindrances to full computerization of Nigerian libraries. This is because, according to Ibegroam (2006) and Haliso (2011), with more than two(2) decades of efforts at automation, most libraries in Nigerian Universities are still on the race to make their services totally ICT-based.

Apparently, the strong interest in the use of Internet and electronic resources by library patrons and the desire to perform library functions faster with ease are the basic reasons for adoption of ICTs in libraries. Installation of commercially available library management systems for automation of library functions has provided platform for the provision of web- based services in the libraries. In some libraries, ICT facilities are used directly to benefit user communities through provision of web-based library information services to users like selective Dissemination of Information, Current Awareness Services, Online Reference and Information Services. In other libraries, electronic databases like EBSCOHOST, JSTOR, OARE, AGORA, HINARI and a host of others are provided for patrons to boost digital access to current, online information for research, learning and teaching purposes. Realizing the vast potentials and opportunities associated with application of ICTs in libraries, most Nigerian academic libraries have embarked on a gradual paradigm shift from traditional library services and resources to the provision of web-based services and resources in a dynamic digital environment.

Although, several studies have been conducted on the use of Internet in Nigerian higher institutions, yet, it appears very little or none of these studies holistically looked at ICTs adoption and deployment especially in tertiary institutions' libraries in Oyo State, Nigeria. It is in the light of this that this study is investigating the extent to which academic libraries in Oyo State have deployed ICTS in performing their functions.

Objectives of the Study

The study aimed at achieving the following objectives:

1. Identify ICT- based resources available and used in the libraries;
2. Identify ICT -based library and information services provided;
3. Find out the automated library functions in the libraries;
4. Determine the extent to which the ICT - based library and information services are provided;
5. Investigate level of ICT proficiency of library personnel;

6.   Assess factors militating against the application of ICTs in libraries.

Methodology

The study adopted descriptive survey research design. The numerical strength of the study population is one hundred and fifty five (155) professional and para-profesional library personnel working in tertiary institutions' libraries in Oyo State, Nigeria. The sample size of the study   is the   entire 155 (professional and para-professional) library personnel in the six government - owned tertiary institutions' libraries in Oyo State.Thus, total enumeration sampling technique was used for the study.

Data were gathered from all the entire library personnel that constituted the sample size.

Instruments

Research data were collected through a self – developed questionnaire, interview schedule and observations. The information gathered from interview conducted with System analysts/System librarians and observations of ICT facilities were used to complement and substantiate the information provided by filling the questionnaire.

The questionnaire was divided into two sections: The first section elicited information on the demographic characteristics such as age, gender, educational qualification, designation and section of work in the library. The second section collected data on ICT use in the library, competencies/skills of staff in using ICT and ICT - based services provided in libraries.

The interview schedule made use of a check-list with questions on library automation, bandwidth issues, funding and staff training. ICT facilities available in the computer/ICT unit of various libraries were observed to elicit information on the level of acquisition and application of ICTs.

Data Collection and Analysis

The questionnaire was administered to majority of respondents at an Annual Conference and General Meeting organized by the Nigerian Library Association, Oyo State chapter on 13th December, 2012 in Oyo, Oyo State of Nigeria. Respondents who were unable to attend the meeting were given the questionnaire to fill in their libraries with the help of professional colleagues. The researcher personally visited the libraries to conduct

interviews with heads of the ICT unit and to observe the ICT facilities available in the libraries. A total of 155 copies of questionnaire were administered while only 119 were returned giving a return rate of 76.8%. Administration of questionnaire covered two (2) weeks.

Data collected on the study were analyzed using descriptive statistics like simple percentages, frequency counts, standard deviation and mean.

Table 1: Questionnaire Administration and Retrieval.

Institutions Libraries	No administered	No retrieved	Percentage Retrieved %
Kenneth Dike Library, Ibadan	55	45	81.8
ThePolytechnic Ibadan	28	25	94.1
Ladoke Akintola University, Ogbomoso	27	16	59.3
Federal College of Education, Oyo	17	13	76.5
Oyo State College of Agriculture, Igbo-Ora.	13	10	76.9
Emmanuel Alayande College of Education, Oyo	15	10	66.7
Total	155	119	76.8

Results

The results of the analysis are presented in the following tables.

Question 1: What are the ICT - based resources available and used in the libraries?

