Chapter-2: Review of the related literature

2 Introduction

There have been so many surges in the literature of library automation that it is not possible to review all the available literature. However, an attempt has been made to review a reasonable amount of literature both from Books and Periodicals, produced in India as well as abroad on the theme library automation and related to software packages. The literature reviewed indicates a global view of the automation that libraries witnessed since the application of Information Communication Technology (ICT) in them.

2.1 Books

In their study, (Heiliger & Henderson, 1971) revealed that automation reflected all areas of technical processes of libraries, but it never intended at the cost of human exit from libraries. It is rather, the choice of both man and machine in the tasks best suited to each. Authors have described that no library can enjoy the prior benefits of automation until the system is well defined, identified, analysis is properly done along with testing of hardware and software. Nevertheless, they pointed out that automation efforts should be focused on housekeeping operations. Though this study is good, but it suffers a drawback of being old.

The landmark study of (Salmon, 1975) has thrown light on the process of automation in the United States of America. He covered the history of automation in the USA along with the experiences that libraries met during the process of automation. This study is useful for the present work particularly highlighting the developments that has taken place in the field of library automation in the USA.

The work of (Saffady, 1983) highlighted the development of automated Circulation; Acquisition; Cataloguing; Reference services and prewritten Circulation Software. But, these systems were initially limited to West Germany only, however, their use later extended to Italy, Canada and South Africa also. Nevertheless, with the development of integrated systems, On-line operations and ‘Turnkey’ Circulation systems also took place. Author pointed
out that though Online catalogues are not still widely popular, but a number of libraries have implemented such systems on an in-house or Turnkey basis. Moreover, his study revealed how some operations were automated, but it paved way for integrated systems which are designed to support all housekeeping operations.

In his study (Horny, 1984) revealed the introduction of automated systems and to achieve maximum benefits out of them as a challenge for librarians’. Though resource sharing and Inter Library Loan are most attractive benefits of automation, but he pointed out that major impact of automated systems is on in-house operations. This study was limited to Circulation, Acquisition and Cataloguing sections only.

The study conducted by (Lovecy, 1984) revealed that automation is becoming focal attention of libraries, but it requires positive operational justification along with pros and cons test, and it is important that automation never gets out of hands. Author also revealed that automation should not be assessed on what librarians’ can do with the systems, but what systems can do with libraries. This study pointed out finance as the major problem for choosing automated library system.

The remarkable study of (Reynolds, 1985) focused on the development of automation in USA. He covered the history of automation in prominent American libraries. The study revealed that though manual system was enhanced, but it did not solve all problems. Significantly, OPAC merely identified the item, but does not help in identifying these items on the shelves. He also revealed that earlier in-house operations like Serials system, Acquisition and Catalogue system were abandoned, however, Circulation system survived. Besides above, he outlined that automation has rapidly changed from early technical support system to Online technical support system. This study is relevant to present thesis as it critically examined the historical development of library automation.

The work of (Marsterson, 1986) revealed that automation evolved in an Ad-hoc way rather than careful coordination and comprehensive planning. He
mentioned that libraries initially automated specific issues; however, problem was to replace the inefficient activities. Author pointed out that projects were started without analyzing the existing system and staff expertise. He outlined that problem is not how to design an automated system, but to implement the system and train the staff to operate it. In addition, he revealed that an effective library system demands commitment from staff and it needs a justifiable training program and participative approach to design a good automated library system. This study is useful for present work as it covers the desirable knowledge of IT for the today’s libraries.

A comparative study of three systems namely Plessey, Automated Library System (ALS) and Olivetti for automating issue and Circulation control was conducted by (Herring & Mackenzie, 1986). However, their study was limited to Cataloguing and Circulation sections of the City Libraries of London only. Authors pointed out staff training essential at an early stage of automation; however, inadequate finance is a major problem of implementing automated library system. This study is useful for present thesis as it critically examines different automated systems.

Similar study was conducted by (Hirshon, 1988). He outlined lack of foresight and judgment as the problem before undertaking automation in libraries. Author mentioned that though large academic and research libraries switched to automation with the development of MARC and OCLC’s cataloguing project. But, automation was limited to Cataloguing, Acquisition and Circulation sections only. Nevertheless, with the development of On-line services by OCLC, library automation moved into new era of On-line Public Access Catalogue (OPAC).

