Library Automation in Nigeria: The Bowen University Experience

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Abstract

An automated library environment is quite different from that of a library whose operations and services are still done manually. The paper shares Bowen University Library, Iwo, Nigeria automation experiences using Open Source Library Management Software, Koha. The paper explains the automation process such as choice of software, installation and configuration, training of staff and users, retrospective conversion, challenges and experience after automation. The paper carries out survey of library user satisfaction with the system. The result shows that users prefer the automated system to manual system. It also explains how automation has enhanced operations and provision of information services. The paper among others encourages libraries to consider the use of an open source software for their automation project, advises that they should be open to changes that ICT introduces to library profession, and settle the issue of regular power supply with management before embarking on automation project.

Keywords:

University Library; Bowen University; Library Automation; Bowen University Library; Academic Library Automation.

Introduction

The application of ICT to almost all spheres of life is no longer a new phenomenon. Shiloba (2005) stated that for libraries and librarians to cope with the information demands by the users they need to have the knowledge, skills and tools in handling digital information. Libraries in Nigeria are trying to automate their functions. According to Agha (1986) library automation has been a subject of attention since the mid 1970s because of the spreading knowledge of the new technologies. However, there have been challenges and constraints facing library automation which could be general. The challenges and/or constraints include, among others: erratic power supply, inadequate professional librarians to execute the project, absence of maintenance and support agreement, poor ICT infrastructure, poor funding, and poor ICT skills among library staff. (Agha, 1986; Alabi, 1986; Agboola, 1993; Ondari-Okemiwa 1999; Agboola, 2000; Ani, Esin and Edem 2005; Oduwole, 2005; Igun, 2006; Nok, 2006; Igben and Akobo, 2007; and Adeyomoye, 2008).

Libraries in Nigeria are at cross roads in their attempt to automate their operations. One of the major issues has to do with choice of software to deploy. Just as Onohwakpor and Anre (n.d.) observed, software selection decision in libraries is basically based on report from other colleagues through conferences on what they feel and heard the software could offer. They also note that some of the libraries do not do a thorough system analysis to ascertain what their library needs are. Onohwakpor and Anre further note that, dependence on software vendors has been of great disadvantage. This is true especially where the library staff input is inadequate in the acquisition and installation, with the library ending up with an inappropriate automated system. Despite these challenges, Agha (1986) observed while carrying out a survey observed that Nigeria

library workers are enthusiastic about and willing to use new technologies. In spite of this interest, findings on automated services in Nigerian universities by Sani and Tiamiyu (2002) revealed that the services were far from adequate and that out of about 29 different automated services that one will expect from a modern university, only 40% were available and utilised.

In spite of the challenges automation brings, its benefits quite outweigh its disadvantages. It is a known fact that automation of library enables easy access to library materials, and allows staff to better serve the patrons and facilitate a multitude of tasks such as acquisitions, cataloguing, circulation and reference etc. Tamuno and Ojedokun (1997) observed that once a library is computerised there are some intangible benefits that staff and students gain such as computer literacy, introduction of new services such as internet searches, online database searches, CD-ROM searches, etc. Kadiri (2004) also stated that automation of library will address the problem of manual processing of materials with short comings of filling and typing errors, retrieval errors, time consumption and drudgery. He stated further that the advantages of library automation includes less drudgery, easy generation of records, space conservation, improvement of information services, and easy retrieval among others.

The objective of this paper is to share Bowen University Library automation experience, explain the automation process as choice of software, how it has changed her operations and services, and challenges faced during the automation process.

Bowen University Library Experience

Bowen University Iwo owned by the Nigerian Baptist Convention was established on the 17th of July 2001 but commenced her academic activities on the 4th November 2002. Bowen University started with three faculties namely: the Faculty of Agriculture, the Faculty of Science and Science Education and the Faculty of Social and Management Sciences. The College of Health Sciences was added in 2008. The student population as at the time this study was carried out was 4,200 while the staff population was 600. The University Library was established in 2002 at the same time the academic activities commenced. The library collection is constantly being improved upon to

support the information needs of the various programmes in the University and to support teaching and research. Currently the library has over 16,000 volumes of books, made up of 10,817 titles, 95% of which were published from 2000 to date and 233 journal titles both local and international of which 95 are current. There are 35 electronic resources which are accessible through the library database.