Table 2: ICT-based Resources Used in the Libraries

S/N	ICT resources in Use	Frequency	Percentage
1.	Computers	99	83.2
2	Internet	102	85.7
3	CD-ROM	58	48.7
4	Audio resources (CD's)	40	33.6
5	Visual resources (VCD's)	42	35.3

6	Photocopier	77	64.7
7	Printer	85	71.4
8	Others	19	16.0

The results in table 2 show that the predominant ICT resources in use in tertiary institutions' libraries in Oyo State are Computers, the Internet, Printer and Photocopier. This is evident by the response of participants to the availability and use of resources as shown by 99 (83.2%) participants that indicated for Computers; 102 (85.7%) for Internet; 77 (64.7%) for Photocopiers and 85 (71.4%) for Printers. Audio resources, and Visual resources are also available and used as shown by 40 (33.6%) and 42 (35.3%) participants respectively.

Question 2: What are the ICT-based library and information services provided for library Users?

Table 3: ICT-based Library and Information Services provided in the Libraries

S/N	ICT –based Services	Frequency	Percentage
1.	On-line information services	56	47.1
2	Online reservation services	27	22.7
3	CD-ROM searching.	31	26.1
4	News clipping scanning service	18	15.1
5	Internet services	91	76.5
6	OPAC	55	46.2
7	IT Training for library users	50	42.0

Table 3 shows the services rendered in the libraries by using information technology tools.Looking at table 3, 91(765%) of respondents indicated the provision of Internet services for their patrons. 56 (47.1%) participants subscribed to provision of online information services like Current Awareness Services (CAS) and Selective Dissemination of Information (SDI) while 55 (46.2%) respondents inicated provision of Online Public Access Catalogue (OPAC). Internet services seem to be the most readily available ICT-based information

services rendered by all the libraries surveyed as indicated by the respondents. The least provided service is News Clipping Scanning Service as shown by just 18(15.1%) of respondents.

Question 3: What functions of the libraries have been automated?

Table4: Automated functions of the libraries

S/N	Automated library functions	Frequency	Percentage
1.	Circulation	73	61.3
2	Cataloguing	79	66.4
3	Serial control	33	27.7
4	Bibliography	11	9.2
5	Acquisitions	30	25.2
6	References	30	25.2
7	Data processing	22	18.5
8	Communication	16	13.4
9	Accounting	10	8.4
10	Digitization	13	10.9
11	Human resources management	11	9.2

Table 4 reveals the level of automation of library functions in the libraries. According to the table, cataloguing and circulation activities are the most automated functions in tertiary institutions' libraries in Oyo State as indicated by 73 (61.3%) and 79 (66.4%) participants respectively. 33 (27.7%) participants indicated that their serial control is automated while 30 (25.2%) affirmed automation of acquisitions and another 30(25.2%) of the participants attested to automation of reference services. One can easily conclude from the responses that almost all the libraries surveyed are partially automated and the automation process is on-going in all the libraries.

Question 4: What is the extent of provision of ICT – based information services to the patrons?

Table 5: Provision of ICT-based information Services

S/N	Provision of ICT-based Services	Not at all	%	Very low extent	%	Low extent	%	High extent	%	Very high extent	%	Mean	S.D
1	Internet Service	15	12.6	9	7.6	24	20.2	36	26.9	39	32.8	3.60	1.35
2	Online information service.	18	15.1	12	10.1	23	19.3	40	33.6	26	21.8	3.37	1.34
3	IT training for library users.	32	26.9	10	8.4	26	21.8	30	25.2	21	17.6	2.98	1.46
4	OPAC	35	29.4	17	14.3	23	19.3	26	21.8	18	15.1	2.79	1.45
5	CD-ROM searching.	36	30.3	25	21.0	18	15.1	30	25.2	10	8.4	2.61	1.37
6	Online reservation services.	44	37.0	15	12.6	21	17.6	28	23.5	11	9.2	2.55	1.42
7	News clipping scanning service.	42	35.3	18	15.1	26	21.8	24	20.2	9	7.6	2.50	1.35

The analysis in Table 5 shows the extent to which ICT-based information services are provided for the library users. According to Table 5, the services mostly provided are Internet Services as shown by (75, 59.7%) of respondents with mean score of 3.60 and Online information Service (66, 55.4%) respondents with mean score of 3.37. ICT-based services like news clipping scanning service and online reservation service are not readily provided for the library users as indicated by (86.0, 72.2%) and (80, 67.2%), of participants respectively.

Question 5: What is the level of proficiency of library personnel in the use of ICTs in the libraries?