The study of (Stahl, 1988) highlighted the process of integrated systems for automating all housekeeping operations by single integrated package. However, he revealed that implementation of such integrated packages is not a onetime project, but an ongoing process to keep the system viable. In addition, author pointed out that Virtua software developed by VTLS, Inc which added authority control functions is most appropriate for implementing a good
automated library system. This study is relevant to present thesis as the study critically examined the process of integrated library software packages for implementing successful automated system.

Similar study regarding different library software packages was conducted by (Lane, 1990). She revealed that libraries face number of challenges for automation. Author mentioned that before any investment on automating, the project must begin with careful consideration of a number of planning issues. She also pointed out that automation is not an end with the selection of hardware and software only, but it demands psychological preparation of staff and patrons for many challenges that automation will bring to library operations. Author has also rightly advised that librarians have to prepare themselves mentally.

In their study (Neiscky & Martin, 1990) covered the automation of Czechoslovakia State Library. Authors mentioned that library used Modular Automated Library System on government grants. This system uses both ISBD and Czechoslovakia National standards that are convertible to UNIMARC standard. The library is using customized version of CDS/ISIS system. Though this study is good to present the problem of a particular library, but it also suffers drawbacks as the study fail to cover any standard library software packages.

The study of (Watcher, 1990) focused on number of issues before implementing automation in libraries. Author mentioned that trained staff, software quality and training from vendors are necessary before implementation. Significantly, he also pointed out that it is possible that unforeseen expenses will increase during automation; therefore, it is better to include unforeseen costs prior to implementing the project. This study is good as it critically examined the noteworthy prerequisites before implementing the project.

The study by (Prasher, 1991) revealed that librarians’ face real challenge to achieve maximum benefits out of computers. He mentioned that though automation has become imperative, but it will not solve all problems of
libraries. Further, he pointed out that along with the benefits, librarians’ will have to face the challenges of automation such as Retrospective conversion, extensive training for library staff, appropriate vendor for qualitative hardware and software and librarians efficiency to handle automated systems. He also outlined that human factor will still have a key role in libraries. Since, this study has covered the status of many Indian University libraries thus it is useful for present doctoral thesis.

The study of (Lynch 1991) deals with the development of integrated library systems in which author has mentioned that the libraries which skip the initial step of automated Circulation and directly implemented full integrated systems faced great trouble and unexpected expenditures. He pointed out that most of the major academic and public libraries in America have either implemented or, are planning to implement integrated systems as soon as budget permits. Besides above, this study outlined that though it is not easy to find stable and high quality software; however, most of the libraries find at least one vendor with appropriate software package for implementing automated functions.

The work of (Riggs, 1991) in an edited book has described a brief sketch of library technology. He mentioned that libraries started using technology in the U.S.A in the form of punched card system. However, its use was limited to Circulation section. Nevertheless, with the passage of time, the use of computers expanded in the mid-sixties as Library of Congress started producing MARC records. In the following decade OCLC, RLIN and WLN have been established as regional and international networks to serve co-operative ventures. The author also mentioned that in the early 1980, emergence of On-line Public Access Catalog have been witnessed as a shift from manual catalogues. He also outlined the future impact of technology in the libraries and how staff is going to be affected particularly by expert systems.

The study of (Dutta, 1993) discussed the development of different library software packages in Indian context. Author mentioned that the readily
availability of packages like TULIPS; Sanjay; Maitrayee and Libsys made housekeeping operations more effective. She revealed that these packages overcame the drawbacks of previously used softwares. Her study outlined inadequate finance, as well as lack of desire and vision as the major problems on part of majority of librarians for automating Indian libraries. This study is limited to Indian medical libraries only. This study is useful for present thesis as the study critically evaluated different library software packages.

The significant study of (Haravu, 1994) revealed that the operational efficiency of Indian academic libraries gained significance only during last few years. He mentioned though research and development centers developed library softwares, but their packages could not proved successful. However, the package like Libsys gained popularity among Indian libraries. He also outlined that Professional bodies and Library science schools should take note of Western packages relevant to Indian libraries for efficient services. This study is relevant to present work as it critically compared and evaluated different library softwares.