The library personnel includes seven librarians, one system analyst, three library officers, seven library assistants and seven supporting staff which gives a total of twenty (25) staff in the library.

The library operations at inception were done manually in reader and technical services. This involved functions such as charging and discharging of books, acquisitions of materials, cataloguing and classification including typing of cards with manual typewriter and filling of cards in catalogue cabinets. The whole operation was quite monotonous and hectic both for the library staff and customers. In addition, there was difficulty in the correction of typing errors on cards. In order to reduce the stress of printing cards over and over, the library sought ways of using CorelDraw and later Adobe Page Maker software to produce catalogue cards. This seems to have temporarily solved the problem because of ease of making corrections on the cards however, this was also short- lived. This was because the cards were still many for each entry which made the process confusing. In addition, the cards still had to be cut carefully and filed in a catalogue cabinet which is quite a monotonous task.

In the light of all the above, the library started making enquiries about suitable library management software that will meet the needs of the library. In the course of enquiry, software like the CDS – ISIS, TINLIB, ALICE for windows etc were considered. The library realised that these software were no longer used by the academic libraries contacted due to inadequate support among other shortcomings. As a result, the library opted for open source library management software and came across Koha.

Koha Attraction

Apart from catering for all the library operations with its full compliments of acquisitions, cataloguing, serials and circulation modules, the underlisted attracted the library to the adoption of Koha:

Budget - the budget was considered first in terms of software that will be within a particular budget limit both for the acquisition, installation, and purchase of necessary machinery i.e. not too expensive but serves the need. The library found out that Koha is a free software where there is no vendor lock in and there is no hidden code, since there is no need to pay for the software except the cost of customisation and installation of the software the library decided to go for it.

Who are the developers - Whether an institution, or reputed company or few individuals. The first thing the library considered was institutional support and secondly the reputation of the company responsible for the development of the software. One has to be sceptical about the software developed by individuals as there may be no continuity. Koha was found to be developed by a reputable company.

User friendly – The library thought of software that will be user friendly in its interfaces such that both the users and library staff will interact easily with the software.

Marc compliant – The soft ware has to be able to produce a machine readable catalogue (MARC). Thus it was important to find out if the software has facility to import bibliographic data. Since the library uses the *Library of Congress Subject Headings* and *Schedules*, the library wanted software that will meet this need and as such make for easy migration in future. This is also found in Koha.

Accommodate all library resources – Furthermore, the library wanted a software that could accommodate her present resources and new additions for some years before future migration if need be. Fortunately, the library was able to identify that Koha library management software could meet the need.

Revision — How many times the software has been revised since the time of its first launch. The library found out that the revision was done regularly based on various suggestions from the community of users.

Training and guidance after installation – The library considered the possibility of guidance after training and installation, this is very important because if there is any problem the library can easily ask for help. The company that did installation agreed to train and as well as ready to assist in case the library runs into any problem. Also, problems encountered are discussed at users' forum and the library enjoys the assistance from user community.

Possibility of logins at different times and places – The possibility of users being able to login at different times within the campus and outside the campus was seriously considered. This was also possible with Koha.

How many installations it has got in the country and elsewhere, since when and major clients - In Nigeria, there was no university using Koha, as at the time Bowen adopted it, but there were research institutes that were also installing koha about the same time Bowen was considering using the software e.g. the Nigerian Institute of Social Economic Research (NISER) library in Ibadan and National Teachers Institute library, Kaduna. There are libraries abroad that are using Koha; this includes academic, research and public libraries in United States, Middle East, Asia, Europe, Africa, etc. (The list of libraries using Koha can be viewed at http://wiki.Koha.org/docu.php?id= Koha users). There is also an online community of users a forum, for rubbing minds together when there is any problem in the use of the software by the participating libraries. This community of users' forum encouraged Bowen library to use Koha library management software. Although there is no academic Library that is using Koha in Nigeria but Bowen library decided to use it since it met the library's needs and of course there is always the first person to start a project before others follow.

