

*Full Length Research Paper*

## **Library software products in Nigeria: A survey of uses and assessment**

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There is an eagerness on the part of librarians and libraries in Nigeria to shift from traditional methods of information representation to modern information technologies. This has led to the influx of various library software into the ICT market to drive automation needs of libraries. There is the need, however, for quality and reliable software that can effectively run on the operating systems of computers in Nigerian libraries. Therefore, this study aims to create awareness of the existing software in Nigeria so as to enhance quality selection. It provides librarians with pragmatic steps to take when making choices and highlights the operational problems associated with library software. The researchers surveyed 50 libraries in Nigeria: 22 federal, state and private universities; 11 polytechnic libraries; 3 colleges of education libraries, and 14 research institutional libraries. Data for this study were collected through structured questionnaire. Of the 120 questionnaire administered, 97 of them were returned filled. Results show that a greater number of the respondents are computer literate, and agree with the guiding steps a library should follow before acquiring software. Also, some of the respondents are quite aware of the various types of software being paraded in Nigerian markets. The study not only discusses problems associated with software installations but also suggests ways out of them. Finally, the study makes recommendations on the way forward.

**Key words:** Software selection, software acquisition, library automation, software troubleshooting, Nigerian libraries.

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### **INTRODUCTION**

It is the expectation of every organization that software run on the operating systems of their computers will perform effectively with little or no hiccups. Wrong choice of software will have debilitating effects (debugging) on a computer. The voter registration exercise conducted by the Independent National Electoral Commission of Nigeria (INEC) in early January, 2011, ran into hiccups due to wrong choice of software to run the Direct Data

Capture (DDC) machines. Hi Tech reliably gathered that finger print impression was a major hindrance to the smooth exercise owing to the software that combined the hardware technology. The Chairman of INEC, Professor Attahiru Jega, opted for Linux Software, which of course was not good enough compared to Oracle and others (Vanguard, 2011). Opara (2013) also raised alarm on counterfeit software. The journalist reported that

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counterfeit and pirated software has become increasingly sophisticated and complex as sourced from Microsoft Corporation. The software firm (as cited in the report, 2013) maintained that environments where genuine software thrives will pave way for better protection for consumers and businesses. Because library funds have over the years dwindled, the effective and efficient use of available funds becomes even more imperative. Library managers and information personnel therefore need to conduct research on the various software being paraded in the Nigerian market before making choice.

Experience has shown that very many libraries in Nigeria run into one problem or the other due to the wrong choice of library software. For instance, some of the first generation universities in Nigeria started with TINLIB software but they could not continue due to some technical difficulties, maintenance problem, poor revision policy and the prohibitive cost of processing and maintaining it. Adogbeji and Onohwapor (2007) revealed that Kenneth Dike library of University of Ibadan, Nigeria had earlier used TINLIB software and could not continue. Also, University of Ilorin started with TINLIB and later shifted to Alice software. University of Lagos was equally affected in the wrong choice of library software. This university started with TINLIB and later shifted to a modified version of TINLIB called Graphical Library Automation System (GLAS). When the latter software could not adequately sustain the library operations, the library then opted for Millennium software in 2012. The purpose of opting for Millennium software was because it is web-based. The Vice – Chancellor of University of Lagos reported this to Nigerian University Commission. However, this same software is characterized by its own technical difficulties and inadequacies. Therefore, the reports highlighted above coupled with the experiences Nigerian libraries faced in the wrong choice of library software called for this research.

Software can be defined as the programs that are used with particular computer systems (Concise English Dictionary, 1999). Computer software or software is a collection of computer programs and related data that provide the instructions to a computer or tell it what to do. It also refers to one or more computer programs and data held in the storage of computer for some purpose. Program software performs the function of the program it implements, either by directly providing instructions to the computer hardware or by serving as input to another piece of software. In contrast to hardware, software is intangible (Wikipedia, 2010). Wooster (2009) opines that software is the most valuable intangible product in the market place and outlines the qualities of good software (Figure 1):

1. correctness (that is, a software doing what it is supposed to do),
2. robustness,
3. user-friendliness,

4. adaptability,
5. re-usability,
6. inter-operability (interface with other software),
7. efficiency,
8. portability (easily movable to other operating systems), and
9. Security (that is, ability to protect data or information).

