STATUS OF LIBRARY AUTOMATION AND NETWORKING IN SELECT STATE COLLEGES OF HIMACHAL PRADESH

Thesis submitted for the award of the degree of

DOCTOR OF PHILOSOPHY

in

Library Science

By

Anup Singh

(Registration No.41800703)

Supervised By

Dr. Jatinder Kumar (UID-31317)

Library Science Department (Librarian)

Lovely Professional University

LOVELY PROFESSIONAL UNIVERSITY

PUNJAB

2024

DECLARATION

I, hereby declared that the presented work in the thesis entitled "**STATUS OF LIBRARY AUTOMATION AND NETWORKING IN SELECT STATE COLLEGES OF HIMACHAL PRADESH**" in fulfilment of degree of **Doctor of Philosophy (Ph. D.)** is outcome of research work carried out by me under the supervision of **Dr. Jatinder Kumar**, working as **Associate Professor**, in the **Department of Library Science/School of Social Sciences** of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

(Signature of Scholar)

Name of the scholar: Anup Singh

Registration No.: 41800703

Department/school: Library Science, School of Social Science

Lovely Professional University,

Punjab, India

CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled "**STATUS OF LIBRARY AUTOMATION AND NETWORKING IN SELECT STATE COLLEGES OF HIMACHAL PRADESH**" submitted in fulfillment of the requirement for the award of degree of **Doctor of Philosophy (Ph.D.)** in the **Department of Library Science, School of Social Sciences**, is a research work carried out by **Anup Singh**, Registration No. **41800703**, is bonafide record of his original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.

(Signature of Supervisor)

Name of supervisor: Dr. Jatinder Kumar

Designation: Associate Professor

Department/school: Library Science, School of Social Science

University: Lovely Professional University

ABSTRACT

This study revolves around Himachal Pradesh's 14 select state college libraries. In order to understand the present condition of Automation and Networking in Select State College Libraries of Himachal Pradesh, the study looked at the status of automation and networking in respective libraries, challenges faced during automation, and in providing network-based services. This study also assessed the satisfaction level of the users regarding Automation and Network-based services. It also disclosed some of the difficulties users encountered by users by using computers and network-based resources. It is a descriptive research and survey method for data collection that has been used, 02 questionnaires were prepared, one each for Librarians/Library In-charges and users. The Librarians/Library In- charge of 14 select state colleges and the users were part of this study. The collected data was refined, codified, and organized for analysis and interpretation with simple percentage and cumulative percentage method was used. 396 users including student and teacher members of 14 select state colleges have been included in the survey. Major findings of the Research provided a vivid image of the library's current state of automation and networking in select state colleges.

➢ **Major findings from the survey of Librarians**

• **Concerning the Status of Library Automation**: It is found that out of 14 libraries in Himachal Pradesh, only 2 libraries were fully automated and 12 libraries were partially automated.

• **In the case of the Status of Network-based services**: it is observed that 12 libraries offered E-books and E-journals; 5 libraries offered library news clipping services; and 2 libraries offered access to the digital repository and ask-A-Librarian services; only 1 library offered subject guide, digital reference, interlibrary loan, real-time services, and none of the libraries offered content alert service, FAQ, and instant message services;

• **With regards to challenges faced by state college libraries during automation**: 9 libraries faced the problem of insufficient ICT infrastructure; 7 libraries faced the problem of unskilled staff; 6 libraries faced budget allocation; 4 libraries faced the challenge of improper vendor support and 3 libraries faced the challenge of retro-

conversion of data during automation process of library and Only 1 library faced problem of incurious staff members;

In case of challenges faced by state college library in providing network-based services: 9 libraries faced challenge of insufficient funds for subscription of networked based services; whereas 8 libraries faced the problem of internet connectivity; 5 libraries faced problem of improper ICT Infrastructure, 2 libraries faced problem of incurious staff members and only 1 library faced problem of unfriendly user interface.

➢ **Major findings from the survey of library users.**

- **Satisfaction level of users with automated library services**: Out of 396 users 37.3% users were satisfied with online catalog services; 36.6 with bibliographic services; 27.8% with new arrivals; 19.4% user were found to be satisfied with issue/return services; where as 6.6% users were satisfied with online reservation of books and 2.3% with digital reference services.

- **Satisfaction level of users with network-based library services:** It is found that 59.4% of users were satisfied with the INFLIBNET database 55.6% of users were highly satisfied with N-List service; 26.1% with web services, 16.5% with bibliographic databases; 5.5% with full-text databases (e-journals, e-books); 3% with news clipping; 1.5% users were satisfied with access to digital repositories and 0.3% users were satisfied with interlibrary loan.

- **Problems faced in accessing computer and network-based services**: out of 396 users 99.5% of users said that libraries had a limited number of computers; 99.2% of users responded that respective libraries were not providing the desired e-resources; 91.9% of users responded about outdated hardware/systems; 99% users faced the problem of slow internet speed; 25.5% users responded that they were not provided with an orientation programme for accessing computer and network-based services in the library; 14.1% users were not aware of library services. The survey also examined the kinds of computer services and resources that libraries provided to their members, including databases, e-books, e-journals, magazines and newspapers, or periodicals, OPAC, OER, and so forth. To further comprehend library administrative concerns, an evaluation regarding the IT setup of the college library, personnel, and usage of software applications for libraries was carried out.

This study will assist the library policymakers, administrators, and state Government in understanding the automation and networking importance within college libraries, the difficulties college libraries encounter in offering network-based and automated services, and can step forward to resolve the automation and network-based problems of college libraries.

ACKNOWLEDGEMENT

daughter Ms. Ankaksha and son Master Ankush Jasyal and all family members of in-laws for their moral support to carry and complete the study successfully. During my study, I was unable to fulfilll my fundamental responsibility toward my family members. I must express my heartfelt gratitude and sincere appreciation to my devoted wife, son, and daughter. They always showered me with love, affection, and motivation to accomplish my research work Lastly, I thank one and all who directly or indirectly have extended their cooperation in the completion of my Ph.D. research work.

