AUTOMATION OF SCHOOL LIBRARY MEDIA CENTRES IN THE 21ST CENTURY: THE IMPERATIVE OF DATABASES AND SOFTWARE PACKAGES

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Abstract

This paper discusses the basic functions of school library media centres. It examines the various categories of software packages available for libraries and information centres and the extent to which library automation will support their information delivery system. The paper emphasizes the criteria for software evaluation and it finally concluded that the tremendous advancement in computer technology techniques would no doubt bring a drastic change in their information processing, storage, retrieval and dissemination.

Introduction

The phrase "library automation" has many diverse and sometimes unrelated meanings in literature. Library automation is seen as the computerization of library records and functions; it includes the of use computer hardware and software for tasks and otherwise require a lot of paper work and staff time. Madu, et. al. (2005) defined automation as a process which helps in the acquisition, organization, storage and dissemination of information in a library. It facilitates library processes

in a most reliable, wide and electronic way from a free exchange of information Automation also aids selective dissemination of information (SDI).

Carol (1997) opined that as schools change from passive learning environments into active ones, the role of the librarian and that of the school media centres has to adjust as well. The addition of technology into the learning environment enhances information retrieval and offers the librarian a new entree into the classroom curriculum. More student-centreed teaching methods demand the support of information resources and training in their use. Library technology reaches beyond the library walls via computer networks to put information resources into the hands of end users at

the point of need. With networks linking all areas of the modern school, the best place to access information may no longer be within the walls of the traditional library

School library media centres (SLMCs) across the country that have automated their collection management operations have found that performance of routine tasks by staff and access to information by students and faculty have become a great deal faster and easier. Automation often begins with microcomputer-based circulation and online catalog systems, but the available capabilities and the potential for expansion extend far beyond these basic functions. (Schamber, 1990). This article will focus on initial considerations of the roles of software packages in implementing an automated facility in SLMCs in Nigeria.

GOALS OF THE SCHOOL LIBRARY MEDIA CENTRE.

One fundamental aim of libraries has been to formulate a philosophy of intellectual freedom and to provide full access to all sources of information. Libraries attempt to meet the needs of a diverse and complex group of users who have a variety of special interests and demands that must be met. School library media centre is an hybrid facility within an educational institution which provide full range of media and media equipments with staff trained to assist students and instructors in utilizing its resources.

The goal of the school library media centre is to ensure that all members of the school community have equitable access to book and reading, to information and information technology. It uses all kinds of media; it is automated and uses the internet as well as books for information gathering. It serve as learner-oriented laboratories which support, extend an individualized the school curriculum.

SOFTWARE PACKAGES FOR SCHOOL MEDIA CENTRES

Software is instructions to the computer. With the proper software, a computer is valuable tool (Shelly Garry et. Al. 2008). The three major types of software are application software, system software, and programming software respectively.

Application software consists of programs designed to make users productive and or assist them with personal task. It. is any program that processes data for the user (inventory, payroll, spreadsheet, word processor. Application software has variety of users and its available in a variety of forms: packaged, custom, web - based, open source, shareware, freeware and public domain respectively. Examples includes word processing, spreadsheet, Database, software Suites among others

System software serves as the interface between the user, the application software, and the computer hardware. System software is made up of control program, including the operating system, communication software and database manager. To use application software, the computer must run system software specifically, an operating system. Four popular personal computer operating systems are Windows Vista, Window XP, Linux and Mac OS X respectively. Software thus, encompasses a wide array of products that may be developed using different techniques such as ordinary programming languages, scripting languages, microcode, and or other configuration. Computer software is so called to distinguish it from computer hardware which encompasses the physical interconnections and devices required to store and executive or run the software.

