Status of Library Automation and Networking in Select State Colleges of Himachal Pradesh- A Systematic Review

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ABSTRACT: *An academic library is a centre of all academic activities of the parent academic institute. An Academic library is the soul of academic institutions and supports the teaching learning process of the institution for attaining the goals of modern education. As this study is related to know the current status of Automation and Networking in select state college libraries of Himachal Pradesh, so this study is revolving around the college libraries. A college library serves academic fraternity including students and faculties. The importance of a college library and image of college librarian depend upon, not only the multiple of services offered, but also on the efficient ways by which the same are provided to the members. The status of college library depends upon how efficiently the informational needs of it's users are being satisfied. The paper presents findings from research into the state of library automation and networking at Himachal Pradesh's state colleges. The study would also look into the kind of computer-based resources and services that libraries make available to they're patrons, such as e-journals, e-books, online periodicals, databases, CD-ROM databases, OPAC, OER, and so on. In addition, an assessment of the college libraries' IT infrastructure, staff, and use of library software packages will be conducted in order to better understand the libraries' administrative issues. The current review paper is being presented to discover the state of Automation and Networked based services in state college Libraries of Himachal Pradesh and how far the users' are being satisfied with these services. It is essentially a well-ordered review of papers carried out in the past to realize the state of automation and networked based service in college libraries all around the world.*

Keywords: Library Automation, Library Networking, Library Computerization, Computer Applications, ICT Applications, College Libraries, Computer Hardware and Software, Manpower, Library Software Packages, Status, Problems, Himachal Pradesh

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1. Introduction

College libraries serve a critical role in meeting the academic demands of college users, comprising of teachers and students. To provide the best service to the college community, librarians use a variety of methods and technology strategies in the storage and transmission of information. The numerous house-keeping activities are automated using information technology skills and software packages.

The following LIS sources of information were searched using different search strategies to identify relevant studies on college library automation and networking in Himachal Pradesh, India, and abroad such as Library and Information Science Abstracts (LISA), Google Scholar, UGC-Infonet, full-text journals at www.emeraldinsight.com, Google search engine, and journal websites.

The literature review includes works published between 2000 and 2020 on library automation and networking in college libraries. The review is divided into four sections: the status of college library automation and networking, challenges in library automation and networking, use of library services, and user satisfaction with library automation and networked based services, and problems faced by users in accessing the computer and network-based services.

1.1. Library Automation

A. Library automation may be defined as the application of automatic and semiautomatic data processing machines (computers) to perform traditional library house keeping activities such as acquisition, circulation, cataloguing and reference and serials control. Today "Library Automation" is by far the most commonly used terms to describe the mechanization of library activities using the computer. (Uddin, 2009).

B. Encyclopedia of Library and Information sciences "Library Automation is the use of automatic and semiautomatic data processing machines to perform such traditional library activities as acquisitions, cataloguing, circulation although these activities are not necessarily performed in traditional ways, the activities themselves are those traditionally associated with libraries; library automation may thus be distinguished from related fields such as information retrieval fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis." (Kent, 1977).

C. McGraw Hill Encyclopedia of Science and Technology It defines automation as "a coined word having no precise generally accepted technical meaning but widely used to imply the concept, development, or use of highly automatic machinery or control systems". (McGraw, 1982)

D. Webster's Third New International Dictionary of English Language Automation is defined as "automatically controlled operation of an apparatus, process or system by mechanical or electronic device that takes place of human organs of observation, effort and decision". (Gove, 1986).

E. The Oxford English Dictionary It defines automation as "application of automatic control to any branch of industry or science by extension, the use of electronic or mechanical devices to replace human labour." (Simpson & Weiner, 1989).

1.2. Library Networking

According to the English Language Encyclopedic Unabridged Dictionary of Webster, network is a device for receiving and transmitting information based on computers, computer terminals, printers, etc. (Singh, 2007). Oxford Advanced Learner's Current English Dictionary states that' a range of computers and other devices connected together so that equipment and knowledge can be exchanged across a network ' (Hornby, 1968). Again, in other words, a network consists of two or more connected computers to share resources such as printers & CDs, etc., exchange data, or enable electronic communications. Cables, telephone lines, radio waves, satellites, or infrared light beams may connect the computers on a network.LAN (Local Area Network), MAN (Metropolitan Area Network) and WAN (Wide Area Network). (Source: http:/fcit.usf.edu/network/chap1/chap1.html, Retrieved Nov 02, 2019) are common types of networks. The networked infrastructure phenomenon is growing more globally. Many academic institutions use networked infrastructure to access and use stored library resources locally and remotely. (Rao and Choudhury, 2010). The rapid growth of IT, especially internet and related technology, has opened up an entirely new platform for providing users with better information services and resources. The rapid growth of IT, especially internet and related technology, has opened up an entirely new platform for providing users with better information services and resources. The advent of the Internet and the World Wide Web (WWW), the real blessing of electronic tools, was created as a new media for storing and delivering information. Electronic services can be accessed through the institutional membership of any Consortium such as the INDEST-AICTE Consortium, the UGC-INFONET Consortium, the N-LIST Consortium, etc., as well as individual e-journal subscriptions; (Arora, 2009).

1.2.1 Networked/ Network-based Library Resources and Services

• EDI Services.

• OPAC/ Web OPAC Services.

• Automated Circulation Services.

• Institutional Repository (IR) Services.

• Online Services.

• Electronic Journals.

• Electronic Books.

• Electronic Databases.

• Electronic Theses and Dissertations.

• Library Website/ Library Portals.

• Multimedia Databases.

• Internet Browsing Services.

• E-mail Services.

• Telephone Services.

• Facsimile/ Fax Services.

• Audio/ Video Conferencing.

• Videotext Services.

• Automated Current Awareness Services.

• Inter Library Loan.

• Web-based Document Delivery Services.

• Ask-A-Librarian Services.

• Real-Time Services.

• Bulletin Board Services.

• Web form Services.

• Web-based User Orientation & Feedback.

• Chatterbots

1.3. Statement of Problem

The growth and complexity of literature in all branches of libraries in this knowledge explosion era has posed a problem of collecting, processing, and disseminating information. To solve these issues, the utility of computers and ICT technologies for better coordinating information resources and efficient services in libraries is increasingly agreed (Pandey, 1999).

It is the high time to think about the ways the State College Libraries of hilly state are providing services to its users in the digital world. What is the nature of work in State College Libraries in Himachal Pradesh in the networked world? What form will libraries take? What packages of library application software are used in the above-mentioned libraries? What functions and facilities are automated in the library? Whether the libraries provide the users with networked services? Are the college libraries being provided with the adequate funds? Are the college libraries getting full administrative support? These are all the questions that came up in my mind. So, I feel like working on STATUS OF LIBRARY AUTOMATION AND NETWORKING IN SELECT STATE COLLEGE LIBRARIES OF HIMACHAL PRADESH.