The Koha Library Management Software

Koha is currently maintained by a team of software providers and library technology staff from around the globe. It features all major modules expected in a library management system including provision for On-line Public Access Catalogue (OPAC), acquisitions, serials, cataloguing, circulation, budget management, membership management, fines management and other modules associated with a lending library.

Bowen started with the 2.9 version of Koha in 2007. In 2008 the library upgraded to 3.0.1. Koha as a free and open source has an active developer and user's online forum, in which Bowen library is a participant. The new version of Koha was a result of discussion at user's forum where the concerns/problems of users are promptly attended to. The developers also take suggestions from the forum, which may result in the introduction of additional features that constitute a new upgrade.

Koha Features

Koha version 3.0.1 Integrated Library Management System has among others, basic features needed to run a library. It has the following features:

- *Online public access catalogue (OPAC) of the library holdings:* the OPAC is web based and there is no need to install any software on user's machine.
- *Web-based circulation interface:* can handle issues, returns, transfer, etc. There is no need to install any special software on staff computers once there is intranet in place.
- *Patrons' records management:* It allows management of detailed information about each patron that registered in the library.
- *Online renewals and reservation of item by users:* library patron can self renew their checkouts and make reservations. This has reduced the traffic at the circulation desk/counter and freed some circulation staff for other duties.
- *Branches relationship:* this can be done easily without any problem. Since the software is web based it is easy to borrow a book in one branch and return it in another branch.
- *Borrower history, comments and tags:* patrons can comment/review books, tag them and view their reading history. They can also view their records and make purchase suggestion.
- *Customisable search:* it allows a library to choose the field they want on their search

form. For example a search by author, title, subject, and keywords. There is also an advance search option.
- *Full acquisitions:* this includes orders from vendors, budgets and pricing information.
- *Serials modules:* it allows easy cataloguing of journals and patron can view the catalogue through OPAC.
- *Book bag and virtual shelves:* patrons can have a virtual library where they keep books specific to their needs.
- *Multi -language OPAC support:* Koha allows patrons to view OPAC in different languages depending on the language chosen by the library.
- *Overdue Fines and overdue Notices:* it manages overdue fines and overdue notices. This can be sent to patrons via their e mail address.
- *Barcode printing and Barcode reader:* Koha fully supports the use of barcodes thereby removing the chance of human error.
- *Security:* Koha provides an effective security measure to protect unauthorised person from accessing the system. For example registered patrons are required to sign in with their user name and password to perform certain functions on the library database.
- *Reports and statistics:* Koha can generate management reports and statistics in cataloguing, acquisitions, serials, and circulation.

The additional features in version 3.0.1 includes news, label /patron card creator, upload patrons image, task scheduler, overdue notice, log viewer, SQL builders, comment, export Biblio, Biblio, just to mention a few.

The Automation Process

Before the commencement of the automation process, key management officials (Vice-Chancellor, Registrar, Bursar and deans of faculties) in the University and users of the proposed system were fully briefed. After ensuring that the University

Community had been fully involved in the project and securing the University's commitment with regards to funding, the software was installed. The library acquired the hardware and other accessories needed for the successful installation of Koha Library Management System as recommended by the consultant. The required hardware and networking cables acquired were 19 Pentium IV Personal computers, 24 Stabilisers, 24 Uninterruptible Power Supply (UPS), 4 Printer, and 2 Bar code reader. Other accessories include Bar code label papers, trucking pipe, cables etc. For the server, the hardware configuration was 2 Pentium IV, 1 GB RAM, 160 GB HDD, Linux 11.0 Operating System and 2 NIC Cards. The activities for phase II includes networking of the Library (i.e. LAN), installation and configuration of Linux – the operating system for Koha deployment, installation and configuration of Koha, including optimising the back end database server (MySQL), customisation of Koha OPAC interface to reflect Bowen University brand, customisation of staff client report, and installation of automated backup scripts to ensure safety of the library data.

