

**APPLICATION OF COMPUTER TECHNOLOGY TO CIRCULATION
SUBSYSTEM OF THE FEDERAL UNIVERSITY OF AGRICULTURE,
ABEOKUTA,**

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Abstract:

The study appraises the application of computer technology in circulation subsystem of the central library of the Federal University of Agriculture, Abeokuta, Nigeria. A structured questionnaire was designed and administered to ten (10) professional librarians in the circulation section of the library. In addition to the frequency distribution used to describe certain features of computer technology application in the library, chi-square was performed to test the librarians' views as regards reasons for automation.

The study observed the aroused interest of librarians and library users in the application of computer technology in the circulation subsystem. It also identifies reasons for the library automation, including improved services, Nigerian University Commission's (NUC's) directive and university policy (in this order) among others. Values attached to such reasons are however observed to vary significantly from one to another. As hindrance to the success of the computer application, the study identifies such problems as lack of software, inadequate power supply, network errors and poor maintenance of equipment. To alleviate the problems, recommendations were provided.

Keywords: Automation; Circulation; University Library.

Introduction

The introduction of computer technology into the library system has revolutionised the operation and use of libraries. With this technology, material resources needed for teaching and research become easy to access. More than ever before, Nigerian libraries have developed interest in the use of modern technology to enhance their productivity and improve their services. In spite of the aroused interest in the technology, some of our academic libraries are yet to computerize their services. This is not unconnected with some basic factors such as fund and expertise. With the efforts of some libraries which are now trying to replace manual system with

automated one, computers are now being used for charging books out, record keeping, writing of over due notices etc. Again, other libraries that are yet to adapt the technology are also setting their targets for automation and are lobbying their appropriate owner-government or owner-organization to provide all necessary and regular subventions towards that.

It is against this background that this study attempts to find out how the information technology has benefited the circulation subsystem especially in an academic library like the Federal University of Agriculture, Abeokuta.

Statement of Problem

According to Nkhoma (2003) , computerization of the processes of accessing information and technical services is the cherished goal of the library, especially in the circulation and cataloguing subsystems. He observes that: (1) the manual charging was characterized by long queues and unnecessary delays, (2) the filling of users' cards and keeping of statistics was not only cumbersome but also getting out of control as filing cards spills over to the next day on several occasions; (3) that maintenance of manual card catalogue proved problematic, and (4) that the control and maintenance of serials was cumbersome as a result of many records created.

As a result of the above, there is urgent need for computerization in our libraries. However, the major hindrance to this challenge has been inappropriate software with which the computer system is run. As observed by Idowu (2000), the software packages available for use in the libraries are not problem-free. Such problems, according to her (Idowu) include: frequent breakdown of the system, frequent network errors and software maintenance. These problems have made many libraries to change from the use of particular software to another. Federal University of Agriculture, Abeokuta's library is not left out in this negative scenario.

In view of the above, in appraising how beneficial the technology has been to the library, the paper probes into how appropriate or otherwise is the software being used in the library. It specifically attempts to provide answers to these questions:

- 1 Why the use of the computer technology in the library?
- 2 Are there enough computers for use in this section of the library?
- 3 Is the library staff trained to handle the computers?
- 4 What type and level of training do they have?
- 5 What type of software is in use?

Study Aims and Objectives

The purpose of this study, is to appraise the introduction of computer technology in the circulation subsystem of the Federal University of Agriculture, Abeokuta. However the specific objectives are as follows:

- 1 To examine the type of software being used at the central library of the Federal University of Agriculture, Abeokuta.
- 2 To assess the extent of automation in the circulation section of the library.
- 3 To identify the number and type of staff available in the section of the library.
- 4 To identify the problems militating against library automation in the circulation subsystem.
- 5 To proffer possible solutions to the problems so identified.

Justification for the study

One of the usefulness of automated systems in libraries is provision of quick and easy access to information. This has been the driving force behind the aroused interests of many researchers who have carried out studies on library automation. However, rather than examining the importance, use and problems of library automation vis-à-vis various sections or subsystems of the library where such technology is much needed, approaches have been generally in the library as a whole. This study therefore, provides a good platform upon which the use of computer technology in circulation section is assessed. It also serves as an eye-opener for the need to do the same for other sensitive sections of the library.