1.4 Objectives of the Research

This study will cover the status of library automation and networking in select state colleges of Himachal Pradesh. This study is focused only on professional and non-professional State Colleges of Himachal Pradesh. The main objectives of the study will be;

1. To find out the present Status of Library Automation and Networking in State Colleges of Himachal Pradesh.

2 To explore the use of Library services and user satisfaction levels with regard to Library Automation and Networked based services.

3 To find out the challenges faced by state college libraries in library automation and networking.

4 To identify the problems faced by users in accessing the computer and network-based services.

1.5 Research Methodology

The current study is a systematic review of the allied studies carried out in the past. The pertinent reports from various sources have been examined keeping in mind the objectives of the topic and rational conclusion has been drawn.

Practicality of Research: Because this study is a review of previous relevant studies, it will be beneficial to have a conceptual grasp of the notion of automation and networking in college libraries. The study will serve as a framework for future empirical research that will contribute to the existing body of knowledge.

1.6 Scope of Study

The current study is restricted to the following topics:

• Literature published between the years 2000 and 2021 is gathered.

• Studies on the topic conducted in India and abroad are compared to see what similarities and differences there are in terms of the Status, Problems, and Prospects of Library Automation and Networking.

• ICT applications, integrated library automation software packages for library automation, academic library automation, and human aspects of library automation, the status of ICT infrastructure in libraries, problems, and prospects of library automation, and networking are some of the major topics covered in this study.

2. Review of Literature

Literature review is a description of the literature relevant to a particular field or topic. It gives an overview of what methods and methodologies are appropriate and useful. As such, it is not in itself primary research, but rather it reports on other findings. A literature review may be purely descriptive, as in an annotated bibliography, or it may provide a critical assessment of the literature in a particular field.

Here is one definition of a literature review:

"... A literature review uses as its database, reports of primary or original scholarship, and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second a literature review seeks to describe summaries, evaluate, clarify and/or integrate the content of primary reports."(Cooper, 1988).

These many topics are covered in the present study: ICT applications, integrated library automation software packages for library automation, academic library automation, and human aspects of library automation, the status of ICT infrastructure in libraries, problems, and prospects of library automation, and networking are some of the major topics covered in this study. The importance of a college library and image of college librarian depend upon, not only the multiple of services offered, but also on the efficient ways by which the same are provided to the members. The status of college library depends upon how efficiently the informational needs of its users are being satisfied.

At International Level: Relevant Library automation and networking studies have been conducted outside India are presented as under:

A national survey in Malaysia was conducted to know the present status of library automation in Malaysian Chinese Secondary Schools (MCSS) by Swee and Abdullah (2005). MCSS libraries started to automate libraries during the 1990's and had been actively involved in library automation projects since 2000, circulation section was most widely automated library service in almost all the libraries. Seventyeight percent of libraries planned to automate their libraries in the future course of time. A management decision was found to be a key factor in conducting the library automation. The study recommended that librarian

and management should ensure the fair share of the total school financial budget. (Amekuedee, 2005) carried out a study in Ghana to evaluate the automated library services of three older public university libraries of Ghana's which includes; the Balme Library, the Kwame Nkrumah University of Science and Technology (KNUST) Library and the University of Cape Coast (UCC) Library. A survey was conducted among the 138-library staff, of which 100 responses were received. All the librarians had a positive attitude towards automation and willing to learn new ways of doing things. Results of the study indicate that the libraries have to give more regular and purposeful computer training to their staff. University libraries in Ghana are lagging behind in terms of automation of library process compared to libraries in developed countries. Libraries have only started creating databases of their library resources in the cataloging departments. None of the libraries have an OPAC. There is a need of skills among librarians which will enable them to identify appropriate software for their library needs. None of the libraries organized in-house training programme on library automation for their library staff. Large (2006) ICT for Library and Information Professional: A training package for developing countries provides and skills dealing with the application of ICT to library and information services. It shows to determine the automation requirement and introduces the strategic and technology planning tools such as creating a vision, system analysis, and design that are necessary for developing a technology plan. Shafique (2007) studied 86 automated libraries of Lahore, of which 84 libraries responded to the survey, among these libraries 60 were academic, 18 were special and 06 were public libraries. The study explored the use of Integrated Library Management software, discussed the comparison of library management software and identified the satisfaction level of the software users among libraries of Lahore. Variety of software was being used by these libraries, which were either purchased or developed without any exchange of experience with each other. Thirty-one different software packages being used by the libraries, of which six were local software, six were foreign software and nineteen were in-house developed automation software packages. Thirty-seven libraries used local software, 27 libraries used foreign software, while 20 libraries used in-house developed software packages.

Breeding (2009) in his paper title "Next Generation Library Automation: Its Impact on the Serials Community" the author presented a descriptive note on the future trend in library automation and proceeding further that one of the key characteristics of today's library automation systems lies in the way that it's organized into the standard set of modules: cataloging, circulation, serials control, acquisitions, and online catalog. It may be that these functional modules no longer provide the best way to organize the work that takes place within libraries. He advocated to give a fresh look at building automation systems for current library operations might end up with something other than the traditional model. He went n reporting that current technology environment, one of the major trends involves the emergence of service-oriented architecture (SOA) as the preferred approach for building software applications. SOA provides an automation environment for an organization based on fairly small units of functionality implemented as Web services. Each Web service performs a discrete task, using communications protocols such as SOAP (Simple Object Access Protocol) or REST (Representational State Transfer). Automation systems based on SOA can be thought of as composite business applications created from a number of Web services. This architecture ideally provides a great deal of flexibility for an organization. If each of the business systems of an organization follow SOA, high-level interfaces can be created that draw on data and functionality spanning many different applications provided by different vendors implemented across multiple units of the organization. In an academic library environment, SOA would provide a basis for interoperability not only within different applications implemented by the library, but also with the business systems of the university. The acquisitions process of the library might be based on software that interacts with the library-specific software for bibliographic control and with the university's business systems for vendor and payment functions. In the context of Kuwait **Rehman and Al-huraiti (2010)** conducted a study to provide an overall picture of the management and use of automated systems in Kuwait academic libraries. Three of the six Kuwaiti higher education institutions were established during the last decade. Five out of six academic libraries are using 'The Horizon', an integrated library management system. Cataloging applications are almost complete in all the surveyed libraries. The circulation module was not in use in the largest university library of Kuwait. Serials management was not optimally utilized among the surveyed libraries. The library managers are mostly satisfied with hardware/software, vendor support, physical facilities, and funding opportunities. There are opportunities for networking, system integration and full utilization of management reporting aspects of these systems. **Jan, Saeed Ullah and Sheikh (2011)** conducted a comparative analysis of the services provided in two public sector university libraries of Islamabad and Khyber Pukhtoon Khwa in Pakistan. This study focused on the identification of library services, resources and digital library infrastructure. Library automation statuses were the main criteria for the analysis. University libraries of Islamabad have gone far ahead in automation compared to the Khyber Pukhtoon Khwa. In Islamabad, 10(91%) of the libraries fully automated, 01(9%) is partially automated, while in Khyber Pukhtoon Khwa 01(10%) library was fully automated, six (60%) libraries were partially automated and three (30%) were not yet automated. Fourteen (66%; N=14) of the university libraries have 1-15 computers. Only two university libraries have more than 50 computers. A good number of 13(62%) libraries have scanners 1-3; seven (33%) libraries had no such facility in the library. Sixteen (76%) of the university libraries had no barcode reader facility,