The first theory about software was propounded by Alan Turing in his 1935 essay titled *On Computable Numbers, with Application to the Entscheidungs problem* (Wikipedia, 2010). The history of computer software can be traced back to the first software bug in 1946. Later on, several programs entered the realm of firmware and hardware itself became smaller, cheaper and faster due to Moore's Law (Wikipedia, 2010). Most hardware companies today have more software programmers since software tools have automated many tasks of print circuit board engineers.

The quality of software is very important especially for the smooth running of a computer system and other programs. If software is faulty (buggy), it can delete files, crash computers and do other damage. Improving software quality and productivity was a major challenge faced by the Department of Defense (DOD) and the non-military community (Woodster, 2009).

Selecting high quality software requires some processes or guidelines which a library needs to follow. Selection must always be based on merit and not on financial inducements. Adogbeji and Onohwapor (2007) and Idowu (2000) outline library software selection procedures or guidelines which can be followed by library managers and other information experts in Nigeria in particular and Africa in general. These are:

1. Do a need analysis;
2. Consider the various alternatives available;
3. Request for proposals from software vendors;
4. Follow due process in arriving at final decision;
5. Seek knowledge from experts and libraries already using the same software;
6. Read relevant literature;
7. Demonstrate the software;
8. Recommend the preferred option to management;
9. Keep all records relating to automation.

Due cognizance must be taken in the areas of cost, reputation of the vendors (software produced by institutions or companies would be preferable to those produced by individuals) and revision policy. Others include number of parameters available for each module and facility to import bibliography 1802709 format.

Idowu (2000) in her writing identifies different approaches. These are the turnkey systems, integrated systems, in-house developed systems and cooperative systems. Turnkey systems consist of pre-configured combinations of hardware and software marketed as self-contained

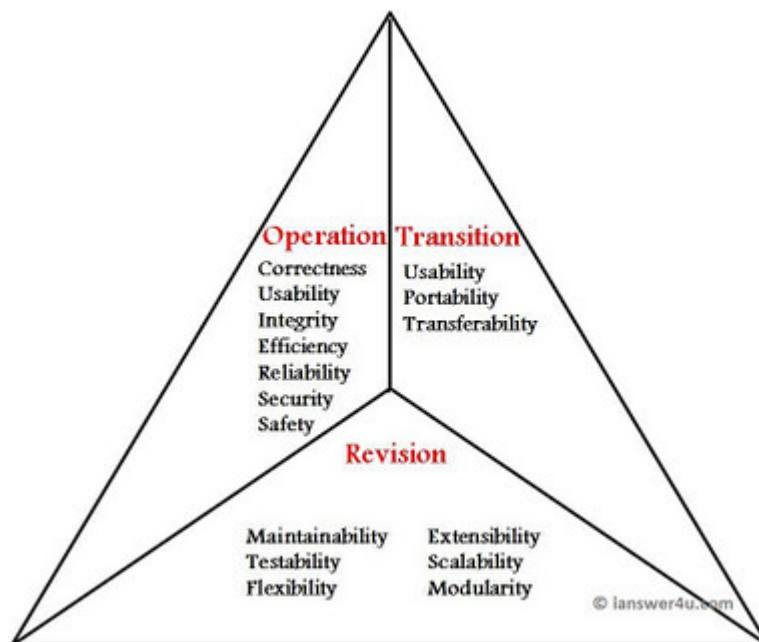


Figure 1. 16 Characteristics of good software. Source: Wooster (2009).

products. Integrated systems, on the other hand, are multifunctional and therefore are expected to be multi-user. For instance, a complete integrated system for circulation control will include modules for cataloguing, online catalogue access, staff, acquisition, reference and serial. In-house developed systems are localized systems. They have not been tested before. This approach is not too good for a library.

## Objectives of the Research

The objectives of this research are:

1. To create awareness of the existing library software in Nigeria;
2. To find out the level of I.T skills on the part of information providers.
3. To ascertain the number of I.T facilities put in place in the libraries studied.
4. To provide information guidelines for the selection of library software.
5. To prepare the mind of library managers for the likely operational problems.
6. To provide strategies / solutions for curbing problems.