CATEGORIES OF LIBRARY SOFTWARE PACKAGES

Software packages are classified based on the function they perform, source code availability and cost factors respectively. Based on function performed, there are basically three main types, namely: Database Creation Software e.g. CDS/ ISIS (UNESCO), Library Housekeeping/ Management software e.g. Libsys (LibSys Inc.) and Digital Library Software e.g. Greenstone. Based on Source code availability, there are: Closed source software e.g SOUL, Open source software eg Libre and Proprietary software e.g. Microsoft windows and finally the other category which is based on cost factor include commercial software e.g. Libsys, Shareware e.g. Soul Demo version and Freeware eg Evergreen

From the aforementioned, software packages are classified into either a

- Pay ware software
- Free Software

- Proprietary (Non-free)software and
- Freeware software respectively.

PAYWARE: These are software that is fully functional and available for use for limited time with cost, monetary or otherwise. The author usually grants the right of use, study, change, copy and availability through the issuance of license that impose restriction on the type of use. The principal difference between pay ware software and other type of software is embodied in the concept of restriction in modification and additional functionality e.g. L4U, Acess-It, Library system etc. Software that is commercial is usually referred to as pay ware.

FREE SOFTWARE: Software that fits the free software definition is more appropriately called free software. They are software which can be freely used, copied, studied, modified and re-distributed by everyone that obtains a copy. Typically, this means software which is distributed with a free software license, and whose source code is available to anyone who receives a copy. In the context of free software, ''free" is intended to refer to the freedom to copy and re-use the software, rather than to the price of the software. Free software could be free and open source and or be free and close source. The acronym's F/OSS, FOSS, or FLOSS synonymously refers to free/libre/open source software respectively.

PROPRIETARY SOFTWARE: Are software licensed under exclusive legal right of its owner, the purchaser is given the right to use the software under certain condition, but restricted from other uses such as modification, further distribution, or reverse engineering. It complimentary terms includes *public domain software,* which is not subject to copyright and can be used for any purpose. Proprietary software is not synonymous with commercial software, they can be distributed at no cost or for a fee and they create greater commercial activity over free software, especially in regard to market revenue. Well known example of proprietary software include Microsoft windows, Adobe flash player, Adobe Photoshop, Google earth, WinZip, MySQL among others. It is important to note that users are free to use and even study and modify proprietary software.

FREEWARE: Software classified as free ware is normally fully functional for an unlimited time with no cost, monetary or otherwise. The author usually restricts one or more right to copy, distribute and make derivative works of the software. The software license impose restriction on the type of use including personal, individual, non-profit, non-commercial use etc. Accordingly, freeware may or may

not be free and open source software. It must be noted that free software embodies the concept of freedom to use, why freeware embodies the concept of free-of-charge. Freeware can be proprietary software available at zero prices. e.g. Evergreen, Open biblo etc.

CONCEPT OF DATABASE

Databases are designed to offer an organized mechanism for storing, managing and retrieving information. They do so through the use of tables. If you're familiar with spreadsheets like Microsoft Excel, you're probably already accustomed to storing data in tabular form.

Database management systems (or DBMSs) can be divided into two categories, namely desktop databases and server database, desktop databases are oriented toward single-user applications and reside on standard personal computers (hence the term desktop, while, server databases contain mechanisms to ensure the reliability and consistency of data and are geared toward multi-user applications. It's important to do a careful needs analysis before diving in and committing to a database solution.

Desktop database is suitable for school media centres requirements when originally planned. The needs analysis process will be specific to the SLMCs but, at a minimum, it should answer the following questions:

- Who will be using the database and what tasks will they perform?
- How often will the data be modified? Who will make these modifications?
- Who will be providing IT support for the database?
- What hardware is available? Is there a budget for purchasing additional hardware?
- Who will be responsible for maintaining the data?
- Will data access be offered over the Internet? If so, what level of access should be supported?

Once the answers to the above questions is provided, prepare to begin the process of evaluating specific database management systems. Sophisticated multi-user server platform (like SQL Server or Oracle) is necessary to support complex

requirements. On the other hand, a desktop database like Microsoft Access might be capable of meeting the need of the SLMC.

ADVANTAGES OF A DESKTOP DATABASE

Desktop databases offer an inexpensive, simple solution to many less complex data storage and manipulation requirements. They earn their name by virtue of the fact that they are designed to run on "desktop" (or personal) computers. E.g. Microsoft Access, FoxPro, FileMaker Pro, Paradox and Lotus Approach are the major players.