Place: Phagwara

Anup Singh

(Research Scholar)

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LIST OF ABBREVIATIONS

ABBREVIATIONS	FULL FORM
Govt.	Government
NSCBM	Neta Ji Subhash Chander Bose Memorial
RKMV	Rajkiya Kanya Maha Vidyalaya
SWM	Swami Vivekanand Memorial
SCBBM	Shahid Captain Bikram Batra Memorial
INFLIBNET	Information &Library Network
OPAC	Online Public Access Catalogue
UGC	University Grant Commission
HPU	Himachal Pradesh University
NISSAT	National Information System for Science and Technology
INTERNET	International Network
ARPANET	Advanced Research Project Agency Network
IFLA	International Federation of Library Association and Institutions
UNESCO	United Nations Education, Scientific, and Cultural Organization
INSDOC	Indian National Scientific Documentation Centre
NISCAIR	National Institute for Communication Sciences and Information Services
IISc	Indian Institute of Science
DESIDOC	Defence Science Information Documentation Centre
VSNL	Videsh Sanchar Nigam Limited
EMAIL	Electronic Mail
DELNET	Developing Library Network
CALIBNET	Calcutta Library Network
NICNET	National Information Network
ERNET	(Education and Research Network
CSIRNET	Council of Scientific and Industrial Research
BONET	Bombay Library Network
IIT	Indian Institute of Technology

INDEST	Indian National Digital Library in Engineering, Science & Technology
AICTE	All India Council of Technical Education
IISER	Indian Institute of Science Education and Research
NIT	National Institute of Technology
UGC-INFONET	University Grant Commission Information Network
N-LIST	National Library Service Infrastructure and Scholar Content Information

CHAPTER-1

INTRODUCTION

1.1 INTRODUCTION

Education plays a vital role and stands as a catalyst for human development. It is an important tool for human development, national progress, and social change. The first and foremost important function of an educational institution is to empower students to solve life's problems themselves, not only to excel in professionalism and ingenuity but to empower them to face the world beyond the classroom. Education is a vital tool for any society. Institutions of higher learning contribute directly to the country's social, economic, and political development. One of the great goals of higher education is to enable people to become self-reliant. Today's society has transformed into an informed society. Knowledge is power and as a result, it has become a major goal in the existence of a self-sufficient person. ICT has transformed the learning and teaching system. Libraries adapt to this changing state of ICT and contribute to the system of learning and teaching. Libraries address the information needs of its users by selecting, collecting, processing, managing, disseminating knowledge and assisting in the development of literacy, customs, and socio-economic, area etc. Libraries serve as a repository for current and future recorded information.

Every educational institution must have a library and information centre since it serves as a hub for teaching and learning activities and gives access to students and teachers in academics, and to a variety of materials. In conventional libraries, users frequently rely significantly on librarians and spend a significant amount of time searching for a particular item of information. However, in the age of communication technology, computers are now employed for routine library jobs, reducing time for users and library employees, avoiding duplication of effort, and making library work more streamlined and effective. Many library centers, national institutions, and other institutions of higher learning have started integrating and connecting with regional and local networks including NICNET, INFLIBNET, DELNET, and CALIBNET. The education and government sectors are now working in networked system and are the part of different networks.e.g. NICNET, ERNET, ADINET, MALIBNET, CALIBNET, MYLIBNET, PUNENET, BONET, and other significant city library networks have also been established, and some are beginning to run and offer a variety of online services over these networks. **(Sinha & Bhattacharjee, 2003).**

All educational activities at the parent educational institution are centered in the library. Academic libraries serve as the heart and soul of educational institutions, assisting in the institution's efforts to meet the demands of contemporary education. Because the purpose of this study is to understand the existing automation and networking conditions in the college libraries of hilly state, thus, college libraries are the focus of this investigation. The library of a college works for educational institutions that incorporate students′ skills. The value of a college library and how people view the job that librarians do are based on how well its members are served by its many resources as well as how well they are supplied. How well a college library meets the information demands of its users determines its existence.

The following services are usually provided by the college library:

    i.   Literature distribution;

    ii.   Counselling services;

    iii.   Reference services;

    iv.   Library management and user education;

    v.   Literacy;

    vi.   Work guide;

    vii.   Bibliographic Resources;

    viii. Distribution of new arrivals lists;

    ix.   Display of new books as a regular feature and/or themes for special occasions;

    x.   Services used with network;

    xi.   Online Public Access Catalog (OPAC)

Currently, with the advent and impact of ICT, computer use is a sensible one, and as the process of making college library computerised, their database is ready to share with regional and national networks, college libraries must improve and sharpen their library and information providing skills to achieve institutional goals and objectives. (Singh, 2014)

India is developing into a knowledgeable community where knowledge and information are valued as capital. The environment of college library services is slowly changing. College libraries now use computerised resources, which has completely changed the way libraries operate as a whole in processing, storing, retrieving, and disseminating information. To take the opportunity to transform India into a hub of knowledge, which is

vital to the development of the universe. the National Knowledge Commission was established in 2005. Ongoing library services were scrutinized by the Commission and as a result, established a Library Working Group to improve library service standards. One of the major priorities we also seek to comply with is information communication technology (ICT) applications in libraries. Recently, the testing and evaluation of college libraries and colleges in India by the National Assessment and Accreditation Committee (NAAC) have significantly contributed to change the perception of the functions of college libraries in higher education. It has provided great opportunities for college libraries to develop and home their resources to help achieve educational goals.

College libraries are well-positioned for sharing resources and communicating, using the Internet and other networks. At the national level, INFLIBNET, and UGC-Infonet are already connected to all educational and research libraries. Furthermore, important city library networks like DELNET, CALIBNET, etc. are leading the development of college library networks. They assist libraries that are involved in sharing resources and delivery services. These latest developments have supported modernization and improved their reference knowledge and facilities for the profit of library members. Such state-of-the-art processes have supported reducing duplication of library functions, strengthening control, increasing the scope and depth of services, improving collaboration and retrieval, and besides all of this providing quality library services by improving the performance of library staff.

College library staff are provided with continuing education with a wide gap and on-the-job training programs, courses, and workshops by DRTC, NISCAIR, etc. In addition, the staff Colleges of Education were established by the UGC in some of the country's leading specialist universities that offer refresher courses, three to four weeks so that college professors can keep abreast of current developments in the library and information science and Information Communication Technology. **(Maheswarappa & Kumar, 2018)**

It is right to say that college libraries, among others, are experiencing important changes, and consequently, there is a change in the professional behavior of the library staff which is ensuring a positive approach to the increasing informational needs of the academic fraternity and converting the library to a gateway to the world of information. (**Singh, 2014**).

College libraries play an important role to meet the scholastic needs of it members consisting of teachers and students. To serve the college fraternity in the proper way, the library professionals adopt multiple ways and technological strategies in the process of storage and dissemination of information. Information technology-based skills are adopted in automating the various housekeeping tasks of the college library with the help of different library automation software packages.

The tremendous expansion of Himachal Pradesh's professional and non-professional colleges, currently opens the road for accessing higher education to the students of far-flung remote areas of the state.

Colleges in the hilly state play a major role to stimulate the urge among students to acquire higher education. In this process retro conversion, automation, and networking of college libraries of both professional and non-professional colleges assist the library members to save their valuable time and help in the information-sharing process among the other sister College libraries. Reviewing the available literature, it is revealed that very few studies are conducted on the present scenario of automation and networking in college libraries in the state of Himachal Pradesh.