## Statement of the problem

Various library software has appeared on the Nigerian market over the years and some new ones have joined to compete with the old ones. Some have fizzled out due to certain problems. Every software has its own short-

comings and strengths. Faced with this situation, library managers need to be guided on what to do when planning for library automation. It has become necessary to follow procedure in selecting reliable software, since libraries votes have dwindled and careful choice of best option becomes imperative. The facilities for the smooth take-off of library automation need to be put in place viz: computer systems, cabling, bandwidth, computer printers, telephone, internet, scanning machine and computer experts such as programmers/analysts/ web managers, etc.

## METHODOLOGY

The researchers produced one hundred and twenty structured questionnaires which were administered to about fifty (50) institutional libraries spread across the six (6) geo-political zones in Nigeria: 22 universities (federal, state and private); 11 polytechnics (federal and state); 3 colleges of education; and 14 research institutes. Of the 120 questionnaire administered, 97 were returned filled, representing 80.86% of the sampled population. The results are represented in tables.

## A review of software in Nigeria

There is a considerable number of library software products in use in Nigerian libraries. However, some of them have fizzled out of the market. The various library software that has penetrated the Nigerian market/libraries includes Micro CDS/ISIS (free), Library Plus (which replaced x-lib software), Green Stone Software, Graphical Library Automation System (this replaced the Information Navigator Library Software, TINLIB), Alice for Windows Software (Anyoogu, 2003) and EBSCO Software. Others include Docuware, Strategic Library Automation Management, Liberty 3 Software,

Table 1. Micro-CDS/ISIS.

Software	Background	Features	Strengths	Weaknesses	Producer
CDS/ISIS	<p>*Computer System/Integrated Set of Information Systems (CDS/ISIS).</p> <p>*CDS/ISIS was created for the Central Library of the ILO in Geneva to process abstracts of documents. It was adapted for library services within the ILO.</p> <p>* In 1975, the ILO decided that it could no longer support ISIS and made the software and the Code available to other organizations. UNESCO later developed ISIS.</p>	<p>*CDS/ISIS is menu-based character mode on 3 computer platforms:</p> <p>i) Micro CDS/ISIS for PC (MS DOS)</p> <p>ii) CDS/ISIS for UNIX (Intel based UNIX: SCO, LINUX, free BSD.</p> <p>iii) CDS/ISIS for VAX</p> <p>iv) CDS/ISIS comes with built-in Pascal programming language.</p> <p>* WINISIS, the window-based release of CDS/ISIS with multimedia extensions</p> <p>*CISIS for data base maintenance available for most UNIX.</p> <p>*WWWISIS, a server software allowing for WWW base access to ISIS databases on UNIX.</p> <p>*ISISDLL, a programming language designed to develop graphical interfaces and applications.</p> <p>* JAVAISIS, client server software.</p>	<p>* The features of the CDS/ISIS software rank high.</p> <p>* The versatility of CDS ranks second and was considered as important.</p> <p>*CDS/ISIS is a free software and good for the developing countries.</p> <p>* The user group is significant.</p> <p>* Some users liked the OPAC function of CDS/ISIS.</p> <p>* Some users reported that CDS/ISIS encourages self-development.</p> <p>*Flexibility of the software allows users to develop bibliography and databases.</p>	<p>*The printing function is complicated; the program slows down when using large databases.</p> <p>*Some users reported that CDS/ISIS is limited in what it can do.</p> <p>*CDS/ISIS does not offer full-text storing.</p> <p>*Training cost.</p>	UNESCO

Microsoft Access Software and KOHA Software.

Researchers have reviewed the main library software in Nigeria and summarized them in tabular format using these parameters: the software, the background of the software, its features, strengths, weaknesses and the producer of the software. The various library software products reviewed are Alice for Windows (2007), CDS/ISIS, GLAS (which replaced TINLIB), KOHA, and Integrated Library System or Library Management System. Scholars who have contributed to the review of these library software are Lavji and Niraj (2006), Kushwah (2008), Abboy and Hoskins (2008), Wikipedia (2011), Oduwole (2005), Okoroma (2010), Lopata (1995) and Zaid (2004).

The features of these software products are explained in

Tables 1-4.