Desktop databases are inexpensive. If you own a copy of Microsoft Office Professional, you are already a licensed owner of Microsoft Access.

Desktop databases are user-friendly. A thorough understanding of SQL is not required when using these systems (although many do support SQL for die-hards out there). Desktop DBMSs usually offer an easy-to-navigate graphical user interface.

Desktop databases offer web solutions. Many modern desktop databases provide web functionality enabling you to publish your data on the web in a static or dynamic fashion.

ADVANTAGES OF SERVER DATABASES

Server databases, such as Microsoft SQL Server, Oracle and IBM DB2, offer SLMCs the ability to manage large amounts of data efficiently and in a manner that enables many users to access and update the data simultaneously, a server-based database provide a comprehensive data management solution. The benefits achieved through the use of a server-based system are diverse.

Flexibility: Server-based databases can handle just about any data management problem you can throw at them. Developers love these systems because they have programmer-friendly application programmer interfaces (or APIs) that provide for the rapid development of database oriented custom applications. The Oracle platform is even available for multiple operating systems, providing Linux junkies with a level playing field when paired off against the Microsoft folks.

Powerful performance: Server-based databases are powerful . The major players are able to efficiently utilize just about any reasonable hardware platform to

construct them. Modern databases can manage multiple high-speed processors, clustered servers, high bandwidth connectivity and fault tolerant storage technology.

Scalability: This attribute goes hand-in-hand with the previous one. If you're willing to provide the necessary hardware resources, server databases are able to gracefully handle a rapidly expanding amount of users and/or data. This article provided you with the basic information you need to begin the database selection process. Explore the site for reviews, tutorials and other articles to help you in your decision.

WHY LIBRARY AUTOMATION:

Computer-based systems are marvelous tools that create new possibilities for achieving librarianship objectives which includes access to, and delivery of information. There is a need to keep a keen eye on the twin objectives of providing the best possible information access and the most user- friendly functionality in our access systems. The vision for the future must maintain that dual focus (Ifidon, 1999).

It is essential to emphasize that library automation is yet to take off in majority of Nigeria's school libraries. To appreciate the advantages of automation, Manjunath (2010) identified four levels of library automation:

1. Library cataloging system
2. House keeping operations and networking
3. Development of CD-ROM library / products
4. E-mail system and internet

The library catalogue or index to the collection forms the base for most of the library activities such as acquisition, reference, bibliographic service, inter-library loan etc. The users of library card catalogue will appreciate how fast the retrieval is, search and printing in automated environment. If the same system is available in network environment, users can have simultaneous access to the same database. From the library staff point of view the cumbersome

job of printing the cards and their subsequent filing gets eliminated. Also, it conserves space and saves stationary.

The second level automation will be to use software which can handle all the house keeping operations of the library such as acquisition, circulation and serial

control thus creating a network within the library or becoming part of the existing network of the institution. Networking of computers within an organization helps the users to browse the cataloguing system from any of the workstation/ terminal.

A very handy technology available for library is the CD-ROM products which coud be considered as the third level. The development of CD-ROM collection not only conserves space but also provides multi-user access in network environment. There are many self-tutorial CD-ROMS available with multi-media effect. School libraries facing high incidence of mutilation of materials will benefit from such electronic products. Also people doing empirical research can download data and directly take it to other software platform for analysis and making graphical presentation.

Other technology which libraries can make use of is the e-mail system. This not only reduces the recurring expenditure but also be effective and fast. Sending reminders for non-receipt of journals by e-mail has proved to be very cost-effective. In addition to this, sharing of resources among libraries become easy. Few public domain e-mail software are available and there will be no additional expenditure incurred.

Another technology which has revolutionized the information world is the development of internet. Subscribers of internet, in addition to getting access to various public domain databases and services, will also get free e-mail and fax facility. Some publishers have started giving content pages of journals and libraries having subscription to such journals can also have full text of the articles. Many academic and research institutes have given free access to their working papers and this could also be explored by School Library Media Centre.