This research tried its level best to describe the present state of automation and networking in Himachal Pradesh's select state college libraries, funded under the INFLIBNET Project, UGC, or any other agency and associated with higher learning institutions of national importance. Out of 158 professional and non-professional colleges, 14 colleges were included in the current study. It is pertinent to mention that only those college libraries which were automated, considered for the study. Besides, these libraries are also subscribing to networking facilities with some national level agencies i.e., NLIST and INFLIBNET and UGC Info Net.

The anticipated outcomes of this study will show Himachal Pradesh's current existed level of automation and network in Select State College Libraries. This research would further inquire about the kinds of digital materials and offerings—like databases, online periodicals, e-books, e-journals, OPAC, and OER—that libraries make available to their users. Further, the evaluation of the IT infrastructure of the college libraries was also done to understand the administrative problems of the libraries.

1. 2 RESEARCH PROBLEM

Due to the knowledge explosion, libraries across disciplines struggle to keep up with the volume and complexity of material that must be collected, processed, and disseminated. More and more people believe that libraries can improve their ability to coordinate their information resources and provide more efficient services by using computers and other ICT technology **(Pandey, 1999).**

It's time to understand the different ways, the Mountain State Libraries are following in providing automation and network-based services to its users. What kind of work is done in the Himachal Pradesh State College Libraries in a networked world? What library software packages are used for the library mentioned above? What are the automatic functions and resources in the library? Are libraries providing users with network services? Are college libraries given enough money to create an atmosphere for automation and network-based services? Do college libraries receive full administrative support? Are users satisfied with automated and network-based services provided by college libraries; these were all questions that came to my mind.

The majority of university libraries today have some level of library automation, which first started in a few special libraries in the late 1970s. Automated Services and Networks are not satisfactory in college library libraries due to various problems. It is important to identify the barriers, to evaluate the best practices for library automation, and thus to link libraries for the benefit of the community. (**Uddin, 2009).**

The automation and networking in college libraries are not standardized. Due to these libraries' shortcomings, its members may not be satisfied with the library resources and services they receive. The current condition of these information services demonstrates that some of them fall short of user expectations. The user community is expected to receive the full benefits of the information services. From this angle, the researcher must tackle this issue for the current study. (**Sharma & Tripathi, 1989).**

The explanation above makes it abundantly evident that the automation and network-based services provided by state college libraries are fundamental in meeting users' information needs. To stay informed of new advancements in their specialised fields of interest, the students and teachers need information from the library. Only efficient library automation and network-based services can satisfy users' informational needs. The researcher therefore

intended to assess automation and network-based services offered by local college libraries.

Therefore, the researcher's goal was to assess the current state of automation and network-based services offered by state college libraries, identify the obstacles standing in the way of elevating the quality and breadth of these automation and network-based services to the level of those offered by leading research institutions, and proposed practical, cost-effective solutions to these problems.

1.3 DEFINITION OF THE TERMS

1.3.1 STATUS

The present condition of automation and networking implementation in Himachal Pradesh's state college libraries is referred to here as "status," which encompasses the availability of physical facilities, human resources, computer hardware & software, and more. **(Brainy Quote Dictionary online, 2021).**

1.3.2 LIBRARY AUTOMATION

a. Library automation refers to the method of carrying out normal storage tasks for libraries, such as purchasing, distributing, listing, referencing, and chain management. To this day, "library automation" remains the most popular term for referring to library tasks that are facilitated by computers. (**Uddin, 2009).**

b. Library automation, as defined by the Encyclopaedia of Library and Information Sciences, "is the use of automated and semiautomatic data processing technology to accomplish conventional library operations such as finding, cataloguing, distribution of books." libraries; Library automation is similar to other forms of information processing in that it may be broken down into sub-fields such as automated identification, citation, and text analysis. (**Kent, 1977).**

c. Automation is "a fiction that does not have a broadly acknowledged scientific definition but is extensively used to represent the notion, construction, or usage of automated machinery or control systems," as stated by the McGraw Hill Encyclopaedia of Science and Technology. **(McGraw, 1982)**

d. Automation is defined as "the automatic operation of a tool, process, or machine with a mechanical or electronic computer that replaces human organs for observation, effort, judgment". **(Gove, 1986).**

e. "the application of automated control in any field of business or research; by implication, the use of electrical or mechanical technology to replace labor," as defined by the Oxford English Dictionary. **(Simpson & Weiner, 1989).**

1.3.3 NETWORKING

The way to connect two or more computers to exchange data is known as a network in the computer world. The networks are made up of a combination of computer hardware and software. **Business Dictionary, n.d.)**

1.3.4 SELECT

The word select is used as an adjective meaning, "Best of its kind or highest in quality.

(Cambridge Dictionary online, n.d).

1.3.5 STATE COLLEGE LIBRARIES

State college libraries established by the Himachal Pradesh Government with rules and regulations and operating under the Directorate of Higher Education, Medical and Research Education and Technical Education directorate existed for selecting, collecting, recording, retrieving, and information distributing to its members promptly.

1.3.6 HIMACHAL PRADESH

Himachal Pradesh is located in the north-western region of India. It is one of the eleven mountain regions of the Western Himalayas, and it is known for its rugged terrain, which includes several peaks and large river systems. On its northern border are the union territories of Jammu and Kashmir and Ladakh, located west of Punjab, and southwest of Haryana. The vast mountainous region that forms present-day Himachal Pradesh has a large population of prehistoric times, with many waves of migration from other parts of the world. Throughout its history, the region has been largely dominated by local empires, some of which have embraced major dictatorships. Himachal included the hilly regions of the British Indian State of Punjab before India gained independence from the British. Most of the hilly areas were organized as the province of Himachal Pradesh after independence,

which later became a union territory. Himachal was given statehood in 1971 after the hilly regions of the neighbouring Punjab region were incorporated in 1966.

