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Impact of New Information Technology on Librarian Effectiveness in Performing Library Functions: A Case of Nigerian University Libraries

IGBEKA, J.U.

Kenneth Dike Library
University of Ibadan

Abstract

Information technologies have been found to play an important role in various functions in the library, and for library users. Academic libraries like all other libraries make use of various information technologies. This study investigates the availability of different information technologies in academic libraries in Nigeria and examines the effectiveness of librarians in the use of these information technologies. The study determines the impact made by library-automated systems, electronic data systems and services in academic libraries. Twelve Federal Universities in Nigeria were randomly selected for this study, and the questionnaire instrument was used to collect data. The result of this study indicates the following; that there is a significant difference in the use of new information technologies and librarians' effectiveness, that there is no significant relationship between new information technologies and librarians' effectiveness, and finally that new information technology does not have a significant contribution to librarians' effectiveness in Nigeria. It is therefore recommended that librarians should be properly trained in the use of these new information technologies. Provision should also be made for each academic librarian to have a personal computer (PC) available for constant use by these librarians.

Introduction

Information technology has been defined as "the application of computers and other technology to the acquisition, organization, storage, retrieval, and dissemination of information" (American Library Association, 1983). The information technologies found in libraries today are of three types, namely: computers, storage media, and telecommunications. Computers are mainly used for processing of transactions, sorting of data. Storage media, like magnetic disk and others, for example CD MARC, and different databases in compact disk with CD-ROMS.

The disk is the most common storage device, with high capacity for storage. Telecommunication facilities, like the telephone which aids the transfer of data and information.

The following are considered part of information technology:

- ❖ automation (Online Public Access Catalogue (OPAC) cataloguing, acquisitions, periodicals control, circulation, reference);
- ❖ telecommunications (networks);
- ❖ electronic mail, electronic bulletin boards, and electronic conferencing;
- ❖ online reaching compact disk read only memory (CD-ROM);
- ❖ tele facsimile (fax);
- ❖ personal computer applications.

Advantages of new information technology

In a library, computers can be exploited to achieve maximum efficiency in performance of routine functions. Various tasks involving indexing, compiling of bibliographies maintaining catalogues, even cataloguing originally, generating staff records are usually performed easily by manipulations of the computer (Idowu, 1995). According to Cochrane (1992), some of the advantages of IT (information technology) to libraries are:

- ❖ allows easy integration of various library activities;
- ❖ facilities co-operation and the formation of library networks;
- ❖ helps to avoid duplication of efforts within a library and between libraries in a network;
- ❖ eliminates some uninteresting and repetitive work;
- ❖ helps to increase the range of sciences offered;
- ❖ provides marketing opportunity of its sciences;
- ❖ ultimately save and/or generate money;
- ❖ increases efficacy.

There are also some advantages to library users. Some of the advantages include (Henderson, 1992):

- ❖ provides speedy and easy access to information;
- ❖ provides remote access to users;
- ❖ provides round-the-clock access to users;
- ❖ provides access to unlimited information from different sources;
- ❖ provides more up to date information;
- ❖ provides information flexibly to be used by any individual according to his or her requirements;

- ❖ provides increased flexibility;
- ❖ facilitates the reformatting and combining of data from different sources.

Academic libraries in Nigeria

Wherever students and scholars assemble, so do books. Evidence that the Greek academics and Chinese Universities had large collections, and that teaching monasteries placed great value on book collections is examined by H.J. Vleeschauwer in Mousaion (31, 32) 1958 under the title 'Academics and Libraries'. This traces the history of the growth of the University idea (Academic and Legal Deposit Libraries, 1965).

It is widely understood that the library is the 'soul' of the University, and all teaching and research revolves around it. Therefore, University/academic libraries should be designed to support the role which has been assumed by or assigned to the University. The fundamental role of the library is educational. It is a dynamic instrument of education. In this context therefore library use becomes a method of teaching, taking its place beside the time-honoured lecture and the discussion group. The librarian serves as a teacher - guiding the student in the ways of investigation and research - and the library actively serves the teaching and research needs of the faculty.

In Nigeria, academic libraries supposedly play the above-mentioned role when the facilities are there. Not all academic libraries in Nigeria have enough texts and materials to be able to play the role libraries are supposed to play especially in modern times where information technology facilitates and enhances research and learning. For example, Adeniran et al (1993) found out that only fifteen microcomputers can be found in only nine of all the forty-six academic libraries in Nigeria. The microcomputers then were mostly used for administrative routines such as Management Information System (MIS) personnel records, library administration, and word processing, except for about three of the Universities.

Now, the number of academic libraries has increased tremendously but more improvement can still be made. Many of the academic libraries with computers use them for library functions e.g. cataloguing, circulation, acquisition using different library software. Computer application, and information technology as a whole is bedeviled with a lot of problems.

They are, increasing costs of procuring hardware and even the available hardware has to be Year 2000 compliant. This involves extra expenses. There is also increase in the cost of procuring software, shortage of qualified personnel, unreliable electricity and telecommunication facilities, and political and administrative charges producing opposing information policies, which even cancel previous achievements (Adeniran, 1993).