### FINDINGS

The researchers surveyed 50 institutions: 22 universities (44%), 11 polytechnics (22%), 3 colleges of education (6%), and 14 research institutes (28%). The gender distribution shows 51 males (52.6%) out of a total of 97 respondents while there are 46 females (47.4%). The professional librarians are 81 (83.5%); the para-professionals

are 10 (10.3%) and other ranks are 6 (6.1%).

The librarians in the fifty libraries studied are aware of the existence of various library software in the Nigerian market. Some have a working knowledge of the various types of software. Among the software studied are micro CDS/ISIS, which pooled 82.5% in terms of awareness; Alice for Windows recorded 67%; Strategic Library.

Automation software has 53.6% awareness spread. Others include Library Plus software, which has 51.5%; Liberty, 3 (45.4%); KOHA, 66%; Docuware, 25.8%; EBSCO Software, 30.9% and

**Table 2.** Graphical library automation system.

Software	Background	Features	Strengths	Weaknesses	Producer
GLAS	<p>*Graphical Library Automation Systems was introduced in 1996 as an improvement on TINLIB by Electronic Online Systems International EOSI, manufacturer of TINLIB.</p> <p>*GLAS is a window-based system and allows users to open multiple records.</p>	<p>* It is a modular system made up of folders containing records.</p> <p>* It moves between cataloguing module tasks.</p> <p>* Guarantees open access to multiple records.</p> <p>*Cut and paste or copy information from one record to another.</p> <p>* Desktop Accessories and utilities are offered.</p> <p>* The windows clipboard utility is used to exchange graphics, scanned images or text between applications.</p> <p>* Easy search and browsing utility.</p>	<p>*Powerful search strategies. Users can specify their search strategies.</p> <p>* Graphical user interface</p> <p>* Networkability on any of the Microsoft Windows products.</p> <p>*It has help facilities.</p> <p>* Integration: GLAS integrates other library modules that share one bibliographic database.</p> <p>* The software is user friendly and very much easy to learn.</p> <p>*Back-up capabilities.</p> <p>*Flexible and comprehensive.</p>	<p>*The software does not allow multiple ISBNs.</p> <p>* No field for place of publication.</p> <p>*No field for corporate authors, conferences and meetings.</p> <p>* No provision for parallel titles.</p> <p>*The data bridge which is a fifth module that makes it possible to import and export data was not highlighted.</p> <p>* The cost of the software is high.</p> <p>* The technical support of the software is inadequate.</p>	Electronic Online Systems International (EOSI)

Microsoft Access, 40.2%. Others include Graphical Library of Automation System which pooled 45%; Integrated Library Management, 42% and Millenium, 21%.

This research investigates computer literacy skills in libraries in Nigeria. Adequate knowledge of computing is a function of quick mastery of library software installed for library operations. Findings show that 45 (or 46.4%) of respondents can effectively operate computer systems; 34 (or 35.5%) can operate computer systems; 12 (or 12.3%) can partially operate a computer system. Just 3 respondents (or 3.1%) cannot operate a system. Therefore, findings show that a greater number of the respondents are computer literate

and can operate a computer system.

Table 5 shows that 86.6% of the libraries surveyed have computer systems; 46.4%, cabling for multiple access; 39.2%, bandwidth; 81%, printers; 68%, telephones; 75.3%, Internet; 50.5%, scanning machines; 30%, digital camera; 39.2%, multimedia. All these IT facilities are very important for the smooth take-off of library automation with effective library software to run it. Table 6 shows the necessary guidelines which should be followed before the acquisition of library software. Most of the guidelines are strongly supported by the respondents. Having knowledge of the qualities of a good piece of software is paramount to libraries and librarians before they

make their final decisions. The opinions expressed by the professionals and para-professionals are shown in the Table 7.

The responses above show that a good number of librarians have knowledge of the qualities of good library software.