The next phase was the training of all the library staff in the various sections by the consultants earlier appointed for the installation of the software.

Following the completion of automation of the library functions, is the phase IV of the project. This is the conversion of the card catalogue records into the digital records. The retro conversion exercise was a bit easy in Bowen library because the records were already in CorelDraw and Adobe Page Maker templates. What was then required was just a situation of copying and pasting from either the CorelDraw or Page Maker records into the Koha cataloguing modules.

The final phase, phase V, which is the training of library customers was done after installation and testing of the software.. The users were all trained on how to use the OPAC as well as check their account. It was not easy to train all the users initially because some are not computer literate so library staff members have to show them how to handle the mouse, use keyboard and other basic things on how to use the system. The library had to train some on one-on-one. Now majority of the library users can use the OPAC, renew their books as well as check their own records.

The library discovered that for easy circulation transaction and elimination of human error there was a need for barcoding of customer I.D. card. The library management decided that library will no longer issue separate I.D. cards to customers but the university I. D. card will be accepted in the library. The library then suggested to the University management to put barcode on students and staff's I. D. card. The management agreed and in 2008/2009 academic session a new barcoded I. D. card was issued.

Requirements for Successful Library Automation Project

Bowen University Library experience revealed that for a successful library automation project there is the need for adequate finance, constant power supply, infrastructure, an experienced consultant, and dedicated members of staff and proper training of library staff.

Adequate finance - The University authorities were gracious enough to release funds for the automation project particularly for the procurement of software and hardware and training of the staff on the automation project. As soon as it was agreed that the library should go ahead with the automation project provisions were made for all that were required.

Constant power supply – for the automation project to be a success there is need for constant power supply. To ensure this the library was connected to a standby generating set. This is important because without constant and consistent power supply, the project will not be realised and where it is completed it will not be properly operational. The generating set which also serves the central administration is switched on when the power supply goes off. As a result the library does not have problem with power supply.

Infrastructure – the infrastructure in terms of computer hardware need to be in place, i.e. having workstations for all the various routine activities. This also involves the networking of the library. The University management gave the library the number of work stations requested. Subsequent requests were similarly granted. Air conditioners are also very important in an automated environment in order to

ensure effective cooling of the hardware. All offices in the library have split unit air conditioner except circulation desk.

Experienced consultant – identifying an experienced consultant on library automation is very important, particularly one that is based in Nigeria. The reason being that where there are problems with the system such can easily be contacted so that the library does not start what it will not be able to continue. In Bowen's case, the library was able to identify Projeklink Konsult Nigeria limited in Ibadan which supported the library for a period of three months after installation and training.

Dedicated members of staff – for any automation project to be successful there is the need for all members of staff to be dedicated and committed to the project. This can be achieved by regular communication with staff about what is going on and the need for cooperation in making the project a success story.

Library staff must be computer literate- for a successful automation programme all library staff must be computer literate. It is better to start training the staff on computer appreciation before embarking on automation. In Bowen's case all library staff except the porters was computer literate even before the library started the automation project. This helps to make the training very easy.

Library User Satisfaction

A survey of the system user satisfaction was carried out among the library staff. For the library staff, total enumeration technique was adopted for the study since the population was too small, questionnaire was used to collect data from the respondents which include all librarians, library officers, library assistants and typists who are using Koha in their daily routine. However, the University Librarian, the Deputy University Librarian and the library porters were excluded. This is because they do not make use of Koha in their daily work. Fifteen copies of the questionnaire were distributed and collected. The returned copies of the questionnaire were analysed using simple percentages. Library patrons who have been using the library before automation were also interviewed.

As of the time this survey was conducted, 3 out of 15 respondents used Acquisitions modules, 4 used cataloguing modules, while 8 used circulation modules and only 1 used serials modules. The sum gives a total of 16 because one person was working with two different modules. All respondents indicated that they were using Koha daily. Eleven respondents had been using Koha for the past two years, two for the past one year and another two for six months. When the respondents were asked if Koha had been performing to expectation, all the 15 responded that Koha performed to expectation as indicated.