It is important to note that libraries administratively under Universities are termed academic libraries.

Objective of the study

The study mainly investigates the availability of different information technologies in twelve randomly selected university libraries in Nigeria. The study examined the extent to which these are being used, and the various library services carried out. Finally, the study determines the impact made by library-automated systems, electronic data systems and services in academic libraries.

Literature review

As the volume of information production is so great, even the largest libraries of western countries can no longer hope to achieve completeness on a comprehensive basis but must resort to various forms of use of new technologies in order to make the available information accessible to users as at when needed.

Thacher (1983) states that work presses less heavily on the way men organise their life course now due to the impact of computerization. It is of the view that the growth in research work as a result of computerization suggests that more people are working in settings where clock time no longer dominates.

Ehikhamenor (1993) defined information technology as the acquisition, processing, storage and dissemination of information by means of computers, office machines and telecommunications. He also stated that computer provides the facilities for the transfer or communication of data and information.

Lawani (1978) opined that the era of the computer in Nigerian Librarianship could usher in much greater co-operation, improved services and lower costs especially if we ensure that whatever applications we develop in our own library can be applied elsewhere and are compatible with systems in other libraries. We must ensure that we create databases that we can exchange and merge as needs arise. This agrees with Gelfend's (1965) asking University libraries in developing countries to work together in form of co-operative acquisition and similar ways.

Awogbami (1994) in his work on the use of computers in agricultural and information centres in Nigeria, noted that sixty-nine percent of the libraries studied seem to enjoy the use of the computer for library functions. One of the advantages of IT in cataloguing, is that with the new IT in place, it is possible to make the machine readable original cataloguing done by one library available to others. The sharing can be done through media such as floppy disk, CD-ROM, Internet and the likes (Eyitayo, 1998).

In Nigeria, we are still faced with some problems. According to Awogbami (1994), some of these problems include lack of top management commitment

because of the resistance of administrations to need for change. Lack of communication and involvement of librarians in financial planning and decision making; lack of staff development programmes for libraries, lack of funds for purchase of computers, coupled with the falling value of the Naira.

Research design/methodology

This study was conducted ex-post facto under a survey design. Data for this study was collected by means of a questionnaire which was designed to obtain information on the impact of New Information Technologies on some library services in academic libraries in Nigeria. To accomplish the above objective, the written questionnaire was administered by hand to the University librarians in these libraries. Twelve academic libraries were randomly selected. The criteria for selection were based on the different zones/regions in the country. Three academic libraries were selected from each region. Some follow-up were undertaken to remove some misunderstanding, if any, in the questionnaire. All the questionnaires were returned, though not all were returned in time which might have caused some changes which might have taken place in the libraries that returned their questionnaires earlier.

Method of data analysis

Respondents' ratings of "New Information Technology" and "Librarian Effectiveness" constitute the main data for analysis. The two sets of data were obtained for each of the twelve libraries.

Dependent T-test was used to test for difference between "New Information Technology" and Librarian Effectiveness". Pearson Product Moment Correlation was used to test for the magnitude of relationship between the two pairs of data. Linear regression was used to find out if information technologies have any significant contribution on librarians' effectiveness in Nigerian Universities.

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Quantified responses for the Universities

S/NO	University	New Information Technology	Effectiveness
1.	University of Benin	00	65
2.	Ramat Library, University of Maiduguri	08	48
3.	Kenneth Dike Library, University of Ibadan	09	63
4.	OAU, Ile-Ife	06	56
5.	Bayero University Library, Kano	08	61
6.	Federal University of Agriculture, Makurdi	11	59
7.	Nnamdi Azikiwe University, Awka	03	56
8.	N.F.L.U., Badagry	07	53
9.	University of Uyo	02	59
10.	Federal University of Agriculture, Umudike	00	54
11.	University of Port Harcourt Library	08	49
12.	Usman Danfodio University Library	08	57

Results and discussion

The questionnaire responses from twelve federal university libraries from different regions/zones of the country were analysed based on the following hypotheses:

1. There is no significant difference between librarians' level of adoption of new information technology and their level of effectiveness in performing library functions in the sampled universities.
2. There is no significant relationship between librarians' level of adoption of new information technology and their level of

effectiveness in performing library functions in the sampled universities.

3. Introduction of new information technology does not contribute significantly to the effectiveness of university librarians in performing library functions.

Hypothesis 1

There will be no significant difference between new information technology and the librarian effectiveness in some Nigerian Universities. This hypothesis is tested using independent t-test analysis. Differences between the 2 variables (new information technology and librarians' effectiveness) are presented in the following table.