Himachal Pradesh is a region divided into several tributaries. About 90 percent of the population lives in rural areas. Agriculture, electricity generation, and tourism are the mainstays of the state economy. (*Government of Himachal Pradesh, India, n.d.*)

1.4 SIGNIFICANCE OF THE STUDY

Automating library processes ensures that the library should run smoothly for both staff and students. It's crucial to educate the experienced technicians needed for automation. Technical processing, cataloguing, circulation, serials administration, online public access cataloguing, acquisition, and so forth are set to be computerized as part of the Library Automation project **(Gupta, 1992).**

The wide variety of library software accessible today, including in-house, software created by private companies, and software created through collaborative efforts. To learn library automation and networking, one should be chosen among the many accessible programmes. (**Kumar, 1987).**

As a result of the widespread computerization of library "housekeeping" services, libraries are under pressure to utilize ICT aapplications to speed up and improve the quality of information delivery. The term "automation" in a library or other setting denotes the computerization or mechanization of processes. (**Narayana, 1991).**

Finance has a big influence on how a library is run and organised. However, it has been demonstrated that traditional methods developed over a lengthy period of time are inadequate in the current era of explosive information. This is the outcome of a greater comprehension of the importance of data for social-economic development. In the modern information-driven society, conventional methods of effectively managing libraries are viewed as barriers and the automation and networking is the first inevitable step to move forward. As a result, libraries require astute librarians to handle unprecedented library advancements. They will have a new set of options for acquiring organizing, and sharing the information as a result. The obstacles posed by new technology would subsequently be overcome by the libraries with the assistance of automation and networking. This study will assist the library policy maker, administrators, and state Government to understand the importance in college libraries of automation and networking, the difficulties encountered

by libraries of colleges in providing automation and network-based college library services and can step forward to resolve the automation and network-based problems of college libraries.

1.5 THE RESEARCH'S OBJECTIVES

This research aims to investigate the level of library automation & networking at a few state colleges in Himachal Pradesh. Only Himachal Pradesh's State colleges, both professional and non-professional are the subject of this investigation. The following are the study's primary objectives:

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

2 To explore Library services' usage and users' satisfaction level with Library Automation and Networked-based services.

3 To find out the automation and network issues state college libraries are facing.

4 To identify issues users are having while accessing computer and network-based services.

1.6 HYPOTHESES

Each type of inquiry has essentially to begin with some logical, primary, and arguable guess or faith. If a train collided, the explanation for this could be speculated accidents lack success in human terms. This guess has to be researched carefully, closely minute, impartial analysis of the results, and thorough review of the various dimensions, causes, and characteristics of what happened. What caused the incident? What to and why did it happen? What were its normal roles and responsibilities? Was there any way any transmission network failures or watchfulness? Was it due to neglect or wanting real training on the part of the individuals concerned? True reactions to these and a variety of similar alternate questions must be answered without prejudice, favour, or fear. Only then can the supposition be considered practical. Such a proven or verifiable conjecture can be classified as a "hypothesis."

A guess should be viewed as a hypothesis in a very concrete sense. The hypotheses is based on the interpretation of any phenomenon. It's a game provisional working supposition, which is subject to confirmation based on a statistical examination of the

relevant figures and evidence. The hypothesis has a transient feature until it is ascertained as correct. **(Rao, 2008).**

A hypothesis is a tool of study with theoretical importance. The hypothesis is an attempted solution to the problem. James E Creighton describes 'Hypotheses as a temporary inference or guesses that need to justify the situation under observation. **(Creighton, 2000).**

1.6.1 HYPOTHESIS FOR THE CURRENT STUDY.

An important intellectual tool for study is the hypothesis. The theory offers an educated estimate at a solution to the conundrum. A hypothesis, according to James E. Creighton, is "a tentative assumption or provisional guess that seems to describe the circumstance being observed." **(Creighton, 2000).**

According to P.V. Young, a hypothesis is "a tentative basic notion that serves as the framework for the fruitful study." **(Young, 1973).**

There is no difference between the two groups, according to a hypothesis. Null and alternative hypotheses are the two forms of hypotheses. The null hypothesis is one that is put to the test to see if it can be rejected. The Null Hypothesis is thus presented as a denial. One of the steps in a successful research process is the creation of a hypothesis. In a way, a hypothesis is a form of presumption or assumption. Usually, the primary research tool is the hypothesis. A hypothesis' primary purpose is to recommend future research and observations. It is possible to be objective, verifiable, and testable hypotheses.

A research hypothesis is a prediction made by a researcher in order to predict the results of a study. The hypothesis may be generated in several ways, but inductive reasoning, whereby observations generate a theory, is particularly common. For a theory to be considered valid science, it must both be testable and falsifiable. Statistical studies often reveal patterns, but they seldom have a definitive response, since other influences often influence the outcome and the findings. A hypothesis ought to be reasonable, testable, and taken into consideration the most recent methods and knowledge.

To allow proof or falsification, a theory must be verifiable using statistical and analytical methods. Since a hypothesis can never be proven, it is preferable to regularly use the terms "supported" and "confirmed.". This suggests that the study found data to support the theory and that further research would be conducted based on that.

1. There are a few college libraries with automation and networking facilities in Himachal Pradesh.

2. Information Technology-based infrastructural facilities are not fully developed in college libraries.

3. State college libraries are not provided with adequate funds for providing automation and networking facilities.

4. Users are not fully satisfied with the automation and networking facilities of the college libraries of Himachal Pradesh.

1.7 COLLEGE LIBRARIES IN HIMACHAL PRADESH

There are 158 Govt. Colleges in Himachal Pradesh, both professional and non-professional run under the umbrella of the Directorate of Higher Education, Directorate of Medical Education, and Directorate of Technical Education which sought to have a well-furnished and equipped with a dedicated service-oriented Library System.

Table-1.1: State professional and non-professional colleges

S/NO	College	Total
1	Govt. Degree Colleges	128
2	State Medical Colleges	06
3	State Ayurvedic Colleges	01
4	State Nursing Colleges	02
5	State Dental Colleges	01
6	State B.Ed Colleges	03
7	State Sanskrit Colleges	07
8	State Engineering Colleges	05
9	State Pharmacy Colleges	05
	Total	**158**

(*Directorate of higher education Himachal Pradesh, Directorate of medical and research Himachal Pradesh, & Directorate of Technical Education, Vocational and Industrial Training, Himachal Pradesh, n.d.*)

1.8 RESEARCH'S SCOPE AND LIMITATIONS

This study aimed to look into the existing scenario of automation and networking at select state libraries of Himachal Pradesh colleges as well as the degree to which users were satisfied with library services provided using automation and networking. Out of 158 State professional and non-professional colleges, 14 State colleges were included in the study.

1.9 CRITERIA OF SELECTION

❖ In the study, out of 158 Himachal Pradesh's state Professional and non-professional colleges, 14 State Colleges have been chosen for the study. The criteria used to pick the colleges are as follows:

❖ As per the information acquired through formal and informal channels from directorate of higher education, Directorate of medical education and research and Department of Technical Education, Vocational and Industrial Training of Himachal Pradesh and from individual state colleges, it was found that in 20 professional colleges, the Automation and Networking process was not initiated. Therefore, 138 state colleges (128 State degree college, 03 State B.Ed, and 07 state Sanskrit Colleges) were included in the study.

❖ 10% sample size of 138 state colleges is taken for study. In the 10% sample size (14 Colleges), the following points were also taken into account -

• The state colleges where the Automation and Networking process started were included in the study.