while rest 05(24%) libraries reported that they have achieved this technology. Thirteen (62%) of these libraries had no digital camera. Fourteen (67%) of the libraries had no generator and UPS. Nineteen (91%) of the libraries had no Radio Frequency (RF) security system. A few 06(29%) of the university libraries are using LIMS, the same percentage reported that they are using WINISIS as library management software and rest of the libraries using different software like LAMP, Koha, Virtura and Others. Eighteen (29%) libraries had developed or developing a database of library holdings and a few 03(29%) of libraries were not yet developed the database of their library documents. All the eleven (100%) university libraries in Islamabad had developed the database of their library holdings, whereas Seven (70%) in Khyber Pukhtoon khwa had developed or were developing a database of library materials. A good number of fourteen (57%) libraries had claimed 81-100% automation of library collection, while three (14%) institutions of higher education libraries had completed 51-80% of automation process of their library collection. The same numbers of libraries had claimed below 50% of library automation. A good number of (45%; N=10) libraries had range of 1 to 10 staff members. Six (28%) of the university libraries had ranged from 11 to 20 staff members. The same percentages of university libraries had staff 20 or more. University libraries of Federal area Islamabad had substantial annual budget compared to the university libraries of Khyber Pukhtoon Khwa. Majority 24(92%) of the university libraries had no separate budget for the automation and digitization. Only two university libraries of Islamabad claimed separate budget for automation and digitization. **Lauren and Hinchliffe (2014)** in their paper title "Happiness Is . . . Library Automation": The Rhetoric of Early Library Automation and the Future of Discovery and Academic Libraries" the authors presented a comparative report on the early library automation trend and future perspective. During the second half of the twentieth century, the professional literature of academic librarianship imagined, speculated, and envisioned how impressive technological advancements might affect the future of academic libraries and the profession as a whole. Technology and automation, stalwarts of the Space Age, were portrayed as the panacea for librarians burdened with growing collections and overwhelming clerical processes. Many voices chimed in to predict how mechanization and automation would impact collections, communication, and information retrieval, as well as the role of academic libraries in the future. In this paper, they examine how library professionals predicted technology would influence the role of academic libraries in the past and in light of current conversations about collections, discovery, competition, and the future of academic libraries. By examining the rhetoric of past conversations through the lens of present dialogs, they ended the report with the hope to bring a new perspective, informed by the past, to the professional discourse as ideas regarding collections, discovery, and the future of academic libraries continue to be discussed. In Osun State **Nigeria Aderonke Olufemi Otunla (2016)** investigated 13 higher institutions, to know the type of integrated library software being used by academic libraries. The author pointed out modules used and determined the level of automation by libraries. Identified the libraries that provide web OPAC and online services, mentioned the challenges faced by libraries. Further, the study states that, out of 13 higher institutions libraries, seven libraries were automated while the remaining libraries are planning to do so. It was also found that five universities and two polytechnic libraries were automated, while the colleges of education libraries in the state were not yet automated. Five libraries had made provision for power backup. Five out of seven libraries were using KOHA library management software, while only one library used VIRTUAL software and the other one indicated in-house software known as QLINK DIGITAL LIBRARY software. Two libraries have migrated to library automation software or the other before the current software they are using. All the seven automated libraries implemented cataloguing modules followed by five libraries implemented circulation module and two libraries implemented acquisitions module, while only one library had implemented serial control module and one library completed the retro-conversion of the library collection. **Peter (2019)** his paper, "Effect of Library Automation on Performance of Librarians in Private Universities in South-West Nigeria" centered on the impact of library automation on the speedy execution of routine library works in South-West, Nigeria. The study revealed that 90 percent of private university libraries had automated their services. It is found that librarians' performance had been increased by 70% as a result of the automated library in private universities in southwest Nigeria. The study showed that there was a significant and positive relationship between library automation and librarians' performance in private university libraries ($r = .372$, $p < .01$). This study concluded that most private university libraries in South-West Nigeria were fully automated which allowed librarians to increase the quality of services rendered This study recommended that university library managers need to further enlighten both the library staff and library users on the importance of library automation by organizing workshops, seminars and conferences to meet the current information needs of users. **Emasealu (2019)** the paper titled, "Automation of Academic Libraries and Web Development: A Reverie or Reality", highlighted the intricacies of web development which have orchestrated a paradigm shift in academic libraries. The study explored literature on the status of automation of academic libraries and web development in Nigeria. It was established that the functions of library management software are abysmally under-utilized in academic libraries in Nigeria, thus, progression of automation projects remain a swinging pendulum and the libraries in Nigeria are yet to attain full automated status because only a few aspects of the library services have remained in partial automation state as they are unable to utilize fully important features of each of the stages of automation project. Based on the foregoing, this study sets to assess the status, challenges, and prospects of web development and library automation in Nigeria. The author, therefore, recommends that librarians should acquire the relevant training and plan strategically for all

automation projects aimed at incorporating web development, automation, the intricacies of the web and ICTs into library services to fully utilize library management and the functions of the library management systems should be in line with web delve software/system and insist on training and retraining of library professionals of Nigeria and it will help to compete globally. Sivankalai (2020) This paper depicts the gloomy picture of Library Automation and other related services in nine colleges serving under the Institution. None of the 8 academic libraries is automated. The study commends that parental organization must give importance to the improvement of library automation and digital library enlargement through open-source software-based library automation systems. The author focuses on the need for strong Library automation and Networking system. He emphasized that librarians and staff must be trained enough so that they can smartly serve the users by automating the library resources on a priority basis and at the same time provide the users with Networked based services and resources. Most of the Librarians are agreeing that without library automation, no way to think about and implement the idea of Networking. It is recommended that the corresponding organizations of college libraries and library professionals must initiate footsteps in the direction of equipped their libraries with Information Communication Technology.