Table 1: Rating of Koha				
Items	Very	Good good	fair	poor
Acquisitions	4	8	0	0
Cataloguing	5	6	0	0
Circulation	6	5	0	0
OPAC	6	5	0	0
Patrons				
Authentication	6	8	0	0
Report				
creation	5	5	0	0
Interface with				
Internet	7	8	0	0
Reliability	6	9	0	0

Respondents were asked to rate Koha library management software on a scale very good, good, fair and poor. From table 1 above, 8 (53.3%) respondents rated acquisitions modules as very good and good while others did not respond. This is because they had never worked on Acquisition modules before. Cataloguing and circulation modules were both rated as very good and good by 11 (73.3%) respondents. The reason is that some had opportunity to work with cataloguing and circulation modules before moving to another unit in the library. OPAC was rated as very good and good by 11(73.3%). Also patrons' authentication was rated as very good and good by 14(93.3%) respondents. Report creation was also rated as very good and good by 10 (66.6%). Interface with Internet was rated by 15(100%) as very good and good. On reliability of Koha, i.e. whether Koha was dependable, consistent and trustworthy, 15(100%) respondent indicated that it was very good and good.

Table 2: Users' Opinions of Koha					
Items	**SA**	**A**	**SD**	**D**	**U**
Using Koha has greatly increased my productivity	10	4	0	0	0
It does everything I would expect Library software to do	4	10	0	0	0
It is easy to learn and use	8	7	0	0	0
It is users friendly	8	7	0	0	0
I quickly became skilful with it	8	5	0	1	0
I do not notice any inconsistencies as I use it	6	8	0	0	0
I am satisfied with it	4	9	0	0	0
I can recommend it to another library	9	6	0	0	0
I can use it without written instructions	6	8	0	0	1

Table 2 shows statistics on level of agreement with the statements in the table on a scale strongly agree; Agreed; strongly disagree; disagree; and undecided. A total of 14(93.3%) agreed that using Koha had greatly increased their productivity. Also 14 (93.3%) agreed that Koha did everything they would expect a library software to do. All respondents (100%) agreed that Koha was easy to learn and use, user friendly, and that they quickly became skilful with it. Fourteen (93.3%) respondents agreed that they did not notice any inconsistencies as they use Koha. Also 14 (93.3%) respondents agreed that they are satisfied with Koha Library Management software. All respondents (100%) agreed that they would recommend it to another library. Fourteen (93.3%) also agreed that they could use it without written instructions while 1 (6.6%) was undecided.

On the question of constraints in the use of Koha, all respondents stated that there was no constraint. However, respondents advised that the library should always upgrade to the latest version of the software whenever it was released.

Findings from the Interviews

The interview was conducted to elicit information on the changes that automation brought to library service and operation. One library staff from each unit was interviewed to include information that the questionnaire did not capture. A staff in cataloguing was asked to state if there were any changes in the unit since automation. He responded that the unit no longer went through the rigour of producing cards catalogue and that the use of card catalogue in the library had been eliminated since automation. With the OPAC; users can search by using many access points that were not possible in manual catalogue.

Respondents also mentioned the elimination of filing of cards in the catalogue cabinet and the consequence that library staff had time to do other tasks. Cataloguers now do less original cataloguing because it is now easy for them to import data from the Library of Congress Online Catalogue, as well as other online catalogues. Editing was now easy compared to when one had to edit so many cards. The circulation staff also stated that the circulation control was now easier, as there was no need of filling borrowers' ticket again; fines which were calculated manually before are now calculated and paid electronically. Also, there was less traffic at circulation desk as charging of library materials is done without delay, the usual queue at catalogue card cabinet had been eliminated since the automation. This is because users can access the OPAC anywhere on campus. Also, patrons' records are better managed than before Statistics can be generated easily.