• The state colleges where the post of Librarian/Assistant Librarian lying vacant was not included in the study (As per the reply of the RTI filed to the higher education department of Himachal Pradesh, 100 posts of librarians were lying vacant as of 31/12/2019 and some librarians were about to retire from 2020 onward and thus there was no staff available to get the required information. So, such colleges were excluded from the study).

• Only NAAC-accredited state colleges were included in the study.

• Due consideration was given to the geographical representation (08 districts were covered in the sample size)

- ❖ Based on the abovementioned criteria 14 NAAC-accredited state colleges of Himachal Pradesh were included in the study.

Table-1.2: List of colleges included in the study

S. NO	College	Establishment Year	NAAC Grade	No of Students	No of Teachers	Total
1	Vallabh Government College Mandi, Distt. Mandi.	1948	A	6300	150	6450
2	Government College of Teacher Education (GCTE) Dharamshala, Distt. Kangra	1956	B	136	12	148
3	Government College Chamba, Distt. Chamba	1958	B+	3000	114	3114
4	NSCBM Government College, Hamirpur, Distt. Hamirpur	1964	B++	4500	70	4570
5	Government College Una, Distt. Una	1968	B	5000	96	5096
6	Government College Sanjauli, Distt. Shimla	1969	B+	3200	102	3302
7	Rajkiya Kanya Mahavidyalaya Shimla, Distt. Shimla	1971	B+	3500	100	3600
8	Government College Nalagarh, Distt. Solan	1973	B++	750	35	785
9	Government College Arki, Distt. Solan	1994	B	1100	50	1150
10	Government College Ghumarwin, Distt. Bilaspur	1994	B	2932	75	3007
11	Government College Joginder Nagar, Distt. Mandi	1994	B	2500	50	2550
12	Government College Palampur, Distt. Kangra	1994	B+	4100	55	4155
13	Government College Dharampur, Distt. Mandi	2005	B	505	30	535

14	Government College Naura, Distt. Kangra	2005	C	485	29	514
Total				**38008**	**968**	**38976**

1.10 LIBRARY AUTOMATION AND NETWORKING

The word 'Automation' was first invented by D.S.Harder in the year 1936. The term "Automation" comes from the Greek word "Automose," which means "anything with the ability to shift spontaneously or independently. "The word 'Automation' was used by Harder of General Motor Company, USA, to indicate automated part handling between progressive production processes **(Narayana, 1995).**

The Third New Modern English Languages Dictionary of Webster describes ' Automation ' as "the technique of making an apparatus, a process or a system operates automatically" **(Singh, 2007).**

"Automation is the field of technology that deals with design and implementation of processes and systems that reduce the need for human interference in action," according to the Library and Information Science Encyclopedia. **(Singh, 2007).**

According to the ALA Library and Information Science Glossary, the definition of automation is "the execution of an activity, a collection of operations, or a process by self-activating, self-controlling, or automated techniques." The practise of making use of automated data processing equipment, such as a computer or other technology that reduces the amount of manual work required, is referred to as automation. **(Chaurasia & Kumar, 2012).**

However, in most of the literature, 'Automation' and 'Computerization' are often used synonymously. Modern treatment of the term 'Automation' means the prevailing use of computers and other modern technologies in any system, such as communication technology, reprographic technology, RFID technology, etc.

1.10.1 LIBRARY AUTOMATION:

1.10.1.1 WORLD SCENARIO

Historically, the word automation was used specifically for controlling the process of various activities automatically. Initially, library automation meant mechanizing some of the more routine activities, such as controlling periodicals and circulation.

Throughout our culture, a librarian, Herman Hollerith who worked for the U.S. Census Bureau and invented the punch card system, came up with the idea of automation. The idea of inventing the punch card system came from Dr. John Shaw Billings, director of the library of the Surgeon General. Dr. Billings, who suggested Hollerith "there should be a machine to do solely mechanical tabulation works and related statistics.

In 1890 , based on Billing's idea, Hollerith produces a machine using punched cards for tabulating census results. In 1896, Hollerith established the tabulating machine business, which ultimately developed into the well-known International Business Machine (IBM). This instance shows a librarian's participation in the automation process and it becomes very important when a pattern is introduced. Library automation is described as a computer application to modernize the library housekeeping system, such as circulation, cataloging and reference control, and means of obtaining information or advice for learning and development processes, "Library automation" is currently characterized as the modernization or mechanization of library activities using computers. **(Uddin, 1998).**

In the year 1880, Hollerith invented the Punched Cards and these cards were used in tabulating the United States Census data. Punched cards were possibly initially used to control circulation at the University of Texas Library in 1936. Most libraries in the US have adopted the automation system for their operations. With the introduction of computers, library automation reached its second era in the 1960s. MEDLARS, MARC, etc. were the notable ventures **(Faisal & Surendran, 2008).**

1.10.1.2 LIBRARY AUTOMATION IN INDIA

In 1955, computerization work began at the Indian Statistical Institute (ISI), Calcutta, India, with the installation of the HEC-2 Microcomputer device imported from the UK. In 1958 a Soviet-built computer URAL-I was also installed at ISI. Indexes by author and topic for Indian Science Abstract were initially computerized by INSDOC in 1973, INSDOC

again released, Regional Union Catalogue of Scientific Series, Bombay-Poona', in 1978-the first Union catalogue **(Narayana, 1995).**

Later on, several Indian Libraries, especially those with R&D sections, used computers from the year 1970 onwards. The use of computers in libraries increased slowly in the year 1980. Library Automation gained great traction in the 1990s, propelled by rapidly declining hardware costs, growing library software availability, and increasing library professionals ' interest in adopting ICT as well as other factors**. (Husain, Shabahat, Ansari, Mehtab & Alam, 2007).**

1.10.1.3 LIBRARY AUTOMATION IN HIGHER EDUCATIONAL INSTITUTES OF HIMACHAL PRADESH

CSK Krishi Vishavvidyalaya, Palampur libraries were the first to use an electronic database in the 1960s until they started using CD ROM software in the 1980s. Libraries now provide their users with fully automated services and a variety of online resources. Subsequently, Dr. Y. S. Parmar University of Horticulture and Forestry's Satyanand Stokes Library (SNS) initiated the computerization process in April 1989. The connection was taken from the Computer & Instrumentation Centre later on May 10, 2005, via BSNL's 1 Gbps leased line. The library is the country's first SAU library for providing Wi-Fi Library services from 2003 to 2004 in addition to library automation software SOUL. Barcoding completed in 2005 and repository of Ph.D. theses created w.e.f. 2000 under ICAR Krishi Prabha **(Mittal & Sharma, 2013).**

In the late 1990s, HP University Shimla Library began the process of automation and networking with the aid of INFLIBNET. Later on, Himachal Pradesh Central University Library, IIT Mandi Library, NIT Hamirpur Library, and Rashtriya Sanskrit Sansthan Balahar Library initiated in Library Automation and Networking project.