### DISCUSSION

This work surveyed about 50 academic and research institutions in Nigeria. Of the total respondents, females pooled 47.4% whilst males recorded 52.6%. The researchers work further investigated the availability of various library

**Table 3.** Integrated (library management) system.

Software	Background	Features	Strengths	Weaknesses	Producer
Integrated system or library management system	<p>* In the 1970s the Integrated Library System was referred to as Library Automation Systems.</p> <p>* Before the advent of computers, libraries usually used card catalogue to index their holdings. Computer came into use to automate the card catalogue thus the term "Automation System".</p>	<p>* Track items owned, orders made, bills paid and patrons who have borrowed.</p> <p>* Comprises relational data base: which allows one to many relationships.</p> <p>* Software functions into discrete programs called modules:</p> <ul style="list-style-type: none"> <li>- acquisition, cataloguing, serials and the OPAC.</li> <li>- Open source software such as Evergreen, CDS Invenio, Koha, NewGenlib, PhpMy Bibli, Open Biblio, etc.</li> </ul>	<p>* An integrated system is superior in several ways to one which is not integrated.</p> <p>* The duplication of efforts to create and maintain multiple copies of bibliographic records is eliminated.</p> <p>* Opportunities for errors are reduced when records are entered only once, and changes are automatically propagated throughout the system.</p> <p>* Library staff and patrons can have access to all pertinent information in one location.</p>	<p>* You cannot upgrade or fix one part, as all the software is integrated into one application.</p> <p>* Integrated Software has weak areas.</p> <p>* It takes up more space than an average package.</p> <p>*Cost of buying it is high.</p> <p>* Maintenance is not easy.</p> <p>* No adequate technical support</p> <p>* There are multiple programs and utility software all combined together.</p>	Eric clearing house on information and technology syracuse

software in Nigerian market and the knowledge of librarians of the existing library software such as KOHA, Strategic Library Automation, CDS/ISIS, Alice for windows, integrated Library Management, Liberty 3 and Docuware. Others include: Library plus, Microsoft Access, Graphical Library Automation System (GLAS) and Millennium. The results showed that most of the respondents were conversant with the existing library software in Nigeria.

Adequate knowledge in Information and Communication Technologies (ICT) is so germane for the smooth operation of the installed electronics (hardware/software). Adeyemi (2001), as cited in Obajemu and Ibegwam (2006), made it clear that every information provider should have knowledge in general computing and be proficient in the Library Software introduced into the library. The

information providers should be able to accomplish the followings tasks: turn on the computer and call up information, complete the necessary fields using all facilities (input data), verify/revise records, store records (save) and proceed to input others and to print records where necessary. Therefore, this work investigated the proficiency of the information providers in the area of IT. The results showed that most of the respondents can effectively operate computer systems (46.4%), can operate computer systems (35.5%), can partially operate it (12.3%) and (3.1%) could not operate a computer system.

There are hardware and software that need to put in place for the effective running of library automation. In other words, the needed IT facilities in any library were surveyed in the libraries studied. These were: computer printers, telephone,

internet scanning machine, digital camera and multimedia systems. Most of the libraries surveyed have these items listed above.

Furthermore, a guideline for selecting library software is another area of concern. Adogbeji and Onohwapor (2007) were of the view that looking at the importance of library computerization, it is considered so pertinent that every library must follow a due process for the selection and acquisition of library software. However, the researchers outlined the following: Library Managers should carry out need analysis, to read relevant literature, seek knowledge from the experts, and visit libraries using the same software. Others are: prepare a feasibility study, demonstration of the software for assessment, procuring cost, maintenance cost and the cost of training must be spelled out. The respondents strongly agreed to

**Table 4.** KOHA.

Software	Background	Features	Strengths	Weaknesses	Producer
KOHA	<ul style="list-style-type: none"> <li>* Created in 1999 by Katipo Communication for Horowhenua Library Trust in New Zealand.</li> <li>* Its development was steered up by the growing community libraries to achieve their technology goals.</li> </ul>	<ul style="list-style-type: none"> <li>* Open source integrated library system.</li> <li>* On-line public catalogue.</li> <li>* Acquisition, Cataloguing, Serials and Report Modules.</li> <li>* No license fee required.</li> <li>* Web based.</li> <li>* Linux, Unix, Windows and MAC OS' Platform.</li> <li>* Copy Cataloguing and Z39.50.</li> <li>* MARC 21 and UNIMARC for professional Cataloguers.</li> <li>* Use as document manager or digital libraries.</li> <li>* Manage online and offline resources.</li> <li>* E-mail, overdue and other notices.</li> <li>* Print your own barcodes.</li> <li>* Multi-tasking</li> </ul>	<ul style="list-style-type: none"> <li>* User-friendly.</li> <li>* Simple and clear interface for all users</li> <li>* Web base OPAC.</li> <li>* Has all library modules.</li> <li>* Distribution is free.</li> <li>* E-mail and notice facilities</li> <li>* Online and offline resources.</li> </ul>	<ul style="list-style-type: none"> <li>* Most open source software applications are not reliable.</li> <li>* No support exists for open software.</li> <li>* No guarantee of updates.</li> </ul>	KATIPO communication in New Zealand