At National Level: Several studies pertaining to College Library automation and networking carried out in India have been described in this section.

Anuradha (2000) in a study entitled "Automated Circulating system using Visual Basic 6.0 discusses salient features of an automated circulation system, designed and developed to suit the requirements of a medium-sized library using programming language visual basic. It also gives advantages of visual basic based circulation system and objectives of the circulation control system and different types of files. Mishra (2001) in his work titled “Organisation factors in local library network development n India" he explained in detail about seven local library network and a national library network INFLIBNT and their stages of development. His work is based on survey results of the participated library under four networks, showing the elements influencing the growth of local area networks. He recommended that library networks must effort to increase the level of consciousness between participated libraries to growing local library networks effectively. Hussain, Akhtar and Raza (2002) in a study entitled "Online Public Access Catalogue: Its Development, utility and limitation” discusses the types of OPAC, document search through OPAC and guidelines for future designers of OPAC information. Sinha and Bhattacharjee (2003) this study focused on the National information and library networking agencies such as CALIBNET, INFLIBNET, DELNET, NICNET and other related city and metropolitan networks, developed the automation and networking of various universities, national institutions and higher education institutions, and some of them have started to operate and provide different online services. The findings of their work recommended that every library should be connected through online networking to provide online access to resources of other library repositories. Satyanarayana (2003) in his document "A manual of library automation and networking" explained that information professionals and librarians are facing challenges now a day by speedily Changing the surrounding library environment in the new era of information and communication technology. Modern technology and the opportunity for modern service that they find are the principal aspects of this transition. The findings of the work advised that automation and networking assist in answer the queries of the users both general and specific and need to walk with new standards and demands to provide users with high-quality service at the time. The variety and range of sources of information that librarian now agrees with. Mahapatra and Ramesh (2004) in their edited book "Information Technology Use in Libraries: A textbook for beginners," they demonstrate how the use of information technology in libraries has resulted in significant changes in librarianship, as well as the use of computers in library operations. It specifies the tools that can be used for automation. Chand, Murthy and Prakash (2004) described in their paper on "Report of promotion of library automation and networking in the north-eastern region (PLANNER) of INFLIBNET" in a conference on the topic INFLIBNET grants for library automation and networking assistance in India. Those participants and professionals at this conference were able to improve their experiences and knowledge. Above 160 professionals from Manipur and all over India and as well from Bangladesh were involved. There was also a diversity of paper writers, with more than 50% being women. They anonymously applauded the role of INFLIBNET in especially providing funds for library automation and networking in the country. Prakash, Hosamani and Murthy (2004) this paper reported on a training programme of Information and Library Network (INFLIBNET) and Kendriya Vidyalaya Sangthan (KVS) school librarians in Library Automation, e-resource management and networking. The 3-week course was planned for professionals in the KendriyaVidyalaya library and was held in 2004. The findings of the paper present themselves how this training programme was useful to the KVS Librarians. They learned skills to operate automation software and providing an access to resources through networks. Thapa, Neelam and Sahoo (2004) in their paper titled "Problem and prospects of automation with special reference to special libraries in Jabalpur" this article covers the condition of automation of Jabalpur district libraries at M.P. State. The study pointed out comprehensively the various problems encountered by library professionals and authorities during the automation process and suggested many ways and means to solve these problems which help in

developing a smooth library automation environment. Nanda and Manohar (2005) in their book titled “Library Automation” focused on Library automation as a paper taught at various institutions and universities at BLISc and MLISc courses. This book is an introductory course to the above article, providing essential information on all relevant aspects. The book is very useful for students, Library teachers and professionals to learn the Singh (2005) in his book "Library Automation," he emphasises that library automation is characterised as the use of computerised methods to replace manual operations in libraries. It has now hit the majority of university libraries, as reported in the late 1970s in a few special libraries. Over the past three decades, libraries have changed considerably as bibliographic utilities, online catalogs automated circulation systems, and other new technologies have been implemented in a majority of library operations and services. This book aims to provide detailed objective knowledge on library automation. It describes the advantages of library automation, identifies the barriers, analyses the convenient steps in automating the library and the technology available. It is designed to equip academics and library professionals with basic knowledge about library automation. Aswal (2006) In his paper ‘Library Automation for the Twenty-First Century,' he emphasises that the focus of library automation in the twenty-first century is on interconnecting networks, exchanging knowledge services through creative networking, and maintaining equal access to a wide variety of information and users. These developments include the growth of the use of networks and the internet. This book is a step-by-step guide for library practitioners about how to design a library automation system of any scale. If your new library automation isn't up to par with the modern technological world of the twenty-first century and your library infrastructure isn't functioning properly, you'll need to upgrade, you should look for new library systems. Seize this opportunity to assess your system can help you meet your services goals. Bavakutty, Salih and Haneefa (2006) in their book "Research on Library computerization" highlights Modern libraries have become more and more aware of the revolutionary impact of developments in Information and Communication Technology (ICT) on their major activities. The application of ICT facilitates providing pinpointed, expeditious and exhaustive information at the right time to the right user. It gives libraries and information centers the chance to broaden the reach of their facilities and programmes while still increasing their importance among the organisations they represent. With the growing availability of machine-readable content, certain information needs can be met with less interference from libraries and librarians. This book has two parts one part is 'Computerization of University Libraries' and the second part is 'Application of Information Communication Technology in Libraries'. This book would also be very useful to library and information science scholars and faculty who want to do research on library computerization and related topics. Manjunath (2006) in his paper highlights the need for automation and how it can be implemented. Provides information about library housekeeping operations, catalog, email, internet and CD-ROM products and services. It provides criteria for the selection of software and the barriers of library automation possible solutions to overcome these barriers. Barman and Singh (2007) surveyed twenty college libraries, out of which, only five librarians acquired the training and skills in library automation. Library automation activity requires extensive training for ensuring library automated services to the readers. Fully trained librarians in those colleges were not sufficient for their work load arising out of users and libraries have staff strength from one to three on average. Kumar (2007) in his Ph.D. thesis "Status of Medical College Libraries in Karnataka and Maharashtra: A Comparative Study" highlights 7 chapters Introduction, Review of literature, Research methodology, Medical education in India, Analysis and interpretation, Discussion of the result and Conclusion. In this research work, the first chapter includes the development of medical college libraries, Resources of digital information. National Medical Library, Medical colleges in India, Medical colleges in Karnataka and Maharashtra, HELINET, Medical library requirements, Australian health libraries, and Consumer health librarian are all included in the review of literature chapter. The research methodology chapter includes objectives of the study, hypotheses, importance, tools of the study, sampling and limitation of the study. The Indian Medical Council Act, 1956, Information, Education, and Correspondence, and Health Science are all covered in the chapter on medical education in India. Bansode and Periera (2008) surveyed the forty-three college libraries affiliated to Goa University, to know the status of automation, availability of human resources and barriers to library automation. Only thirty-six college libraries responded to the survey and reported that the majority of the college libraries do not possess qualified librarians as per the guidelines of UGC and the state government. Insufficient funds, space, and non-availability trained library staff were the barriers in library automation. Shivaraj, Mohammed and Kanakaraj (2008) explored in their paper “Bridging the Information Divide among Engineering College Libraries in Tamil Nadu, India: A Network Design" that there is a great need to develop a library network in Tamil Nadu state engineering college libraries to make greater use of resources and to support research scholars, staff and students and to increase the value of education. The findings of the paper suggested the various library networks which can help in accessing the resources of other libraries and boost the culture of resource sharing. Singh (2008) in his study "Library automation in modern age" explained that through improving the sophisticated techniques and tools, library automation is now becoming easier and more usable. The information contained herein will undoubtedly be equally insightful and useful to both academics and practitioners in the field concerned. He advised the different software packages which are user-friendly and reduce the workload of professionals. Karisiddappa and Rajgoli (2008) in their paper “Search of Information Literacy Programmes and Practices: Survey of Selected Institutions at Bangalore”.