Table 6: Proficiency of Library Personnel in using ICTs

S/N	Items	Poor	%	Average	%	Good	%	Excellent	%	Mean	S.D
1	Internet	12	10.1	11	9.2	41	34.5	55	46.2	3.17	.97
2	Computer	5	4.2	23	19.3	40	33.6	51	42.9	3.15	.88
3	E-resources search	8	6.7	22	18.5	43	36.1	46	38.7	3.07	.92
4	Presentation	22	18.5	43	36.1	33	27.7	21	17.6	3.07	.99
5	Project management	22	18.5	41	34.5	41	34.5	15	12.6	7.41	.93
6	Troubleshooting	30	25.2	37	31.1	38	31.9	14	11.8	2.30	.98
7	Webpage design	26	21.8	48	40.3	40	33.6	5	4.2	2.20	.83

The results in table 6 show that the library personnel are highly skilled in using the Internet. This is evident with the response of 41 (34.5%) of the participants who are good at using the Internet and 55(46.2%) who are excellent at using the Internet .For Computer, 40 (33.6%) are good while 51 (42.9%) are excellent. As regards E-resources search, 43 (36.1%) participant are good while 46 (38.7%) are excellent.

The personnel are not all that skilled in presentation, project management, troubleshooting and webpage design as revealed in Table 6. This is because in all these ICT based activities, more than half of the participants responded that they were not above average when their skills were rated.

Question 6: What are the factors militating against application of ICTs for services in the libraries?

Table 7: Factors Militating against Application of ICTs

S/N	Factors	Don''t know	%	None	%	Some	%	Large	%	Mean	S.D
1	Lack of budget/inadequate funding	12	10.1	24	20.2	41	34.5	42	35.3	2.95	.98
2	Lack of ICT policy	16	13.4	21	17.6	49	41.2	33	27.7	2.83	.99

3	Lack of regular training for library staff on ICT use.	8	6.7	30	25.2	55	46.2	26	21.8	2.83	.85
4	Irregular power supply	12	10.1	29	24.4	49	41.2	29	24.4	2.80	.93
5	Lack of commitment by institutional management.	12	10.1	35	29.4	40	33.6	32	26.9	2.77	.96
6	Uninterupted access to the Internet	10	8.4	37	31.1	44	37.0	28	23.5	2.76	.91
7	Lack of ICT skills by library users.	13	10.9	21	17.6	67	56.3	18	15.1	2.76	.84
8	Inadequate ICT infrastructure	11	9.2	33	27.7	50	42.0	25	21.0	2.75	.84
9	Lack of qualified ICT staff.	16	13.4	31	26.1	50	42.0	22	18.5	2.66	.93
10	Negative attitude and reluctance of staff to use ICT.	16	13.4	35	29.4	48	40.3	20	16.8	2.61	.92
11	Difficulties in recruiting and retaining ICT qualified staff.	15	12.6	43	36.1	44	37.0	17	14.3	2.53	.89

Table 7 reveals inadequate funding as the most serious factor impeding the use of ICTs in the libraries as indicated by 83 (69.8%) of the participants. Other serious factors are lack of ICT policy as shown by 82 (68.9%) of respondents ; lack of regular training for library staff on ICT use indicated by 81 (68.0%) of respondents; irregular power supply affirmed by 78 (65.6%); uuninterrupted access to the Internet indicated by 72 (60.5%). A vivid look at table 7 shows that all the factors are impediments to application of ICTs in the libraries. This is because majority of the participants (more than half) rated each of the factors as having some or large impact on the use of ICTs.

Discussion

It is clear from the results of the first research question in this study that computers, Internet, photocopiers and printers are readily available and used in tertiary institutions' libraries in Oyo State. However, as at the time visitation was made to the Polytechnic of Ibadan Library and Emmanuel Alayande College of Education Library, it was observed that the Internet in the libraries was not functioning for now. At Polytechnic of Ibadan library, the

students cannot access the Internet in the old library while Internet connectivity is being worked upon in the newly commissioned Electronic Library. Interview conducted with the System analyst revealed that the management has not released fund to pay the Internet Service Provider. However, it was revealed that the library staff can use the Internet to perform their functions like online cataloguing . At Emmanuel Alayande College of Education, there was no Internet service because they could not service their debts with the Internet service provider. Hope was however high that the State Government would soon release money to clear their debts.