The study of (Sharma, 1995) highlighted the development of automation and networking in Indian context. Author mentioned that though computers are broadly applicable to housekeeping operations, but Indian libraries are still less affected because of paucity of funds and inexperienced staff. He pointed out that though a number of packages both in-house and commercial are readily available, but he suggested selecting the package that is compatible with the hardware in hand and possessing advanced features and user friendly interface.

In their study (Kochar & Sudarshan, 1997) highlighted some of the significant achievements of automation in USA and India. Authors mentioned though Indian libraries are using computers since two decades, but it is only 3-4 years back that they became serious towards automation. Though, their study is limited to some sections only, but they revealed that automation has affected most of the library processes. Nevertheless, they pointed out poor planning, poor design and poor implementation as major bottlenecks of automating
Indian libraries. This study is useful for present work particularly focusing the developments that has taken place in automation both in India and America.

The study of (Cohn, 1998) highlighted some of the issues that need to be addressed before implementing computerized library system. Author mentioned that those having particular interest in automating should be involved in planning before migrating to new system. Additionally, staff and users have to be familiar with it. He also suggested a comparison of different available packages. Though his study covered various operations, but it remained limited to UK only. This study is useful for present thesis as it discussed the measures to be taken before implementing the automated system.

Automating library operations will certainly overcome the challenge of literature explosion, space problem and cost hike of conventional printing resources (Bharduwaj & shukla, 2000). However, they mentioned that before going for automating, the aims and objectives along with advantages and disadvantages of automated systems should be well defined. Against this background, they pointed out that the comparative study of different library software packages is necessary for selecting the hardware and software for completion of successful automation project. Significantly, this study is limited to Indian libraries only and thus is useful for the present thesis.

The study of (Satyanarayana, 2003) has thrown light on MARC projects and different networks that extended support to library services. Author mentioned that the development of integrated systems and CD-ROMs put great impetus on automation. He pointed out that designing automated systems is not an overnight phenomenon, rather it requires well defined, cost effective and properly testing of hardware and software before putting the system into operation. Unfortunately, he suggested CDS/ISIS system suitable for computerizing any library system which is not a standard software package. However, he rightly outlined inexperienced staff, outdated hardware and software as major problems for implementing automation in Indian libraries.

The study of (Kochtanek & Joseph, 2004) deals with the technological applications to libraries. Authors mentioned that initially automation was
restricted to Circulation section only, but later it supported other housekeeping activities too. However, authors revealed that present focus is on developing information systems to support end user. Nevertheless, they outlined that librarians should be able to identify library needs, evaluate various alternatives and assess the impact of automation on library operations. This study pointed out trained staff and good planning essential for implementing automated systems.

Similar study was conducted by (Venketaramana, 2004) among Central University libraries of India. Author mentioned that more than half of Central Universities have automated their operations by using international standards for bibliographic exchange and documentation. He revealed strategic planning and trained staff as key to successful implementation. His study pointed out finance; lack of standard; well accepted software and untrained staff as major problems of automating Indian libraries. Though, his study covered major operations, but it is restricted to Central University Libraries only. This study is useful for present thesis as it critically examined several issues before implementing automated systems.

The study of (Mittal, 2005) covered the history of library automation and networks that took place in America and Britain. He mentioned that development of these networks shifted libraries from semi automated to major automated systems. In addition, he mentioned that with the fast growth and marketing of computers, plethora of automated systems has been developed. Nevertheless, he pointed out incompatible hardware; latest software; poor planning, design and implementation as major breakdowns that hamper automation projects. This study is limited to acquisition and Circulation sections only. This study is good as it highlighted the history of automation and networks in America and Britain.

The study of (Jeevan, 2006) highlighted the initiatives of special and research libraries to convert manual operations into automated systems. Author revealed that though availability of software packages met various library demands, but many of the immediate needs could not be fulfilled. He
mentioned that software should be selected keeping in view all housekeeping activities. This study outlined cost, and competency of staff to accommodate new techniques as major problems of automating Indian libraries.