1.10.1.4 AUTOMATION AND NETWORKING IN THE HIMACHAL PRADESH STATE COLLEGE LIBRARIES

There are about 158 state colleges in Himachal Pradesh. But very few State College Libraries in Himachal Pradesh are fully automated and providing with Network-based access to services and its resources to their members. It is a matter of concern and needs to attract the attention of policymakers towards the implementation of automation and

networking systems in its college libraries so that users can benefit and contribute to the process of nation-building.

1.10.1.5 NEED FOR LIBRARY AUTOMATION

Information is a mechanism for systemic socio-economic, scientific, technological, and cultural development. Development in these fields of human activity leads to the creation of new information and also more efficient information storage media. This, in turn, contributes to further developments and multiplication of information. The present information explosion has drowned the libraries in an ocean of printed as well as non-print materials. Libraries can no longer function efficiently without computers that can only collect, process, store, retrieve, and disseminate the required information quickly and efficiently. **(Mishra & Srivastava, 2008).**

The reasons why library automation is needed are as follows.

Library Automation is needed –

• To handle any amount of data and knowledge.

• To track and preserve information availability in various forms, such as print, non-print, graphic, audio-visual, etc.

• To take part in resource networking and sharing

• To face and solve the different approaches and needs of the user community very easily and smoothly.

• To give flexibility in information search and retrieval.

• To promote research and information of an interdisciplinary nature.

 •Overcoming both geographical and other communication barriers.

• Increasing awareness of library services and products and promoting library use;

• Enhancing bibliographical control at world, national, regional and local levels.

• To stop repetition of library works.

• To save users and library staff time.

• Improving links to other networks and services including the Internet.

• Improving the management of the library's physical and financial resources **(Singh, 2007).**

1.10.2 NETWORK

A network, according to Webster's English Language Encyclopaedic Unabridged Dictionary, is a device that receives and transmits data based on PCs, printers, PC terminals, etc. **(Singh, 2007).**

"A variety of computers and other devices connected so that knowledge can be exchanged across a network," according to the Oxford Advanced Learner's Current English Dictionary **(Hornby, 1968)**.

The state of network infrastructure is growing rapidly around the world. Many educational establishments make use of network frameworks to retrieve and uutilize locally and remotely preserved resources of libraries. **(Rao & Choudhury, 2010).**

Better information and services are now available to customers on a whole new platform because of the IT industry's explosive growth, particularly in the internet and related technologies. Electronic gadgets, which were developed as new media for information delivery and storage, have benefited greatly from the rise of the Internet. Individual e-journal subscriptions and institutional participation in any collaboration, including the N-LIST, UGC-INFONET, INDEST-AICTE, and so on, are ways to gain access to electronic services. **(Arora, 2009)**.

1.10.2.1NETWORKED RESOURCES AND SERVICES OF THE LIBRARY:

- EDI.

- OPAC

- Automatic Rotation.

- Services for Institutional Repository (IR).

- Online services.

- E- Journals.

- E- Books.

- E- Database.

- E- Theses and Dissertations.

- Library Blogs/ Sites.

- Services related to multimedia websites.

- Internet Service provider

- Email.

- Phone.

- Fax facilities.

- Audio-Video Conference.

- Video Text.

- Automatic Current Alert.

- Inter-Library Loan (ILL)

- Web-Based Services for Delivering Documents.

- Consultation (Ask A Librarian).

- Real Time.

- Notification.

- Web form

- Users' feedback/orientation over the web.

- Conversational AI (chatbot) **(Ghale, 2013)**

1. 11 RESEARCH METHODOLOGY AND TECHNIQUES USED

Definition: "The methodologies and frames of reference utilized by researchers to explore and conduct an investigation." (**Busha & Harter, 1980).**

"Research procedures or techniques that relate to the ways by which researchers carry out their activity" is the definition of a research method. (**Kothari, 2004).**

This is a descriptive research project. Primary research is conducted for this reason. The following kind of methods were utilized in this investigation.

1.11.1 DESCRIPTIVE METHOD OF RESEARCH

In descriptive research, the researcher reports the events as they are occurring. As a result, it relies on surveys and other forms of data collection and analysis. This requires the researcher to plan his or her questions, such that they will provide the specific information needed. The current situation of affairs was described and analyzed using this technique. Descriptive methods are survey-based research and analytical techniques. According to Young, it's the process of learning something new or confirming what you already know by looking at how things are connected and how they make sense in the context of the fundamental laws that govern the universe. (**Young, 1973).**

Descriptive research methods like questionnaires and surveys were used to compile the data for this study. A descriptive study aims to shed light on the existing condition of circumstances. In the fields of social science and business, observational investigations are sometimes referred to as "ex post facto analysis." A defining aspect of this method is that the researcher has no say over the underlying dynamics and can only report on what occurs. It's a technique for doing research or study that builds on previous studies. Descriptive research employs several of the methodologies used to obtain factual data, including the case study, interview, and questionnaire procedures.

1.11.2 METHOD OF SURVEY

The method is one of the most popular approaches in social science research. If a researcher needs more information on a public issue than is already accessible in records like files and other resources, they should conduct public surveys to get information directly from the people affected by the issue. To analyse, understand, and report on the present situation of a social institution, group, or location is the goal of survey research, according to Fredrick Whitney. In the field of Library and Information Science, this technique is used to verify current conditions, assess library infrastructure, or assess library operations with the purpose of correcting mistakes and improving performance. (**Karande, 1989).**

A survey in the field of Library and Information Science is a comprehensive compilation of information gathered from many sources on libraries, their services, and their users throughout time. The survey method includes many other approaches, such as observation, questionnaires, and discussions, but the questionnaire was the only one that was addressed in detail here since it is used to gather data for this particular study. Two concise,

structured questionnaires were developed and sent out to college libraries through emails and distributed among their users.

1.12 SAMPLE SIZE

1.12.1 SOLVIN'S FORMULA OF SAMPLING USED TO GET SAMPLE SIZE, n = $N / (1 + N e^2)$

Where n is sample size, N = population size, e= the margin of error (0.05)

n = $38976 / (1 + 38976 \times 0.05^2)$

n=38976/1 + 38976× 0.0025

n=38976/1+97.44

n=38976/98.44

n=395.936611

Therefore, the sample size for all 14 state colleges of Himachal Pradesh is 396

1.12.2 Sample size for each college Student and Staff separately.

Where n is the sample size, N= population size

n=N×n/N

n=N (total students/teachers) × n (sample size) ÷ N (total population of all colleges including students and teachers)

(*Solvin's Formula of sampling,* **n.d.**)

Table-1.3: Population of fourteen select state colleges of Himachal Pradesh.