UNIVERSITY OF IBADAN LIBRARY

Table 1: T-Test Comparison of New Information Technology and Librarian Effectiveness

Source of variation	N	Mean	S.D	S.Ex	T value	df	Sig T	Rem	Decision
New Information Technology	12	5.8333	5.664	1.058	25.67	11	0.000	sig.	Reject
Librarian Effect.		56.666	5.176	1.494					
		7							

Sig = significant at $P < 0.05$

N = total number of Nigerian Universities used

S.Ex = standard error and mean

df = degree of freedom

Table II: Relationship between New Information Technology and Librarians' Effectiveness

New Information Technology	Librarians' Effectiveness		Remark	Decision
	N	Sig T		
	12	0.514	NS	Accept
		<i>r</i>	-0.1806	

NS = Not significant at $P < 0.05$

r = correlation coefficient

N = Number of Nigerian Universities used.

Hypothesis II

Relationships between the new information technology and librarians effectiveness in 12 Nigerian Universities is shown in the table above. A correlation coefficient of -0.8106 not significant at $P < 0.05$ is observed. This implies that the hypothesis which states that there will be no significant relationship between the new information technology and the librarians' effectiveness in some Nigerian Universities is up held. This indicates that the growth of new information technology in some Nigerian Universities is not significantly consistent with the librarians' effectiveness as most of these universities do not have the new information technology materials required. Another issue here is the negativity of the relationship. This indicates that as the librarians' effectiveness is going up, the use of new information technology is decreasing.

It is proper here to conclude that using this new information technology inhibits most librarians' performances in their jobs. For example, some of them do not know the techniques involved in the use of this information technology and hence reduction in their efficiency. Many of them who decided to use the new information technique found out at the end of the day that they are not effective in their work.

Hypothesis III

There will be no significant contribution of the new information technology on the librarian effectiveness in some Nigerian Universities.

This hypothesis is tested using simple linear regression analysis as shown in the tables below.

Table IIIa: Regression Summary of New Information Technology on Librarians: Effectiveness

Multiple R	0.18057
R ²	0.03261
Standard Error	5.33909

Table IIIb: Analysis of Variance

Some of Variation	DF	Sum of squares	Mean squares	F	Sig F	Remarks
Regression	1	9.60798	9.60798	0.3375	0.574	NS
Residual	10	285.05869	28.50587			

NS = Not significant at $P < 0.05$

F = F-ratio

DF = Degree of freedom

Table IIIc: Parameter Estimate

Variable	B	SEB	Beta	T	Sig T	Remarks
N.I. Tech.	-0.255079	0.439365	-0.180572	0.581	0.5744	NS
Constant	58.154628	2.990699		19.445	0.000	

NS = Not significant at $P < 0.05$

B = unstandardized regression weight

SEB = standard error of B

Beta = standardized regression weight

Results in Tables III(a) – III(c) indicate that the new information technology has a multiple correlation of 0.18057 with the librarians' effectiveness. This variable explained 3.26% of the variance in librarians' effectiveness. The parameter estimate shows that new information technology does not have a significant contribution to the librarians' effectiveness.

Conclusions and recommendations

It is an obvious fact that people do not easily adapt to change. The result of hypothesis 1 proves this. But when the advantages of change is properly demonstrated, known and seen, people would gradually adapt to change and in most cases come to prefer the change. This supports Awogbami's observation (1994), see literature. Thus with time, constant use, adaptability, and less break down of these technologies, the difference in use of the new technologies would have an impact on librarians' effectiveness.

It is therefore recommended that there should be constant use of these technology, and in cases where librarians do not know how to use them to perform library functions, they should go for training on how to use the various available library software. Most librarians sometimes do not practice what they have learnt in various workshops organized for them, either because they do not have enough computers, or some other bureaucratic reasons, hence they resort to doing their job in the traditional methods.

With hypothesis II, the relationship between the new information technology and librarians' effectiveness in the 12 sampled Nigerian Universities is not significant. A negative relationship exists here (see table). The use of these new information technologies should increase the effectiveness of librarians but now inhibits librarians' effectiveness probably because they do not know how to use them enough. This must be that the librarians must need more training to be able to efficiently use these tools. Most of the computers in the libraries as the librarians indicated are used for performing other functions, like secretarial and administrative functions and so on. It is therefore recommended, that librarians in various sections in the library should have their own computers and be able to perform their various library functions using the computers with the appropriate software. With constant use after training, they will become used to the new system and this would probable make an improvement in their function.

Presently in most university libraries, new information technology do not contribute significantly to librarians' effectiveness in their various library functions (Hypothesis 3). As stated earlier with improvement and constant use of these technologies librarians will become very familiar with these tools, then better contribution could be made by use of these information technologies.

A few research libraries in Nigeria, for example, IITA (International Institute of Tropical Agriculture), are already experiencing the advantages of the use of information technologies in their libraries, since their library activities

depend largely on these new information technologies. Most of their librarians make use of personal computers so they are familiar with them.

Most of the university libraries that make use of these technologies, always have problems maintaining the systems. Hence for a long time the computers may not be in use due to financial constraints and lack of expertise in some cases. Until the librarian is properly trained in the use of both hardware and software, information technology will not have much impact on librarians' effectiveness in library functions and services.

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