**Table 5.** IT facilities installed.

Parameters	Responses	Responses In %
Computer system	84	86.6%
Internal cabling	45	46.4%
Bandwidth	38	39.2%
Computer printers	79	81%
Telephone	66	68%
Internet	73	75.3%
Scanning machine	49	50.5%
Digital camera	29	30%
Multi media	38	39.2%

these salient selection guidelines.

The qualities of library software need to be studied as part of a guideline for the selection and

acquisition of software into a library. This research work therefore looked into these areas: Library software should meet all specifications, should be easily learnt, should have good data integrity, must not be defective, efficient, should have good data security and be maintainable. Others include: upgradeable, should have modules, flexible and must be useable across all environments. Quite a number of the respondents strongly agreed to these qualities which a librarian needs to get familiar with before a choice is made.

The researchers further investigated the experience of the librarians with the installed software; in other words, the associated problems which software poses to computer systems, data/information and other installed programs (Figure 1). 82% of the respondents indicated that some programs may refuse to load and when they do they run sluggishly; 16% of respondents never

experienced such problems; 2% of the respondents remained undecided. 47% of them have experienced starting up difficulties with the software due to conflict with other programs; 39% of the respondents have experienced hardware mishaps caused by the installation of software. Also, improperly configured hardware peripherals such as printers, scanners, and the likes, can affect the effective functioning or operation of the software. 62% of the respondents have experienced it while the remaining 38% are undecided.

Viruses, spyware and malware often wreak havoc on stored information or data in the hard disk. They can cause other applications on the computer such as Web browsers to freeze, crash or quit working. 96% of the respondents are acquainted with these facts. 4% of them did not express their opinion. Furthermore, investigation was carried out to ascertain the knowledge of

**Table 6.** Response rate on guidelines for selection.

Statement	Strongly agree	Agree	Disagree	Undecided
Library manager should carry out need analysis	75 (77.3)	11 (11.3)	5 (5.15)	6 (6.19)
Need to read relevant literature	89 (91.6)	5 (5.15)	2 (2.06)	1 (1.03)
Seek knowledge from the experts	72 (74.2)	12 (12.4)	10 (10.30)	3 (3.09)
Visit libraries using the same software so as to understudy them	81 (8.35)	9 (9.25)	3 (3.09)	4 (4.12)
Prepare a feasibility study	69 (71.1)	20 (20.6)	2 (2.06)	6 (6.19)
Demonstration of the software for assessment	84 (86.6)	10 (10.30)	2 (2.06)	1 (1.03)
Procuring cost, maintenance cost and training cost should be spelt out	68 (70.10)	25 (22.77)	4 (4.12)	0 (0)

**Table 7.** Librarians' knowledge of the qualities of library software.

Statement	Strongly agree	Agree	Disagree	Undecided
Library software should meet all specifications (correctness)	89 (91.6%)	6 (6.19%)	2 (2.06)	0 (Zero %)
Software should be easily learnt (usability)	94 (96.90%)	3 (30.9%)	0 (0%)	0 (0%)
Software should have good data integrity	81 (83.50%)	12 (12.4%)	3 (3.09%)	1 (1.03%)
Software must not be defective	67 (69.1%)	22 (22.7%)	4 (4.12%)	4 (4.12%)
efficiency	93 (95.9%)	4 (4.12%)	0 (Zero %)	0 (Zero %)
Software must have good data security	83 (85.6%)	12 (12.3%)	2 (2.06%)	0 (Zero %)
Software should be maintainable	85 (87.6%)	10 (10.30%)	2 (2.06%)	0 (Zero%)
Software should be upgradeable (scalability)	79 (81.4%)	15 (15.4%)	1 (1.03%)	2 (2.06%)
Software should have modules/units	69 (91.3%)	20 (20.6%)	5 (5.05%)	3 (3.09%)
flexibility	57 ( )	28 (28.9%)	7 (7.2%)	5 (5.5%)
Software should be usable across all environments (portability)	78 (80.4%)	18 (18.5%)	1 (1.03%)	0 (Zero%)

respondents of Norton antivirus, which can often conflict with competing antivirus products. 25% of respondents strongly agree; 20% of them agree, 41% of them disagree while the rest of them are undecided. The results here show their low knowledge of Norton antivirus activities.