Thus, an automated school media library is an educational tool that provides time for inquiry and instruction, provides an environment for students to acquire 21st century information seeking skills, provides intellectual access to the library's collection and provides a system to manage materials, patrons and reports. Schamber (2010) posited and corroborated the aforementioned by stating that automated systems are available for four basic management functions as:

Circulation System tracks the status of all School Library Media Centre materials that circulates. This allows fast entry of borrowed items and easy identification of overdue accounts through records of all patrons and prints overdue notices and establishes waiting or hold lists.

Online Catalog provides instant access to catalog records as well as inventory data and brief acquisitions records via powerful interactive searching and help capabilities. Allows browsing as well as keyword searches on author, title, subject and other fields such as notes and copyright. Boolean logic can be used for complex searches. Searching is assisted by help menus, prompts, mouse pointing devices, and visual or audio tutors. The online catalog may contain other types of databases, such as journal indexes, and it may allow remote access from classroom, office, or home. The online catalog also contains a cataloging component to assist in developing MARC (machine-readable cataloging) records.

Acquisitions System manages ordering functions, from entering order data through claiming items ordered but not received. Maintaining financial records and publisher lists, allowing instant entry of records for newly acquired books with catalog records on disk or bar codes (sometimes these catalog records are part of the catalog module). Brief acquisitions records may be downloaded into the circulation system.

Serials Check-In which maintains records of journals, magazines, and other items received periodically. It tracks publication dates, maintains financial records, and generates claim notices for late items. In addition, software for these systems is designed for ease of data entry and flexibility in searching. Once the databases are set up, SLMC staff can quickly enter updates and generate inventories and reports on collection use, overdue, and budgets.

CRITERIA FOR EVALUATION OF SCHOOL LIBRARY SOFTWARE

There is a need to evaluate SLMCs when money, energy, and time or other resources are invested into it. The ability to evaluate the returns on the investment gives the SLMC based is on which to choose between alternative to choose. So an evaluation is basically a judgment of worth. Software evaluation is a difficult task; therefore, consider the following procedures, features and aids to evaluate software packages is examined:

1. **Preliminary step:**
   a). **Consult others:** Consult with others who have ready used the software in the same way you intend to use the system or consult others who have already experience on that software (Liswiki, 2008).

b). **Who refers you:** The reputation of the person or the institution, referring the use of the software, is equally important because his/her experience on the particular software would help to determine the worth of the software.

c). **Reputation of the manufacturer and vendor:** The reputation of the manufacturer and vendor should also be considered.

2. **Documentation:**

(a). **Existing literature:** Go for the software after carefully examining the existing literature and documentation on the particular software.

b). **Training:** Does the company or authority of the particular software provide training? Where and how is the training conducted? whether it is online or onsite should also be considered.

c). **Manual:** Is the software accompanied by an easy to follow print material or manual? and how good is the manual?

3. **General features of the software:**

(a). **Various computer platform:** What are the various computer platform needed to run the software i.e. server, wireless connectivity, hard disc space needed etc.?

(b). **Multiple platform:** Does the software run in multiple platforms such as Windows 2000, Windows N.T., Windows98, 95 etc.

(c). **Speed:** What is the Speed of operation?

(d). **Flexibility:** Flexibility to handle of records variable sizes should also be evaluated

(e). **Standardize data format:** Does it use standardize data form for importing and exporting of data.

(f). **De-bugging facility**: Check for De-bugging facility and scope of proper error message while executing the software.

(g). **User friendliness**: Is the system easy to use? Does the system empower the experienced user with short cut and flexible tool? Is the system menu driven. Are the command mnemonic based?

(h). **Effectiveness**: Does the system meet the specification.

(i). **Reliability:** Does the search give consistent result?

(j). **Expandability:** Does the system permit addition;

k). **Total cost of the software:** Does the system comes in different module i.e. available in only circulation module, circulation plus cataloguing module. What is the total cost of the sofware?