S. NO	Name of Degree College	Year of Establish ment	Students	Teach ers	Total	Sample Size=396	
						Student s	Teacher s
1	Vallabh Government College, Mandi	1948	6300	150	6450	64	2
2	Government College of Teacher Education (GCTE) Dharamshala,	1956	136	12	148	1	0

3	Government College Chamba	1958	3000	114	3114	30	1
4	NSCBM Government College Hamirpur,	1964	4500	70	4570	48	0
5	Government College Una	1968	5000	96	5096	51	1
6	Government College Sanjauli	1969	3200	102	3302	33	1
7	Rajkiya Kanya Mahavidyalaya Shimla	1971	3500	100	3600	36	1
8	Government College Nalagarh	1973	750	35	785	8	0
9	Government College Arki	1994	1100	50	1150	11	0
10	Government College Ghumarwin	1994	2932	75	3007	30	1
11	Government College Joginder Nagar	1994	2500	50	2550	25	0
12	Government College Palampur	1994	4100	55	4155	42	0
13	Government College Dharampur	2005	505	30	535	5	0
14	Government College Naura	2005	485	29	514	5	0
Total			**38008**	**968**	**38976**	**389**	**7**
						396	

From each college different numbers of users are approached to determine how satisfied users are with library services through automation and networking.

Out of 158 State professional and Non-professional Colleges, 14 Colleges were included in the survey. The sample size was 396 from the fourteen select state colleges. The universe of study was students and teachers of select state fourteen colleges. The sample of the present research consists of cross-sections of users such as students and teacher members.

For unbiased results and to give an equally fair chance of participation of each category of users, a random sampling technique was used. The study proposes to use the questionnaire method to collect data. The study was an analytical and descriptive survey method was used to elicit information.

1.13 SOURCES OF DATA

There was a collection of both primary and secondary data. The data were collected by Questionnaires and documents, like conference and seminar proceedings, journal articles, thesis and dissertations, books, encyclopaedias, and reports, websites etc. concerning library automation & networking in particular, and library & information science in general.

1.14 DATA COLLECTION INSTRUMENTS

The survey research method was selected for the present study and 02 questionnaires were prepared, one questionnaire for Library professionals to determine the existed state of college libraries' automation and networking. The second questionnaire for users to know their level of satisfaction concerning services provided to them with the help of library automation and networking. During the preparation of the questionnaires, all the aspects relating to library automation & networking in State college libraries took into consideration with proper care. A structured questionnaire with mostly closed-ended questions designed.

1.14.1 RELIABILITY TEST

To check the reliability and Validity of both questionnaires, the questionnaires passed through the following processes: -

1.14.1.2 Face Validity According to non-experts, a measure's face validity is how closely it resembles a particular notion. Put another way, a test has face validity if the information it contains looks relevant solely to the person taking it. Ease of use, readability, consistency of style and formatting, clarity of language are evaluated, as well as the overall presentation of the questionnaire. Simply put, face validity is the degree to which researchers believe the presentation and usefulness of a measuring instrument meet their expectations; in other words, whether or not the items in the instrument seem to be relevant, reasonable, unambiguous, and clear. (**Taherdoost, 2016**).

Both questionnaires were sent to language experts and corrected as per their suggestions.

1.14.1.2 Content Validity: "how closely things in an instrument match the content universe to which the instrument will generalize," as defined by the Oxford English Dictionary, is what is meant by "content validity." The involvement of researchers and professionals is required for the validation process to go well when using the judgemental approach to content validity. However, if researchers adopt a quantitative strategy, they may be able to send content validity assessments to experts around the globe, regardless of their physical location. (**Taherdoost, 2016**

Both questionnaires were sent to subject experts, and modified, based on their feedback.

1.14.1.3 Calculating Test-Retest Reliability Coefficients: One popular method for determining whether or not the two assessments are correlated is to calculate a correlation coefficient for the data. Coefficients of stability, another name for test-retest reliability, may be anything from 1 to 0.

> 0: no reliability.
>
> < 0.5: unacceptable reliability.
>
> ≥ 0.5 < 0.6: poor reliability.
>
> ≥ 0.6 < 0.7: questionable reliability.
>
> ≥ 0.7 < 0.8: acceptable reliability.
>
> ≥ 0.8 < 0.9: good reliability.
>
> ≥ 0.9: excellent reliability.
>
> 1: perfect reliability.

A number of 0.9(90%) indicates an extremely high correlation (high dependability), whereas a value of 0.5 to 0.6 indicates an extremely low correlation (poor reliability).

For measuring reliability for two tests, used the Pearson Correlation Coefficient

TEST-RETEST for measure of Reliability using Pearson r			
Method	**Type of Reliability measure**	**Procedure**	**Statistical Measure**
TEST-RETEST	Measure of Stability	Given a test twice to the same group with any time interval between set of one month	Pearson r

This test is for the reliability of the Questionnaire using the statistical measure Pearson r. Let X be the first administration of the test and Y be the second administration of the test **(Kothari & Garg, 2019)**

RESPONDENTS	x (test-1)	y (test-2)	x^2	y^2	xy
1	22	23	484	529	506
2	23	23	529	529	529
3	33	33	1089	1089	1089
4	28	28	784	784	784
	106	107	2886	2931	2908

(Dichotomous Questions are included for Pearson's Product moment correlation)

Pearson's Product Moment correlation

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

Where:

N is Number of Respondents

x is score of the test-1

y is score of retests

$$r = \frac{4\times2908-106\times107=290}{\sqrt{[4\times2886-106^2][4\times2931-107^2]}}$$

$$r = \frac{r=11632-11342=290}{\sqrt{[11544-11236][11724-11449]}}$$

$$r = \frac{290}{\sqrt{[308][275]}}$$

$$r = \frac{290}{\sqrt{84700}}$$

$$r = \frac{290}{291.032644}$$

$$r = \frac{0.99645193}{291.032644}$$

$$r = 0.99$$

INTERPRETATION
0.00 Zero correlation

0.01-0.20 Negligible correlation
0.21-0.40-Low
0.41-0.70-Moderate
0.71-0.90-high
0.91-0.99-very high

The r value is 0.99 which denotes very high relationship which implies that the respondents who got very high score in the first administration also got very high score in the second administration.