DESIDOC Journal of Library and Information Technology in this article Libraries have long been involved in training their user's in-library use, its services and resources. Library orders, library orientation, user education, and bibliographic instruction are all terms that have been used to describe to teach the people about how to use the library, how to access information and teaching various bibliographic tools Information literacy has become an important concept since the arrival of the information age. Kumar and Biradar (2010) studied thirty-one college libraries of Karnataka State and identified that majority of the libraries have an inadequate budget and lackcooperation by the college management; nonavailability of the computer system and automation software; lack skilled and trained workforce. Even though library professionalshave shown a positive attitude towards the use of ICT applications and library automation, they need extensive and appropriate training to make use of ICT tools to implement library automation. In a study on automation of college libraries in Bangalore city by Mulla, Chandrashekara and Talawar (2010) studied 128 engineering college libraries of Karnataka state. Out of these, 102 libraries responded to the survey. The study reported that four-teen libraries lack computer facilities. However, six libraries higher authorities were not interested in spending money for automation, and only two libraries are lack of trained workforce. Few librarians were using serial control and acquisition modules because of the acquisition process was different from software to software and from the library to library. Kemdarne, Khot, and Birje (2012) this article focused on the scenario of library automation and networking of dental college libraries in Bangalore. The survey findings mainly cover various aspects of library automation and networking such as Library automation, Networking facilities, information services, manpower development and budget. The problems encountered in this process are identified possible suggestions are stated. Hardware and software should be acquired as per the latestconfiguration. For the successful implementation of the computerization of library services, advice from the experts who have already computerized the library services and activities should be sought. Senior library professionals should visit computerized libraries to gather practical information about computerization of library operations and services. Easy purchase procedure should be adopted for acquisition of hardware and software so that system with latest configuration can be purchased for library automation. Upadhyay, Pandey and Shrivastava (2012) studied the engineering college libraries of Jabalpur City to understand the problems of the management and library staff during the process of library automation implementation. Libraries are lack of non-availability of computer facilities, inadequate finance, shortage of trained workforce, lack of concern and positive attitude from college management towards library automation; libraries were facing software issues - one of the primary hindrances in library automation. The study on engineering college libraries of Maharastra state Patant (2013) surveyed three college libraries of Patoda City, Maharashtra state. All of them have insufficient ICT skilled library staff. One college was notautomated because of non-availability computer facilities; inadequate finance, non-availability of trained library staff; insufficient space were the common barriers faced by libraries. Waghmare, Ghante and Deshmukh (2013) surveyed fifteen engineering college libraries affiliated to Solapur University. Out of which twelve libraries responded to the study, among these only seven libraries implemented the library automation. Five (N = 05;41.66%) engineering college libraries were not automated due to lack of finance and inadequate trained human resource. Three (N = 03; 25%) librarians lack training in library automation. Each two (N=02; 16.66%) college libraries in require of IT infrastructure and face deficiency in IT knowledge among library staff. AdheGovind (2014) in his paper "Need of library automation in the digital era, Relevance of higher education for the development of human resources" proceeding on an Interdisciplinary international conference he informed that library automation has given significant support to the libraries and information centers. By using automation, libraries can satisfy the user's demand effectively; authorities can make better plans and decisions about their strategy. Library automation is the first and the earliest thing that comes under the Information and communication technology (ICT) application. He suggested that library automation is the initial step towards a digital environment. Ahmad (2014) studied awareness of library applications with a particular focus on OPAC Vs Card Catalog among users of the Indian Institute of Technology (IIT) Delhi, IIT Kanpur and Kashmir University; The research illustrated the functionality of the selected libraries used for LibSys and Virtua applications. The key finding of this study was that RFID technology was successfully installed by the University of Kashmir through Virtua. IIT Delhi and IIT Kanpur providing with the facilities of OPAC to their users. Anas, Iqbal and Ahmad (2014) identified the library automation problems of four selected management institutions of Aligarh. All were having insufficient space in the library and had no interference and issues from their college higher authorities. Two libraries lack inadequate funds and shortages of library staff. Three libraries reported that library users lack computer literacy to use the automated library services. One library stated the need for coordination and skills among library staff, necessarily required for the successful implementation of library automation. Kemdarne (2014) studied the problems associated with automation of dental college librariesof Karnataka state. Six (N = 06; 30%) libraries have insufficient funds and lack coordination among library staff, whereas twelve (N=12; 60%) libraries have a shortage of trained personnel and a dearth of computer literacy among library users to use automated library services. Eleven (N = 11; 55%) libraries are in need of support from the college management towards library automation implementation, and four (N = 04; 20%) libraries have inadequate space in the library. Furthermore, the author reported that libraries have lack of proper guidelines andabsence of planning in library automation; late implementation of library automation;cumbersome purchase procedures for the acquisition of hardware and software; many libraries lack uninterrupted power supply, non-availability of heavy-duty UPS and generators for