The study particularly throws light on which aspects of other adoption of the technology need certain encouragements, assistance or modification to enhance effectiveness and efficiency in the use of the technology.

The study also arouses interest in more research endeavour in the area of library automation especially in the remaining subsystems. All the above are in addition to contributing to the existing literature on the subject matter.

Literature Review

Before library automation, cataloguing procedures were done manually using the Anglo American Cataloguing Rules (AACR 11), The Library of Congress (LC) Classification Schedules and Subject Headings Schemes or Dewey Decimal Classification Schemes (DDC) (Reference). But as time went by, the advent of automated system transformed the manual cataloguing to MARC tapes and on books as the Cataloguing In Publication (CIP) prepared by the Library of Congress in the United States are made available.

Library automation, according to Gupta (1977) is a process of converting existing library services and practices to electronic-based media that ensures better performance with higher speed and greater cost effectiveness. As observed by Kumar and Kar (1975:47), automation allows easy circulation operation where there are many users to attend to. It will also allow units to

work together as a department because each will be able to link up in a network within the library system.

However, library automation as explained by Idowu (1997), is much more than just electronic facilities that replace manual process; but consists of a mechanized and automated application of computers to information output, handling, processes and retrievals. It should be noted that computers are common features of libraries; and this is why Kimber (1994:7) opines that "the computer, in general terms, is a machine not just for performing mathematical computations but for manipulating characters and steering them.

In his own view, Ekoko (1996:55) defines the computer as a machine endowed with the ability to carry out arithmetic operations and simple logical instructions which it obeys blindly as a result of human guidance. Sanni (1996:65) defines it as electronic device used for solving commercial and scientific problems by undergoing a series of steps or procedures. Esan (1996:12) defines it as an electronic machine or a set of machines, which accepts raw data, presents it in a special format, carries out some operations on the data and produces results in a special format as information.

Summarily, computers can handle, process, store and help to disseminate information. Therefore, in a library situation, computer can handle, store, process and disseminate information for the benefit of users (students, researchers, lecturers, etc.) Thus, the use of computer technology in our libraries can be observed to be of much importance.

The advantages of automation in the library are many. In an automated environment, library functions are not as time-consuming as in the manual system. Besides, automated system is designed to assist all researchers, learners and categories of library users to have quick access to information. It is in recognition of the above that Kimber (1974) enumerates the advantages of library automation to include: (1) efficiency through improved services. (2) Saving of time for users and staff, (3) minimizing errors and (4) bringing about less tedious work, cheaper and adequate measure of staff performance without stress.

The above advantages are corroborated by Mambo (1993:38) who advised that libraries in developing countries should automate their systems to enjoy increased access to reading materials, complete services with greater precision and reliability with little or no delays. This, as observed by Idowu (1997:24) is the order of the day as libraries world over are now pre-occupied with the application of computer technology to routine processes such as acquisition, cataloguing and classification, circulation services, reference, reserve and serials control services in the library.

Computer Application to Circulation Functions.

Circulation system, according to Olufeagba (1977) involves the mechanization of activities such as "charging of books to users, renewing of books, processing, reservation, monitoring of utilization of books, operating short term loans of document processing, over due notices and calculating fines, answering library queries, discharging returned materials and checking for possible hold request.

It has been observed, however, that a lot of time is wasted in carrying out these functions manually. To solve these problems more hands are employed: but this does not help the situation as it only leads to increased budget for salaries and allowances of staff. With library automation the problem does not arise as it helps to save both library staff and users' time.

This is why Venezaeno (1992) observes that an automated system increases consistency in the system operation; improve response time for queries and other functions. He notes that automated circulation control could simplify implementation of daily activities because circulation system is the "services centre of the library" Other similar advantage of the automated circulation system as identified by Dennis and Stockton (1974) is the possibility of knowing the daily circulation report which tells the status of every book that is not on the shelves.

Summarily, therefore, the automated circulation control subsystem includes all the features and functions needed to keep track of the location of specific items, circulate them efficiently, carry out all the checkings, discharges and renewals. It can automatically check borrowers' records for overdue items; personalize messages, overdue notice, recall and reservation of library materials. Above all, with automation in place, inter-library loan services will also be more efficient.

Research Methodology

Sample survey methodology was adopted. As suggested by Denga and Ali (2002) the use of survey method is economical and permits inference from and generalization of the population that would be too expensive to study as a whole. The few professional librarians of the circulation section of the library were involved in the sample survey.