4. **Services**

a). **Acquisition:** Is the system able to carry out duplicate checking while entering the data. Does it have the capacity to print accession register?

b). **Data entry and editing:** How effective is the system in data entry? Does the software provide easy way for editing of records? Is insertion and deletion of records are easy?

c). **Circulation:** provision of facility for issue, return, computation of fines, reservation of document etc..

d). **Serial control:** Provision of monitoring multiple issue of a serial, provision of grace period for receiving the serial , provision of renewal, overdue alert, entering the abstract of a serial. **e).OPAC** (On-line Public Access Catalogue): Provision of reservation through OPAC, provision of searching OPAC from outside the library, provision of searching the OPAC and web simultaneously (Meta search) using a single word search.

f). **Library administration:** The software should allow generation of different reports i.e. collection statistics, circulation statistics and also should be helpful to create your own specialized report to meet your specialized need.

g). **Enhanced MARC data**: Many software allows catalogue website, E-Books, AV resources in addition to the library resources. These website are added by the library media specialist manually.

h) **Updating:** Does the library automation system company from their own site help to install, upgrade (web based updates), and patches or simply to help you with a particular function.

i). **New technologies**:

- Provision of handling on catalog item
- Provision of internet connectivity, E-Mail connectivity.
- Scope of integration of the software with other school department.
- Provision of accessing the software from computer outside the school walls via a web browser.
- Does the library software keep pace with global technology, web enhancement, online information, virtual services etc.

— Nowadays latest software is hosted by a vendor/Application Service Provider (ASP) or by the school web server. This is an advantage, here cataloguer can work from remote location and OPAC can be accessed from both home and school 24 hours a day.
— Can other application besides library software run on the workstation?
— Can the software make it easy to switch between the OPAC and writing station? There are times when you like your public OPAC station to function as writing station and there are other times when you like the writing station to function as OPAC.

5. **Security**
   a). Provision of user identity /barcode etc.
   b). Provision of access restriction to certain records/ fields.
   c). Is there any provision for students and staff to log in and log off on their own.
   d). How will new modification/ new version of the software be obtain by the librarian?
   e). **Future exist cost**: In near future if you want to switch over to another packages then the cost involved in such cases should be considered.

6). **Post installation**
   a). Does the vendor gives performance/ service warranty?
   b). Post installation support from the vendor.

ROLES OF SCHOOL LIBRARY AUTOMATION.

As the use of computers and other technologies continue to be used to enhance services provided by a variety of industries, information providers, like libraries, are also automating in-house collections and resources. There are many benefits to automating the information available in libraries, both for the staff and users alike. Castek (2009) highlighted the following as the roles and benefit of school library automation;

1 ***Improved Customer Service***

Automation of the school library helps take some of the workload off of librarians and other staff members in the areas of acquisitions, cataloguing and

circulation, which in turn allows them to better serve their patrons. This extra time can lead to more programs being facilitated in the library. It also create some time for library staff to answer reference questions and help people who having trouble researching or finding the right information.

2 Cataloging Improvements

Automated cataloging standards, such as MARC (Machine Readable Cataloging) allow for quicker cataloging of library items. This also allows the librarian more time to dedicate to improving customer service, the sharing of materials from location to location much easier and much more affordable.

3 Easier Access

Not only does automation of library materials make it easier to find books, buy it also makes it easier to access journals and some books online from a home computer or elsewhere. The automation of library collections also allows the library to be more flexible when it comes to any increases in demand.

4 Collections

Automation of the library allows for an improvement in the variety, amount and quality of materials that are available in the library's collection. It can also help make weeding out old, outdated and irrelevant books and materials from the collection, which helps keep the library's collection more streamlined and easier to find the right item.