Special libraries in India still face challenges of finance, trained staff and administrative support (Thapa, 2007). Author mentioned that there are libraries which still use CDS/ISIS package; however, she pointed out that standard and user friendly packages like Libsys and Alice for Windows should be procured. She suggested that comparative study of various packages will be helpful for selecting suitable software before automating housekeeping operations. This study is useful for present work as it critically evaluated various library packages for automation.

2.2 Articles

The study of (Tskevic, 1972) deals with the history of automation in the erstwhile USSR. Author has mentioned that how unit like circulation has been automated and paved way for integrated library operations covering all the sections of the library. This study, however, is confined to the small region of the former USSR.

In his study (Freedman, 1976) has also highlighted some of the important libraries of America and how the development of OPAC as well as MARC influenced these libraries.

The study of (Oyemakinde, 1979) covered a University library of African Continent. He revealed in his study how the process of automation started in Ibadan University Library with periodical section. Having realized the benefits, the University library started automation process of Circulation section. Significantly, the introduction of Bar-coding system proved very successful by way of eliminating long queries at the counter. The study of (Evans, 1979) is also almost similar in reporting the benefits of Bar-coding system, though the study covered a different library.

In his work (Richmond, 1981) highlighted some achievements of Library automation. Nevertheless, author opined that automation is not a panacea as all the problems of libraries cannot be solved merely with
introduction of computers in libraries. This study is useful for the present thesis as the study critically examined the process of automation.

The study of (Peake, 1981) deals with the development of library automation in Australia. He mentioned how operations like Circulation, Acquisition and Cataloguing have been automated in Australian University Libraries. His study covered National Library of Australia which purchased software that was developed by Washington Library Network. Though, his study revealed that the system is successfully transported and used for in-house processing within National Library of Australia, but it was limited to Circulation, Acquisition and Cataloguing sections only.

Similar study was conducted by (Rajgopalan, 1981). He highlighted librarians’ difficulties in monitoring growing collection; users; and catalogue cards. Author mentioned that Computerized Book Acquisition system was adopted in IIT Madras to minimize these tasks. Though, his study was limited to Acquisition section only. Nevertheless, he mentioned computerized book acquisition module with IBM 370/155 VSI computing system and Total Integrated Package of Programs suitable to the needs of IIT Madras and any other similar type of library. This study is relevant to present thesis as it critically examined some Indian library software packages.

The study of (Mendez, 1983) highlighted the progress of automation and networking among cultural centers, research institutes and Universities of Spain. He revealed lack of coordination and information policy at fundamental level among Spanish Libraries. Further, he found that out of 285 libraries, only 9 libraries were automated while as 84 in the stage of automation. But, he revealed that automation is limited to some sections only. However, there is neither common acceptance of standards for bibliographic description nor a common format for input of data. Significantly, some of these libraries are using IBERMARC a Spanish version of MARC II for Monographs and others use specially designed format.

The study of (Freedman, 1984) highlighted the history of automation in large libraries of America. Author mentioned that initially automation was in-
house based and limited to some sections only. However, with the development of several networks, ‘Turnkey’ vendors had started facilities for On-line Circulation and Catalogue functions with Boolean search capability. He pointed out that automation is not a panacea, but a tool to enhance library operations and services. He also outlined that librarians should be aware that along with advantages, automation will come with a new set of challenges. This study is useful for present work as it throws light on the development of automation in American libraries.

The study of (Woods, 1986) deals with the use of international standards for automating British Universities. He identified Retro conversion of library catalogues as the top issue of automation. The study mentioned influence of Bar-coding on automating Circulation. Author revealed that most of the libraries use in-house software. He pointed out staff expertise, finance and maintenance of hardware and software as the major limitations in automating British University Libraries. He outlined that apart from using BLAISELINE to access BLBSDs databases, some British Universities have joined hands with American consortium OCLC for maximizing conversion rate. Nevertheless, this study was limited to British University libraries only.