## CONCLUSION AND RECOMMENDATIONS

This research surveys the library software used in Nigerian libraries. The literature review shows the background, features, strengths and weaknesses of the various types of software. Thus, there is the need for every librarian or information manager to be careful when making choices. If selection procedures are strictly adhered to, there is the tendency that better software that can drive library programs would be purchased for libraries. The following recommendations are therefore made to the libraries in Nigeria and the rest of the developing world.

1. Librarians should keep to the selection process or guidelines of any software they want to buy.
2. Librarians should extensively review literature on the software they have in mind. This approach will help librarians to know the cost-benefits and intricacies of the software.

3. Librarians cannot do without system analysts and network/web managers. They should be involved while making selection because their professional input on the software is paramount.

4. Cost-benefits analysis needs to be carried out. Cost of procuring the software, training cost, maintenance cost and other implicit costs must be thoroughly calculated in relation to what benefits the software will bring to the library. In this regard, due consideration must be given to the total amount voted for the library for a particular year. All the money allocated to the library cannot be spent on the purchase of software alone.

5. Any library software must be menu-driven and easy to manipulate or navigate. Such a software that would be bought must support multi-access and be thoroughly tested. It must be upgradeable to work with the popular operating systems.

6. Contract with the software vendors must be maintained and sustained so that they (vendors) will always attend to whatever difficulties that may arise over the use of the software.

7. Consortium will help a lot. Experiences can be shared to pave way out of their difficulties.

8. Back-up capability is an important consideration before choosing software.

9. Software professionals need to involve librarians when designing software. The input of librarians on software



**Table 8.** Problems associated with automation systems.

Hitches	Frequency	Percentage
Power outage	57	58.8
Cost of procurement	47	48.5
Maintenance cost	49	50.5
Software used not revisable	21	21.7
Vendor's insincerity	27	27.8
Consortium	22	22.7
Apathy of library staff	31	32.9
Inadequate funding	56	57.7
Training and re-training	34	35.1
Software not flexible enough	25	25.8
Software cannot be restructured to suit local needs	21	21.7
Software not user-friendly	12	12.4
Compatibility with hardware devices	17	17.5
Piracy	13	13.4
Proximity to virus	25	25.8
Crashing problem	26	26.8
Single user interface	16	16.5%

development is very much important because necessary bibliographical fields on the template will be created, necessary rules adhered to and standards maintained. Solutions to troubleshooting software have been suggested by Satterfield (2007) and they are outlined as follows:

1. Freeze up Random Access Memory by closing other open programs.
2. Restart the software. When software runs slowly, crashes or returns error messages, shut down the problematic program and immediately start it again.
3. Shut down and re-start the computer.
4. Use the Internet to find help.
5. Undo any recent hardware or software changes.
6. Uninstall the software then re-install it.
7. Look for software patches.
8. Scan for viruses and malware.
9. Check for firewall conflict.
10. Boot up in safe mode.
11. Defragment your hard drive.

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## **APPENDIX. List of Libraries Surveyed in Nigeria**

### **UNIVERSITIES:**

1. Abti-American University of Nigeria, Yola
2. Ahmadu Bello University, Zaria
3. Ambrose Alli University, Ekpoma
4. Anambra State University
5. Babcock University
6. Benue State University
7. Covenant University, Ota
8. Cross River State University
9. Delta State University
10. Federal University of Technology, Minna
11. Federal University of Technology, Owerri
12. Joseph Ayodele Babalola University
13. Kwara State University
14. Lagos State University, Lagos
15. Olabisi Onabanjo University
16. Redeemed Christian University
17. University of Abuja
18. University of Agriculture, Akure
19. University of Ibadan, Ibadan
20. University of Ilorin, Ilorin
21. University of Lagos
22. University of Nigeria, Nsukka