power backup. Inadequate qualified professional staff is the reasons for the backlog of library automation process in these colleges Pegu and Mahanta (2014) the paper is based on a comparative study on library automation among 20 college libraries of Sivasagar and Dibrugarh affiliated to Dibrugarh University. The methodology used for collecting data for the study is a combination of questionnaire and interview method. It is observed that most of the college libraries of both the districts are not having sufficient number of staff with technical knowledge to provide up-to-date services in an ICT environment. The study reveals that most of the college libraries of both the districts are not up to the mark at all in the application of the latest ICT in various housekeeping operations. In Sivasagar district, 4 colleges are fully automated whereas only 3 colleges are fully automated in Dibrugar district. In both the districts, automation is not fully done due to lack of budget, manpower, skilled library staff and lack of training. These constraints are the main reasons for not automating library activities. Gadalwad (2015) explained in detail in his paper "Overview of library automation" regarding library automation history in India. It attempts to research the various factors that indirectly or directly affect library automation procedures such as library automation history, development of library automation, implementation of library automation, library automation needs and availability of suitable software, basic requirement, purpose, special future, disadvantages and benefits of library automation and suggested various library automation software packages which are helpful in a systematic functioning of a library. Jayamma and Krishnamurthy (2015) reported that majority of the libraries were facing inadequate library supporting staff and training facilities for librarians. Librarians have lack of motivation, encouragement and professional recognition. There is a need for proper coordination among library staff. Libraries lack sufficient funds and inability to absorb recurring costs required for the library automation. Also, libraries need separate library buildings and physical facilities. Randive (2015) in his paper "Library networking in India" described that resource sharing is becoming increasingly important and interdependence between libraries is increasing day by day. The use of computers in libraries has now been of great help in the discovery, distribution and cataloging of stocks and when a group of libraries decides to exchange information through a library network. His findings advised that users' can be facilitated by sharing library resources and accessing the repositories of the national and international level through a suitable networking system. Naveen and Nagesh (2016)of twenty-four Government First Grade College libraries of Hassan district, the majority (64.71%) libraries had inadequate finance. Therefore fourteen (N=14; 82.35%) libraries were using free software rather than commercial. Fifteen (N=15;88.24%) libraries were facing inadequate library staff as a barrier to library automation. Therefore only eight (N=08; 47.06%) libraries were partially automated their housekeeping activities. Ten (N=10; 58.82%) librarians were not trained and remaining twelve (N=12;70.59%) libraries lack infrastructure. Sarma (2016) in his paper titled "OPAC Module in Open Source Library Management Software: A comparative study" comparatively studied Koha, Evergreen, NewGenLib, OpenBiblio, PhpMyBibli and found that among these five software the Koha LMS has more provisions, functional, and futures and modules are very user friendly. Sten and Kharakor, (2016) studied the present scenario of library automation of Rural College of Meghalaya. It is the only college situated in a remote place in East Khasi Hills District about 53kilometers from Shillong, the capital city of Meghalaya. The college library has no internetconnectivity due to the reason of the distance and remotely located. Financial constraints; lackof necessary infrastructure facilities; erratic power supply; lack of internet access facility;shortage of workforce; restraint in library budget were the primary factors that hampered theimprovement of library services through library automation. Shiva and Kemparaju (2017) in their paper "Status of library automation in engineering college libraries in Engineering College Libraries in Karnataka" reported on the status of VTU, Karnataka -affiliated library automation engineering colleges. The article discusses the topics such as availability of LAN facility, level of automation and software being used in the library majority of 143 respondents have said that they have LAN access in the library and also stated that 109 libraries are fully automated, 26 libraries are partially automated and 12 libraries are not automated at all. Takappa and Reddy (2017) Authors found that more than half of the Polytechnic Libraries (69.49%) are having computers and necessary peripherals. Among the different groups, Private Polytechnic Libraries are in a better position when compare to Aided and Government Polytechnic Libraries. The current state of computer hardware and peripherals in Polytechnic Libraries is insufficient. More than half of the Polytechnic Libraries (63.56%) have been automated using different Library application software. Out of three different categories of Polytechnics, the majority of the Government and Private Polytechnic Libraries are in the process of automation, whereas among Aided Polytechnics, more than half of the Libraries have been already automated. Libraries have focused on cataloging and circulation modules in their automation process. Out of three different categories of Polytechnics, 84.44% of Private, 74.29% of Aided, and 60.60% of Government Polytechnic Libraries have created their databases and the remaining are under process. This shows that the majority of the Polytechnic libraries are ready to automate their libraries. Barriers such as insufficient funds, lack of trained staff, and lack of infrastructure are faced by a majority of the libraries. Gautam and Fatima, (2017) The authors highlighted the status and application of an automated cataloging system in central university libraries in north India. Data has been collected using questionnaires. Interview and observation techniques have also been used to bring objectivity to the present study. Results show that varying levels of progress have been made concerning the implementation of a cataloging system. The results also reveal that libraries have pleased user groups by fast retrieval, thanks to automation. It has eliminated inconsistencies and developed a movement toward standardization. In addition, in an automated setting, employee productivity