In their study (Harison & Summers, 1988) highlighted the development of integrated library packages in Lancaster Library. The first operation to be automated in this direction was Acquisition section. This Lancaster’s automated system has been a great success and was widely accepted by all levels of staff. This study is useful for present work as it examined the development of integrated library systems for automation.

Similar study was carried out by (Cotta, 1989) in Technological University of Denmark. He mentioned, though, integrated systems had resulted in merging of Acquisition, Cataloguing and Periodicals sections of Technological University of Denmark and State Library in Aarhus, but there was no downloading facility of externally produced records due to the fact that library does not want to use MARC format. This study is limited to Danish libraries with only three sections of the library automated, but still useful for
the present study as the author has pointed out some shortcomings of an existing automated systems in libraries.

The study of (Butcher, 1993) outlined the development of computer systems and services of new building at St. Pancras of British Library. This study concentrated more on what systems do to libraries rather than the technology by which they achieve their results. Author mentioned that this computer system will support reader admission system, On-line catalogue and Book requests. But, it is essential that the system must be user-friendly as many users will be unfamiliar with the new computer system. This study is limited to OPAC module only and it revealed that OPAC is designed in such a way that it provides open OPACs which later became Web OPACs and will be accessible across JANET network in London and other networks will link it to other countries.

In their study (Kreslins, et.al, 1994) has thrown light on automation of Latvian libraries. Authors discussed the standardization among Latvian libraries for bibliographic description. Their study mentioned that though recent OPACs like OKAPI offer key word and subject searching by using Boolean operators, but most librarians confirmed that they do not have any standards for use of partially or fully controlled vocabularies in OPACs. They also mentioned that there is no networking among Latvian libraries; however, few libraries have linked their computers on LAN. Author opined that integrated software should be used in libraries. This study is limited to OPAC, Periodical subscription and Circulation sections of some libraries of Latvia only. Still the study is relevant for the present doctoral thesis as it covers some useful aspects of OPAC.

It is easier to automate small and new libraries, but there should be a definite computerization plan in which data entry is the first step (Ali, 1995). However, for University libraries, hardware and software should be selected as per the quantum of data it processes and services it offers. Author mentioned that though IIT Madras made efforts in this direction, but the softwares developed by it could not met all library needs. Significantly, commercially
available packages like Libsys and Libris proved good for Indian libraries. Additionally, these softwares need lesser expertise and are more user-friendly. This study is useful as it covers Indian University libraries.

The access and sharing of library resources depend on the use of computers and automation of various operations and services (Garcha & Butler, 1996). Authors discussed the characteristics of libraries with main emphasis on technological capabilities. Though, they revealed paucity of funds and technical understanding as two pressing problems for guiding and implementing automated library system. This study is limited to three libraries of Ghana, Kenya and Nigeria only, but still useful for the present work.

The study of (Malik, 1996) has thrown light on the current status of automation in Pakistan. He mentioned that most of the Pakistani libraries use locally developed softwares. However, some libraries developed their in-house databases, but their condition is not good. Nevertheless, Lahore University library implemented INMAGIC package, but it too has limitations. Author pointed out though CDS/ISIS became operational in number of Pakistani libraries, but it is limited to some sections only. Owing to these drawbacks, major Pakistani libraries installed MINISIS package; however, it also did not met all library needs. This study is good as it critically evaluated some famous software packages.

Library automation is a course that constantly applies new technology as a replacement to manual procedures to enhance its functions for better services (Qiang, 1997). Author mentioned that automation is important for modernizing libraries, but he revealed that only well trained staff can maintain the automated system to perform the job in a better way. Author mentioned that PULAIS system was used to automate the housekeeping operations of Chinese libraries, but his study pointed out that this system is limited to Peking University Library and few other adjoining libraries only.

Indian librarians face number of challenges in library management issues (Frances, 1998). These challenges largely affect the progress of computerization. Author revealed that there are certain compatibility and
suitability issues in selecting library software packages. He pointed out that some agency or certain mechanism should be established to continuously evaluate different software packages, which perhaps will meet the challenges of automating Indian library system. Though, his recommendations paved the way for library professionals to automate their libraries. However, it did not gain wide acceptance and remained limited to Indian libraries only.