Questionnaire was used as an instrument of collecting data on such issues as type of software being used, personnel and activities at the section of the library as well as reasons for the automation, among others.

The data so collected were analyzed using simple frequency distribution as well as chi-square.

Results

On the reasons for the automation, 40% of respondents subscribe to

improved services. This is followed by the reason of NUC directive which has 30% of respondents subscribing to it. The reason of automation being part of the university policy, has 20% of respondents favouring it, while none of the respondents sees the reason of 'feeling among other libraries' with automation as a genuine reason for the automation in the library. The weight attached to such reasons as measured by the proportion of respondents subscribing to each, vary significantly from one to another as the calculated chi-square value is 50, while the table critical chi-square value, even at $\alpha = 0.01$ is 13.28 (i.e. less than calculated value)

Table 1: Reasons of automation.

S/N	Reasons for Automation	Observed	Expected	O-E	(O-E) ²	$\frac{(O-E)^2}{E}$
1	Information Explosion	10	20	-10	100	5
2	Improved Services	40	20	20	400	20
3	Others are getting automated	0	20	-20	400	20
4	University Policy	20	20	0	0	0
5	NUC directive	30	20	10	100	5
	Total	100	100*			50

Source: Author(s) Computation (200*); $\chi^2 = \sum \frac{(O-E)^2}{E} = 50$

The conclusion above implies that not just any reason(s) informs the automation, but of much importance at the circulation section of the library are:

The need:

- 1 for improved services to enhance reading and research
- 2 to abide by the NUC directive; and
- 3 to implement the university policy in that order.

In the literature, early automation programmes in libraries are informed mostly by the NUC's directive. But as a result of increased appreciation of the importance of the technology, as observed here, the need for improved services constitutes the chief reason, which is followed by the NUC directive. This may not be unconnected with the fact that both the library staff and users are now ready to avail themselves of the numerous opportunities such as internet services, e-mail services, CD ROM search, etc provided by the automated library.

Types and Number of Computers Available for Use

In the attempt to know the types and number of computers available for use at the section, the study finds that both desktops and laptops (four in

number) are in use. The observation here is inadequate supply of computers, as it is not supposed to be less than ten computers, at the section for each staff member to be attached to one. The shortage as revealed from the findings is as a result of lack of funds.

Software in the Library

The software being used in the library, as revealed in this study, was TINLIB which was later changed to GLASS. The change of the software is observed here to be an improvement on the system as the former software does not have such facilities as bar-code reader and user's photographs scanner which are available in GLASS.

That, notwithstanding, it is observed in this study that while a lot of better software are still available, the library management is yet to be convinced of the most appropriate software to stick to.

Discharging of Books on Loan

On the number of books that can be discharged on loan in a day using automated circulation system, the study finds that an average of between 21 and 23 books can be discharged in a day.

Conclusion and Recommendations

It has been observed that the use of computer technology in the circulation subsystem of the library of the Federal University of Agriculture, Abeokuta and all other libraries in general is inevitable for effective and efficient performance of the subsystem and that of the library system in general.

The automated circulation subsystem of the library studied here has revealed a lot of challenges facing the sub system, the library system as a whole and perhaps other libraries wishing to or that are just introducing the technology. It is therefore hoped that the management of the library would take all necessary measures to ensure that such inadequacies as shortage of computers, inappropriate and/or constant change of software, poor funding, etc are addressed.

To this end, the following suggestions are offered:

1. Library automation is a capital project. It is therefore, worth any amount spent on it. University administration should endeavour to provide enough fund for library automation. If this is done, the library can generate fund for the university through internet searches to users, CD ROM searches, online inter-library loans services at reasonable charges.
2. Alumni association and friends of libraries should also be involved in sourcing funds for the library.

3. The Federal government should implement the statutory allocations for the library in the university's budget
4. Libraries should encourage the production of local library application software by patronizing them and even be part of the software development.
5. There should be constant training and re-training of staff in the proper handling of Information and Communication Technology equipment and process.
6. More staff such as programmers, analysts, and operators should be employed to handle the computer system.
7. More computers and other pieces of equipment should be made available for staff in the circulation section, while the obsolete ones should be replaced.
8. Each library should have a stand-by generator and UPS to guard against constant power failure and its damaging effect on the pieces of automation equipment.

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