The library patrons who have been using the library before automation were also interviewed. From their responses they preferred the automated system to the manual system. Some of them stated that OPAC search was easier and faster and better compared to when the library was using catalogue card. According to them, OPAC was user friendly and enabled them to know the status of an item in the library, i. e. whether the book was on loan or available in the library before proceeding to the shelf. Also, patrons were happy with the automated system because it allowed them to view their

accounts, check their loan status, fines and also renew borrowed items on their own without physically visiting the library. Some stated that they could access the library from their offices and viewed the catalogue and obtained a link through the library to electronic resources. However, some complained of inability to access the library holding after the library closing hours. The reason is that the library has to shut down the server when closing because the generating plant that supports the library will not be available after the library closing hour, except the library has inverter to power the server for the period when there is no power supply.

Challenges of the Project

Like any laudable project, the automation project in Bowen Library faced some challenges.

The first challenge was the identification of software that would cost less and meet library need, then how the University management can be convinced of the need to automate the library system. The library was able to overcome this after the demo of Koha to the University management. Another challenge was overcoming the initial phobia of working in an automated environment by the library staff and training of staff on the new software. Initially the typists, whose daily routine was to type the catalogue cards were afraid of losing their jobs since the cataloguer can enter data directly into the system. However, this was overcome after few months of using the software as some of them testified during the interview that they enjoyed working in an automated environment and the typists were giving another task to do within the library.

Erratic power supply was a problem that faced automation everywhere especially in Nigeria. In Bowen's case, it was difficult for the University management to buy a new generator dedicated for use in the library because of the cost involved. It was however, agreed that library would be placed into the category of priority unit of the University. This means that the maintenance unit must ensure that the library was supplied with electricity each time light goes off. The Library has been enjoying constant power supply since the automation. Since the Library's OPAC is web based, the only problem now is that as soon as the library closes the server will be shut down. This means users cannot access the library until the next day when the server will be put on again unless the library has an inverter that can power the server when light goes off.

Despite these challenges, Bowen Library automation is a success story because it has influence on the University community in that the students' and staff' I.D. now have barcodes for easy circulation transactions based on library's recommendation to the University management. More academic staff and students now patronise the library more than before because of the electronic resources and services provided. The library serves patrons better as e- mails are sent to inform users on latest addition to the library database, overdue notices and other information. The automation of Bowen University Library has made the university community see the library and the library staff as relevant partners. The automation at Bowen University Library has also influenced other academic and research libraries in Nigeria to go into automation project. Some of this libraries visited Bowen University Library to ensure that it is actually working before they embark on the automation project. Among the libraries are Osun state University Library, Osogbo; Salem University Library, Lokoja; Joseph Ayo Babalola University Library, Ikeji Arakeji; Federal Polytechnic Library, Ado Ekiti; Osun state Polytechnic Library, Ire; National Mathematical Centre, Abuja; Cocoa Research Institute, Ibadan; and recently Baptist Theological Seminary Ogbomoso.

Conclusion and Recommendations

There is no doubt that library automation enhances the operations and services of the library. It shows automation can improve library's relevance to the University community. The paper also revealed library user satisfaction with Koha Library Management software. It further revealed that library staff enjoyed working in an automated environment and the patrons enjoyed services rendered using OPAC to card catalogue. It however requires adequate planning as this paper reveals. No less required is the need to ensure availability of technical support.

For Nigerian libraries to progress alongside libraries in other climes, they should move away from traditional to modern ways of providing services. They should also consider library automation a must in that quest, and look for ways of overcoming the challenges facing the automation project in Nigeria.

Nigerian libraries, especially academic libraries that are still struggling with automation project in Nigeria, it is recommended that:

1. libraries should be on the look out for opportunities of open source software that can be used instead of waiting to acquire software that cost so much and may discourage management from granting the request.

2. librarians and other library staff should be open to changes that ICT introduces to the library profession. In addition, library staff should be computer literate prior to automation as this will help a lot during the training,

3. there is a need to get technical staff (System Analyst/System Librarian) on ground who will attend to the problems that may crop up with the system,

4. the need for regular power supply should be settled with management before embarking on automation project. Erratic power supply will affect the smooth running of library services in an automated environment because as soon as power goes off the entire automated library operations and services will come to a standstill.

5. the management should be informed well on time when the need for upgrading to a new version of the software is due. However, upgrade should be done only if there are new features required by the library.

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