has improved. Singh and Jassal, (2018) Authors got to succeed in finding that 355 articles were published and contain 3510 citations in total. i.e. on an average of 9.89 citations. The 666 authors had contributed to the Planner. In the year 2006, a maximum of 113 authors contributed their academic ideas. It is being notified that the pattern is changing from single authors to double authors. Hence it concluded the majority of authorship pattern is collaborative. Out of 666 authors, there were two authors Singh SK and Sinha Manoj Kumar who had contributed the maximum number of articles i.e. 8 since 2006. The maximum authors were from the Universities i.e. 359. The top four organizations are from Gauhati University, Assam (42); Manipur University, Manipur (40); Assam University, Assam (30); North-Eastern Hill University, Meghalaya (22). Contributors are also from all parts of the country including Uttar Pradesh, Himachal Pradesh, Chandigarh, Maharashtra, Delhi, etc. The present picture of the libraries is a digitization and an adequate amount of research is being done in this area. The keyword "Library Automation" has shown significant growth in the previous year. Maheswarappa and Kumar (2018) the paper reports the studies on status and problems of library automation in undergraduate, engineering, and technology, and management colleges in government and private sectors in India. It focuses on the present condition of these libraries about the availability of infrastructure, workforce, use of library software packages and associated problems. College libraries in India have not reached a high level in library computerization. Even though library professionals have a positive attitude towards the use ICT applications in the library, they were in need of extensive and appropriate training to make the best use of ICT tools in the process of library automation. Majority of libraries were managed by a single librarian, non-availability of trained IT professionals; there is lack of qualified library staff; deficiency of IT knowledge among the library staff; lack of management support in terms finance were some of the significant hurdles for library automation. Serial control and acquisition modules are being used less number of college libraries. Hardware and software facilities were not adequate to start automation activities at a reasonable pace in Indian college libraries. INFLIBNET, DELNET and other metropolitan networks are providing training facilities for computer applications in libraries and conferences are being frequently organized to discuss issues related to the computerization of libraries. Challenges in library automation remain same over the last two-three decades. Librarians have to keep a watch on the trends and developments in library automation to choose an appropriate technology depending on the needs. Librarians have to interact with the computer professionals as the library automation at all levels needs proper coordination between them. Library automation is a joint venture, where library professionals, authorities and library users play the critical role. Librarians need to reorient themselves, think creatively and adopt new technologies in libraries. Maheswarappa and Kumar (2018) the study explores the current infrastructure facilities of degree colleges and their libraries in HK region by district, type, year of the establishment, urban vs. rural; academic programs - UG and PG - Courses offered and coeducation including the teaching, nonteaching staff, and students strength. Also investigates the status of college library buildings; organization of a library into different sections; library staff - professional and supporting, library collection - books, journals, magazines and newspapers, classification and cataloging of books as well as library finance - amount spent for the libraries during 2015-16. Reports the availability of computer hardware, software, and humanware, library automation initiatives, use of library automation packages, and highlights the current picture of library automation activities among the colleges in HK region. Concludes that the present status of libraries and the library automation initiatives and use of Library Automation Software packages depicts a bleak picture. Hence, suggests that the Hyderabad Karnataka Regional Development Board (HKRDB), Govt. of Karnataka, must allocate financial resources to overcome this imbalance in the development of college libraries including their automation activities in this region Seventy-nine percent of colleges (79%) have been founded after 1973 sixty-one percent of the colleges are located in the urban area with an urban and rural ratio of 61:39 in HK region, Eighty-three colleges 72.2% are offering UG programs and co-education offered in 102 of 115 colleges, and thirteen are women colleges. The teaching and nonteaching staff strength are small in size and not proportionate with the number of course offered nor the student's strength. Eighty-one of 115 (70.43%) college libraries are not having separate library buildings and housed in the halls of the college buildings, and only thirty-four of colleges (30%) have an independent library building. Therefore, the libraries must have independent, spacious library buildings to accommodate all the sections of the library. Eighty-three colleges (72.17%) have fulltime qualified librarians; in-charge staff manages the remaining colleges (teaching 21.74%; 25; nonteaching 6.09 %; N= 7), who are not professionally qualified to manage libraries. It needs to be corrected as it affects not only the organization of libraries but also library automation initiatives in HK region. The majority of the college libraries also lack an adequate collection of books; most have not subscribed to print journals, although 70.43% (N=81) have subscribed to N-List. The majority of the college libraries have subscribed to general magazines ranging < 5 - > 30. They must subscribe to more newspapers to facilitate access to regional, national and international news to its users. Majority of the libraries have cataloged the books (89.57%: N= 103) whereas only 60.87% (N=70) have classified the books. It may occur because more than one-fourth of college libraries are in-charge of either teaching or non-teaching staff in HK region. Approximately 29% of college libraries (N = 33) have no computers at all; Only 36.52% (N=42) , 20.87% (N=24) have respectively 1-2 and > six computers in libraries. Moreover, printers, Xerox machines, scanners, barcode printers and scanners are also not available in most libraries. The computer hardware and other peripherals required for library automation purpose are not

available in adequate quantity in the majority of college libraries of HK region. More than half of college libraries (53.04%) have not yet initiated the library automation activities. Only fifty-four college libraries (46.95%) have initiated LA activities and are using library automation software packages. Of which, twenty-four libraries (44.44%) are using e-Lib Aargees, Hubbli and others are using E-Granthalaya (20.37%; N=11), EasyLib (11.11%; N=6), E-library QualsoftPvt Ltd (9.26%; N=5), NewGenLib (5.56%; N=3), SOUL (Inflibnet) (3.70%; N=2), Library Manager (3.70%; N=2), and Biyani Technology Library Software (1.85; N=1) for library automation purpose. As far as the present status of library automation regarding the number of college libraries v/s areas of application presents not only presents the mixed situation but appallingly presents a gloomy picture of it. Thus, the college libraries in HK region are lagging behind in infrastructure development - physical facilities, resources, hardware, software, and human-ware required for library automation purpose and the present status of library automation initiatives and use of Library Automation Softwares packages depicts a very gloomy picture. The Hyderabad Karnataka Regional Development Board (HKRDB) of Govt of Karnataka, Kalaburagi must allocate its resources to overcome this imbalance in the development of college libraries including the automation activities in this region. Zaveri and Salve (2018) the present study is about the use of library automation software in college libraries in Mumbai. Using a survey method an attempt is made to find out which automation software is used, the impact of automation on library development, problems while handling library automation software and reasons for non-automation in the library. Findings indicated that most of the libraries are automated. Lacks of trained man-power, financial crunch were some of the problems related to use and acquisition of the software. 22 (81.5%) libraries was automated and 5 (18.5%) libraries were not automated. Though one of the criteria for granting accreditation to the colleges is use of ICT in its library, still 18% of libraries were not automated. Out of 22 libraries 10 (45.5%) libraries were fully automated, whereas 12 (54.5%) libraries were partially automated. Reasons for no automation were given as lack of computer facilities, inadequate finance, lack of trained manpower, some libraries have less collection, no staff coordination and disinterest of authorities. Out of 22 respondent libraries 6 (28.6%) libraries used open-source software and 16 (76.2%) libraries used proprietary software. The reason for less use of open source software was that many college libraries did not have IT expertise internally to handle installation of open source software. Due to Lack of IT expertise, 20 (90%) libraries used readymade software and only 2 (9.1%) libraries used in-house software. SOUL (Software for University Libraries) was used by the highest number of libraries, i.e., 8 libraries (36.4%). 5 libraries (22.7%) used SLIM software, 2 libraries (9.1%) used KOHA software and 7 libraries (31.8%) used other packages like Libsuit, E- granthalaya, Brainstorming, Bookworm, Liberty and Libex.net. SOUL being developed and marketed by Information and Library Network of India (INFLIBNET), could be one of the reasons for it being a highly used software. Kalbande and Chavan (2018) the present paper shows the status and problems of library automation in agricultural college libraries under the jurisdiction of MPKV, Rahuri. It shows that only 65% of Libraries are automated and main problems for library automation are inadequate staff, lack of infrastructure, insufficient funds and lack of training to library staff. This study also gives a status view of the software packages used by libraries and modules of library automation that they are using. It was found that Automation of libraries is still in formative stages in self financed colleges. These libraries are using only for few modules of library automation like acquisition, circulation and cataloguing.Some of libraries are using only for few modules of library automation like acquisition, circulation and cataloguing. Libraries should introduce all modules in their library automation like OPAC, Serial Control, stock verification, budgeting and etc. Gupta and Sharma, (2018) the paper discusses the present scenario of automation in Government Degree College libraries in Jammu District. A questionnaire is used to get primary data from Librarians/In charge of the college libraries to know different dimensions of the study. The study also aims to explore the library collection, services, total library staff and qualification of human resources, technical processing, library software packages used etc. It is observed that 33.33% of the college libraries are in various stages of automation while 66.67% of the degree college libraries have yet not undertaken the process of automation. In order to sustain in the technology driven world, libraries must show a transition from traditional system to the modern system to provide quality based services to the clientele. The concerned authorities should realize the significance of the libraries and should provide necessary administrative support to the librarians for restructuring the libraries in the changing scenario. Kuri and Maranna (2019) The present paper illustrates the status and problems of library automation in government degree colleges affiliated to Rani Channamma University Belagavi of Karnataka state. Among the surveyed colleges, 48.27% of Libraries are automated and lack of ICT infrastructure and lack of trained staff are the main reasons for not automating 51.75% of libraries. It is evident from the study 42.86% libraries have installed Easy Lib. Further, about 17.65% of libraries have installed NIC's eGranthalaya library management software. This study also gives a status view of the software packages used and different modules practicing by the selected libraries. The study suggested, common library software should be introduced by the DCE, Government of Karnataka to automate government degree college libraries and DCE should sanction sufficient grants to the libraries to purchase necessary physical infrastructures for automating degree college libraries. The libraries in which automation has been initiated should try to become fully automated and the libraries in which automation are yet to start to begin as soon as possible. Libraries librarians and college administrations must initiate automation to provide effective and efficient services to users. Library professionals must upgrade their skills to meet the growing expectations of users from libraries. Mcpe and Gowtham (2019) in this book chapter 4 both the