The study of (Singley, 1998) revealed that most of the Community Colleges of America have electronic catalogs, indexes and reference tools, but access to these resources from off campus is limited. However, all Public Universities have full access to their materials both within and outside the campus. On contrary, Community College libraries have limited computer facility, but efforts are being made to make their resources accessible both within and outside the campus by using ILLInet On-line system. However, he pointed out that automation of library materials and local networks such as Local Library System Automation Projects (LLSAPs) and ILLInet system are providing computerized library system among 800 libraries. This study highlights useful points regarding automation of Community Colleges and Public University Libraries in America.

The work of (Amaraweera, 2002) outlines the historical background of computers and their application in Sri Lankan libraries for implementing automation. Though, he mentioned CDS/ISIS software package as the most appropriate for installation and automating housekeeping operations of Sri Lankan libraries. However, this study is not relevant in the present context, as CDS/ISIS fail to sustain against standard library software packages of present time. In addition, this study could not get wide recognition and is therefore limited to Sri Lankan libraries only.

The study of (MacCallum, 2002) highlighted the process of development of MARC projects for sharing of bibliographic data. Author discussed the different networks for offering expanded services. She mentioned that with the remarkable increase in use of On-line catalogs, the interest in retrospective conversion of bibliographic records increased, as a result many
retrospective conversion projects resulted in creation of union catalogs. Though, her study is limited to Library of Congress only, but she outlined that MARC format addressed several major problems. This study is useful for present thesis as it critically examined the development of MARC projects which form the basis of library automation.

The study by (Widernet, 2007) discussed the development of systems and softwares for school and small public libraries, but application of these softwares is limited to some functions only. Author mentioned though TINLIB and Alice for Windows are having good features, but they are available in different modules. This study revealed that Alice for Windows is Z39.50 Server complaint, but not Z39.50 Client complaint. Additionally, it is reported problematic as it does not have Inter Library Loan module. Though, this study is limited to school and small public libraries only, but it gained wide acceptance in Canada, UK, Israel and America. Another study by Shabahat and Mehtab (2007) examined some library automation packages, but their study was limited to Indian context only. Additionally, the study was restricted to cataloguing module only.

The study of (Mehtab & Amita, 2008) highlighted the awareness and use of OPACs for information retrieval in Indian libraries. Authors revealed that many users are still unaware of complex searching and face number of problems of recall and precision, however in some searches; they are not able to find relevant documents. They revealed that necessary training should be provided for using software in efficient way. However, they mentioned that users still consider OPAC as successful tool in retrieving library resources. Nevertheless, this study is limited to OPAC module of five libraries of Delhi only.

The work of (Tseng & Kuo, 2009) deals with the establishment of intelligent automated library equipped with RFID and Self-checkout system. Authors pointed out unfamiliarity of users as the major problem in operating automated Circulation system. This study revealed that Ximen Open Book Intelligent Library circulates and helps in Self-check out without any human
intervention. This study is confined to Self-checkout and Circulation sections of few public libraries of Taipei Taiwan.

The study of (Sajjad ur Rehman & Reham, 2010) highlighted the process of automation in academic libraries of Kuwait. Authors mentioned that though cataloguing section have been automated, but Circulation module has not been in use in largest University library namely Kuwait University. In addition, Serials management is not optimally utilized in academic libraries because most of the libraries are not using all its capabilities. Indeed it is considered to be most complex aspect of integrated systems. Authors also revealed that only three libraries in Kuwait provide access to their OPACs through their University website; however, rest of the libraries does not use this facility. Significantly, this study is useful for the present work as it is also related with the academic libraries.

Similar study was conducted by (Ghosh & Panda, 2011) among Central Libraries of Indian Institute of Technology (IITs). Authors mentioned that Libsys is most popular package among IITs; however, IIT Madras and IIT Roorkee respectively use Virtua and Troodon software for automation. They mentioned that Libsys supports international standards and incorporates to core functionality of Serials control although the compliance is limited. However, Troodon package is limited to this end while as Virtua is sophisticated international library package that addresses full spectrum of library activities. Nevertheless, this study is limited to Serials control module of Libraries of Seven Indian IITs, but still useful for present work as it examined the status of IITs.
References