The availability and use of computers, Internet and printers in tertiary institutions' libraries for learning, searching, research, word processing, online catalogue and e-publishing have been documented in studies like Nwezeh (2010);Akande(2011), Simmond (2001) and Salaam and Bamgboye (2011. On the ICT based library and information services provided for the library users, the study has revealed that internet services were highly valued in all the libraries. Almost all the libraries provide web-based services to the users even though some libraries experience some challenges in discharging those services. The issue of slow speed of the Internet due to low bandwidth is a major problem in all the libraries. However, University of Ibadan library's catalogue can be accessed on the library's website (OPAC). The Polytechnic of Ibadan library is still developing its OPAC using LIBPLUS Library Integrated software while the students and lecturers can access the Ladoke Akintola University of Technology library OPAC using the designated computers in the library. All the libraries surveyed have regular programmes on IT training for their users. Current Awareness Services and Information dissemination using ICT platform like e-mailing, online reference services, are rendered to the library patrons. The findings of this study are in agreement with Okoroma (2010) which states that in spite of inhibiting factors associated with automation in university libraries, U. I. library OPAC had been opened to users.

About the automation of library functions, the results show that cataloguing and circulation activities have been fully computerized in the libraries. These findings are similar to that of Krubu and Osawaru (2011) and Haliso (2011) which reported that Readers service division (circulation) and technical service division (cataloguing) are the fully computerized divisions in the libraries they surveyed. The finding of this study also support Islam (2007) where it is reported that out of 9 libraries surveyed in Bangladesh, 7 had their circulation activities computerized and all the 9 had their cataloguing services computerized. Akintunde

(2005) has also affirmed that the main application of ICTs to library service in University libraries is in the area of cataloguing.

Furthermore, the results reveal that out of all the ICT based information services provided for the library users, Internet and Online Information Services were ranked highest. This is not surprising because over the years, the Internet has become an all important technological tool in the production, marketing and use of information worldwide (Nwezeh, 2010). Also, Hites (2005) justifies the provision of Internet in the library by observing that information and Communication Technologies (ICTs) are increasingly being accepted and integrated in teaching, learning and research agenda in Universities in all the nations of the earth (including Nigeria). Libraries, especially academic libraries are established to support curriculum delivery and provide information services and resources for their parent institutions. The study has also identified some factors militating against the application of ICTs in the libraries. According to the results of the study, inadequate funding, lack of ICT policy, lack of regular training for library staff on ICT use, irregular power supply, were among the factors indicated by majority of the participants as hindrances to application of ICTs. The results lend credence to similar findings identified by previous studies like Okiy (2005), Chisenga (2006), Nwezeh (2010) and Haliso (2011). Opadeji-Komolafe (2009) opines that parent institutions can help by formulating ICT policies to encourage collaboration with institutions, agents, and governments from developed countries to get funds and technical training and advice. It is apparent that most of the challenges confronting deployment and application of ICTS in libraries are multidimensional. However, with adequate funding, and change in attitude, some of these problems will be solved.

Another result reveals that the library personnel are highly skilled in using the Internet, computer and searching electronic resources. However, their skills in ICT activities like troubleshooting, webpage design, and project management need to be developed. Ramanal(2006) has advised Library Professionals to develop experience technological competencies required to make best use of the opportunities, the ICT offers in order to provide a gateway access to wide range and variety of information resources and services. The high level of competence shown by the library personnel in using the Internet to search information was similar to the findings of Ezeani (2011) who reported that librarians within the University of Nigeria library system fare well with the use of basic Internet applications. She added that the Internet offers a uniquely rich resource for authentic inquiry and librarians

must learn to orchestrate sophisticated strategies to become literate in this complex environment.

Conclusion

The results of this study have clearly shown that tertiary institutions' libraries in Oyo State, Nigeria, have adopted and applied ICTS to some extent in performing their functions. For academic libraries to be relevant today, they must understand the changing users behaviour and respond appropriately to meet their needs by adjusting and redesigning their programmes and approaches to service delivery. The only option left for them is total application of ICTS and continual adoption of new technologies as they emerge to serve their clientele who operates in a changing digital environment. This is in line with Breeding(2012) comment that states that, today as all areas of librarianship are deeply intertwined with technology, it's essential that these programs instill new information professionals with the ability to master the technologies of today, but more importantly to adapt to those that will cycle in and out through the decades of their career.

Recommendations

Based on the findings of this study, the following recommendations are proffered:

1. The institutions' libraries ICT drive should be supported by their parent institutions with full financial backing to facilitate the implementation of their ICT projects.
2. Staff training, development and continuing education in ICT skills acquisition should be encouraged and taken seriously.
3. Regular effective power supply supplemented with standby generators should be provided to solve the problem of incessant power outage.
4. The library staff should show more positive attitude towards enhancing their skills by looking for opportunities to develop themselves through in-house and overseas trainings.
5. The libraries should embark on serious training programmes through   organization of workshops and seminars on issues relating to application of software and computerization of library functions.

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