authors explained about automation and networking in full length, mean of automation and networking, needs, various forms, software's , consortia and how libraries satisfy the users and walk on the line to fulfill the mission and objectives of the parent institution and five laws of library science propounded by Dr. S.R. Ranganathan. The recent trends of library automation systems are characterized by several strong changes brought about by technology and economic development. Unless radical change in either technology or the economy occur, these trends seem likely to continue dominant and to determine the course of library automation development for some time to come. Chief among these trends and easily the most conspicuous is the heavy emphasis being placed on library networks that is systems involving more than one library. A third type of grouping sometimes called a network is merely a loose consortium of libraries with special procedures for expediting inter library loans, often using teletypes. Most of these are not automated in any significant way and so lie outside the sphere of this book but some have been working for years to implement online networks for the same purposes. A universal interest in networks has several manifest causes. For one thing declining library budgets and the starting increase in book and serial cost have made the need for cooperation between libraries more urgent. Resource sharing has become a byword and the resources implied are both bibliographical and financial. Velmurugan (2019) the Author advocates the importance of Library automation and networking. Automation and networking of libraries are still in their formation stages in India. Every year, INFLIBNET organize a conference CALIBER (Convention of Automation in Libraries) to discuss issues related to the computerization of academic libraries. According to him, the progress of INFLIBNET is far from satisfactory, and so the UGC should provide funds for hardware and software to accelerate the pace of library automation and networking. Library automation is the process which needs proper planning, timely implementation and periodical evaluation. The librarian with the administrators have to set the priorities after analyzing the current status and future requirements. Selection of the suitable integrated library management package according to the needs of the users and the library is important. Retrospective conversion, OPAC, circulation and serials control, etc. should be conducted with care. Staff training and user education are keys to the success of the process. Academic achievement of a student is closely related to his/her ability to find, evaluate and use the required information according to the curriculum needs. An automated academic library with a variety of resources and user-oriented services can lead them to the goals. Many current awareness services like current additions, contents of books and journals, etc can also be provided to users. So, it is a time to awaking and accept the presence of it and automated library concept. UGC have done good efforts about it in academic libraries. Surwade and Dalve (2021) present article emphasis on SOUL (Software for University Libraries) for Library Automation. The authors have analyzed the Definition of Library Automation, Need for Library Automation, Why Automation, Advantages of Library Automation, An Overview of SOUL Software, Feature of SOUL 2.0, SOUL Modules etc. The author focuses on that at present there are 3756 colleges and university libraries has installed the SOUL Software in India. However, Gujarat state is on First rank and Maharashtra State in on Second Rank, North Eastern States is on Third Rank, Madhyapardesh is on fourth and Andhrapradesh is on fifth for Installation of software. Gujarat has 998 installations of SOUL, Maharashtra has 522 installations, North Eastern States has 338 Installations, Madhyapradesh has 304 Installations and Andhrapradesh has 301 installations. They further explained the features of the software that this software for University Libraries (SOUL) is state-of-the-art integrated library management software. SOUL Library automation systems have helped libraries to provide easy access to their collections through the use of computerized library catalogues, overview of SOUL modules & their impact of Library automation.

The Highlights of the Review of the Literature are:

As discussed above, the researcher has made a comprehensive review of the existing literature i.e. from the research works (Ph. D theses), the research papers presented in the Seminars/Conferences and the research articles published in the journals. Besides these research contributions as reviewed above, the researcher further has also attempted to take a review of existing literature published in some of the basic books pertaining to the components related the present research. Through the review of literature, it can be interpreted that no attempts have been made by the researchers so far to contribute on the present research topic undertaken by the researcher. So, the investigation presents the first attempt and it would be an original and significant contribution to the literature on the concerned subject. It is revealed through review literature that the area of present study is unexplored and very few study related to this topic has been done.

3. Conclusion

In India, college libraries have not yet acquired a high level of computerization. Even though librarians had a favourable attitude favorable attitude toward the use of ICT applications in the library, they needed comprehensive and suitable training to make the greatest use of ICTtools in the library automation and networking processes. The majority of libraries were administered by a single librarian, there was a scarcity of skilled IT specialists, qualified library employees, lack of IT awareness among library

staff, and financial support from management. A smaller number of college libraries use serial control and acquisition units. In Indian college libraries, hardware and software resources were insufficient to begin automation activities at a fair pace. INFLIBNET, DELNET, and other metropolitan networks provide training for computer applications in libraries, and conferences are held on a regular basis to examine issues linked to library computerization. Over the last two-three decades, the challenges of library automation have remained the same. Librarians must stay up with the latest trends and advancements in library automation in order to select the best technology for their needs. Because library automation at all levels necessitates proper coordination between them, librarians must interface with computer professionals. Library automation is a collaborative effort including library professionals, authorities, and library users. In libraries, librarians must reorient themselves, think imaginatively, and incorporate new technologies.

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