### **B. POLYTECHNICS**

23. Abia State Polytechnic
24. Akwa Ibom State Polytechnic
25. Benue State Polytechnic
26. Federal Polytechnic, Auchi
27. Federal Polytechnic, Bichi
28. Federal Polytechnic, Ilaro
29. Imo State Polytechnic
30. Kano State Polytechnic, Kano
31. Kogi State Polytechnic, Lokoja
32. Rufus Giwa Polytechnic, Owo
33. Yaba College of Technology, Lagos

### **C. COLLEGES OF EDUCATION**

34. Adeniran Ogunsanya College of Education, Otto-Ijanikin
35. National Technical Board of Education, Kaduna
36. Osun State College of Education

**D. OTHER LIBRARIES**

37. Central Bank of Nigeria, Abuja
38. Federal Medical Centre, Abuja
39. Federal Medical Centre, Lokoja
40. Federal Radio Corporation of Nigeria
41. Funtaj International School
42. Kaduna State Library Board
43. Maritime Academy, Oron
44. National Crops Research Institute
45. National Health Insurance Scheme
46. National Library of Nigeria, Abuja
47. National Veterinary Research Institute, Vom
48. Nigeria Educational Research Development Council
49. Nigeria Institute of Policy and Strategic Studies, Kuru
50. Ondo State Library Board, Akure

**QUESTIONNAIRE**

The above is research topic to be investigated by a group of researchers. Your kind assistance in completing the questionnaire as accurately as possible would be appreciated.

Thank you.

A.S. OBAJEMU

**SECTION A: Demographic Profile**

1. Name of your Institution.....
2. Gender: Male  Female
3. What is your highest educational/Professional qualification?.....
4. Department you work.....

**SECTION B**

5. **Awareness of the existing library software:** (Tick the appropriate)

CDS/ISIS

Alice for Windows

Strategic Library Automation

KOHA

Docuware

Library Plus

Microsoft Access

Graphical Library Automation System

Integrated Library Management

EBSCO

Millennium

Liberty 3

**6. Knowledge in Computing:** (Tick the Appropriate)

Can effectively operate computer systems

Can operate computer system

Can partially operate a computer system

Cannot operate a computer system

**7. The IT facilities installed in the Libraries** (Tick the appropriate)

Computer Systems

Internal cabling

Bandwith

Computer Printers

Telephone

Internet

Scanning machine

Digital camera

Multimedia systems

**8. Knowledge in the Software Selection Guidelines**

Statement	Strongly Agree	Agree	Disagree	Undecided
Library Manager should carryout need analysis				
Need to read relevant literature				
Seek knowledge from the experts				
Visit libraries using the same software so as to understudy them				
Prepare a feasibility study				
Demonstration of the software for assessment				
Procuring cost, maintenance cost & training cost should be spelled out				

**9. Librarians' knowledge of the qualities of a good library software**

Statement	Strongly Agree	Agree	Disagree	Undecided
Library software should meet all specifications (correctness)				
Software should be easily learnt (usability)				
Library software should have good data integrity				
Software must not be defective				
Efficiency				
Software must have good data security				
Software should be maintainable				
Software should be upgradeable (scalability)				
Software should have modules/units				
Flexibility				
Software should be usable across all environments (portability)				

**10. Problems Associated with library Automation** (Tick the appropriate)

Power outage	<input type="checkbox"/>				
Cost of Procurement of the hardware/software				<input type="checkbox"/>	
Maintenance Cost		<input type="checkbox"/>			
Software used not revisable			<input type="checkbox"/>		
Vendor's insincerity		<input type="checkbox"/>			
Consortium	<input type="checkbox"/>				
Apathy on the part of Library Staff			<input type="checkbox"/>		
Inadequate Funding			<input type="checkbox"/>		
Training and re-training			<input type="checkbox"/>		
Software not flexible enough			<input type="checkbox"/>		
Software cannot be restructured to suit local needs					<input type="checkbox"/>
Software not user-friendly			<input type="checkbox"/>		
Compatibility with hardware devices				<input type="checkbox"/>	
Piracy	<input type="checkbox"/>				
Proximity to Virus		<input type="checkbox"/>			
Crashing Problem		<input type="checkbox"/>			
Single user interface		<input type="checkbox"/>			