5 Lasting Effects

Automation is also a way of preparing the collection to become sustainable with the ever-increasing shift to a technology-based society, in terms of information dissemination, paired with the ever-decreasing amount of funding for libraries. Automation will help libraries who begin to struggle and are forced to lay off staff. Switching to an automated system allows libraries to add on features when they become available in the future, instead of having to do a complete overhaul of their collections and cataloging methods

BARRIERS TO SCHOOL LIBRARY AUTOMATION:

The following have been identified by Manjunath (2010) as the few possible barriers of library automation:

i. **Fear Of Adverse Impact On Employment:** Analyzing the various jobs in the school library such as book acquisition, technical processing, circulation and reference service, one can conclude that human interference is necessary at each and every step. The only area where substantial manpower can be saved is in cataloguing. The data entered at the time of ordering can be used for cataloguing with some updating done to eliminate multiple card preparation and subsequent filing. The manpower thus saved can be utilized in retrospective conversion and later on for analytical cataloguing or introducing new services. Therefore, there will be no adverse impact on employment.

ii. **Apprehension that the Technology Could be too Expensive**: There is an apprehension that the technology, both hardware and software would be expensive and unaffordable. The cost of hardware and software depends on the level of automation. From the user point of view cataloguing system is most important and also forms the base for other library activities. Keeping these two points in view UNESCO developed a PC based software titled 'CDS/ISIS' and is available at a very nominal price to all the libraries in developing countries. This software is recommended for School library in Nigeria.

This software which works on a simple IBM compatible PC/XT is also available on UNIX and NOVELL platform. Recently the WINDOWS version has also been released. This software can export data in ISO 2709 format and therefore at later stage if one decides to go in for some other software, data transfer poses no problem.

INFLIBNET has developed public domain library software titled 'ILMS' which is available on DOS AND UNIX platform. With the recent government policy the PCs and other accessories have become affordable.

iii. **The Library Staff has to Undergo Extensive Training:** The in-house training for handling the software is usually provided by the developers and one can choose the software which can suit their budget. However, training for CDS/ISIS is available at INSDOC, INFLIBNET and DRTC. The training of library staff also depends on the level of automation. If one decides to go only for cataloguing a minimum training of one or two weeks duration will enable the librarians to develop a database and maintain it. With this basic training one can easily transfer the same data on a server/main machine in a

network environment. The job becomes easy as most of the institutions have systems department with computer professionals maintaining the network.

iv. **Lack of Support from the Management, may be Owing to Budget Constraints**: Lack of support from the management, may be owing to budget constraints, will be one of the barriers. Here the role of librarians becomes crucial in convincing the management that the users of libraries will also be the major beneficiaries of automation. Also, the skill and initiative play a major role in convincing the management.

v. **Retrospective Conversion of Data:** The fifth reason could be retrospective conversion of data. As mentioned earlier the manpower saved could be utilized for retrospective conversion and later on for analytical cataloguing. However, most of the libraries have taken time bound project for this purpose.

Conclusion And Recommendations

This paper attempts to give some ideas in school library automation. Even though wide range of technology/ products is available, it is necessary for librarians and information specialist to keep a watch on the type of software to recommend for his library depending on their collection. It is also important for librarians to interact with computer professionals as the library automation at all levels needs good co-ordination among both these professionals. For any library to record a huge success in school library automation, it must embrace the following recommendations;

i Highly trained personnel in the area of ICT with professional qualification in library and information studies should be allowed to manage the school library media centres.

ii Training and re-training of librarians in SLMC is necessary because of the rapid developmental changes in the new technology.

iii School management in collaboration with state and federal government should always be ready to assist SLMC both financially and morally

iv Standby generator should be put in place to serve as backup in case of electricity failure.

v The equipment in SLMC should be well maintained.

References

Carol. S. (1997) The school librarian role in the electronic age. http: www.ericdigests .org

Schamber L. (1990) Automation for the school library media centre. http:// www.ericdigests.org/pre-9218/media.htm.

Manjunath G.K (2010) Library automation: Why & how?http://www.igidr.ac.in/ lib/paper1.htm.

Castek, A. (2009) What Are the Benefits of Library Automation? http:// www.ehow.com/list_5744754_benefits-library-automation_.html#ixzz0wQEe7v00

Ifidon Sam (1999) Essentials of African University Library Management. 2nd ed. Lagos, National Library press,. p. 228.

Madu E.C et al. (2005) Information Technology: Users and Preservation of Resources in Libraries and Information Centres. Ibadan Evi-Colemans, p 69

Shelly B Garry et al (2008) Discovering Computers. Boston: Thomson Learning Inc. p.136-149.