1.14.2 Calculating reliability of questionnaire using Cronbach Alpha

One means of evaluating the success of a data collecting strategy is to examine the trustworthiness of the questionnaire used to gather the information. Before a result may be accepted as valid, a reliable method of measurement is necessary. Choose a metric to analyse a study's concept. Questionnaire are one of the methods used to measure the hypothetical variable known as the construct. These surveys are a component of the measurement process. As a result, for the measuring technology to be called stable or constant, the construct must be accurately represented. To assess the validity of a survey instrument, Cronbach's alpha calculates the internal consistency or average correlation of its items. Consequently, Cronbach's alpha is a dependability index linked to the variation (**Santos, 1999**). The alpha coefficient value ranges from 0 to 1. It can be applied to describe how reliable components that were taken from dichotomous data are. Dichotomous questions are those that have two alternative responses and multi-point questionnaires or scales (e.g., rating scale: 1 = terrible, 5 = great). Consequently, the created higher score scale is more trustworthy **(Tavakol & Dennick, 2011).** The idea of alpha is crucial in the analysis of tests and questionnaires. Therefore, in order to add validity and precision to the interpretation of their data, it is crucial that assessors and researchers estimate the quantity.

Here Cronbach's alpha test is administered to know the internal consistency of the questionnaire prepared to determine users' satisfaction level from library automation and network-based services provided to the users, on the basis of two questions in the questionnaire for the users (Are you satisfied with automated library services? and Are you satisfied with the Network based services) which are based on five-points Likert scale

RESPONDE	Question-1	Question-2	Anova:

26

| | Are you satisfied with automated Library Services | | | | | | Are you satisfied with the Network based services provided by your college library | | | | | | | | | | | | | |
	1.1 Online catalouge services	1.2 Issue/Return	1.3 Digital Reference	1.4 Bibliographic Services	1.5 New Arrivals	1.6 Online Reservation	2.1 INFLIBNET Database	2.2 N-LIST	2.3 UGC INFONET	2.4 J-GATE	2.5 Electronic Journals	2.6 Electronic Books	2.7 Bibliographic Database	2.8 Full Text Database	2.9 CD-ROM Database	2.10 NEWS Clipping	2.11 Web Services	2.12 Inter Library Loan	2.13 Access to the Internet	Total
1	2	5	5	5	5	2	5	4	3	4	3	4	3	2	3	4	5	5	5	74
2	2	3	1	1	2	1	3	1	3	1	2	2	1	1	1	2	2	2	2	33
3	1	5	2	1	4	2	1	1	1	1	1	1	1	4	1	1	2	2	1	33
4	3	5	3	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	61
5	3	3	1	1	3	3	3	3	3	1	1	1	3	3	1	3	3	3	1	43
6	3	5	3	3	3	3	3	4	4	1	3	5	3	5	3	5	3	3	5	67
7	4	4	4	2	4	2	5	4	4	1	5	3	4	3	4	3	1	3	4	64
8	2	3	1	1	2	1	3	3	1	1	3	3	1	1	1	2	1	1	1	32
9	2	3	2	2	1	1	3	3	3	1	3	3	1	1	1	1	1	1	1	34
10	1	3	3	1	2	1	3	3	1	1	3	3	1	1	1	1	1	1	1	32
11	2	4	1	1	2	1	3	4	3	1	3	3	1	1	3	3	1	1	1	39
12	3	3	2	2	3	1	4	4	3	1	3	4	1	1	1	1	1	1	1	40

13	4	3	1	1	3	1	4	4	1	1	3	3	1	1	1	1	1	1	1	36
14	3	3	1	1	1	1	3	3	1	1	2	2	1	1	1	1	1	1	1	29
15	4	3	1	1	1	1	3	3	1	1	3	3	1	1	1	1	1	1	1	32
16	3	3	1	1	1	1	3	3	1	1	3	3	1	1	1	1	1	1	1	31
17	1	3	1	1	2	1	3	3	1	1	3	3	1	1	1	1	1	1	1	30
18	1	3	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	25
19	1	3	2	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	26
20	1	3	1	1	2	1	1	2	1	1	2	2	1	1	1	1	1	1	1	25
21	2	3	3	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	28
22	1	2	1	1	2	1	2	2	1	1	2	2	1	1	1	1	1	1	1	25
23	2	3	2	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	27
24	2	3	1	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	30
25	2	3	2	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	31
26	2	3	3	1	1	1	2	3	1	1	3	3	1	1	1	1	1	1	1	31
27	2	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	32
28	2	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	32
29	2	3	3	1	1	1	2	3	1	1	3	3	1	1	1	1	1	1	1	31

30	2	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	32
31	2	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	32
32	2	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	32
33	2	3	3	1	3	1	2	3	1	1	3	3	1	1	1	1	1	1	1	33
34	1	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	31
35	2	3	3	1	1	1	2	3	1	1	3	3	1	1	1	1	1	1	1	31
36	4	4	3	2	2	1	4	4	1	1	4	4	4	3	3	3	3	1	4	55
37	2	3	3	1	2	1	3	3	4	1	3	3	1	1	1	1	1	1	1	36
38	2	3	3	1	2	1	2	3	1	1	3	3	1	1	1	1	1	1	1	32
39	3	4	3	1	1	1	2	3	1	1	3	3	1	1	1	1	1	1	1	33
40	3	4	3	1	2	1	3	4	1	1	4	3	1	1	1	1	1	1	1	37
Varience	0.76	0.46	1.049375	0.719375	0.9475	0.324375	0.79	0.5475	1.044375	0.309375	0.51	0.544375	0.7275	0.89	0.619375	0.949375	0.7275	0.7275	1.194375	132.8193

Data of 40 respondents taken- Points are given on the basis of satisfaction level; Very Highly Satisfied-5, Highly satisfied-4, satisfied-3, Least Satisfied-2, Not Satisfied-1

Cronbach's alfa(a)=(k/k-1) (S²y-€S²i/S²y)

Where K=Total Items-19

€S²i= the sum of the variance of each item: 0.76+0.46+1.049375+0.719375+

0.9475+0.324375+0.79+0.5475+1.044375+0.309375+0.51+0.544375+0.7275

+0.89+0.619375+0.949375+0.7275+0.7275+1.194375=13.84188

S²y=The Variance of the total columns-132.8194

Thus, Cronbach's alfa = (19/19-1) (132.8194- 13.84188/132.8194) =0.95

Therefore, there is an excellent internal consistency of questions and the Questionnaire is reliable

Excellent= 0.9 and more

Very Good=0.8-0.9

Good= 0.7-0.8

Average= 0.6-0.7

Poor= Below 0.6

Note- 0.7 and more than it is acceptable

1.14.3 Testing the Questionnaires

Before putting the survey questionnaire to use, make sure it works. Questions that don't make sense to participants or issues with the questionnaire that might lead to biased replies can be uncovered via pretesting and piloting. These manuals detail the fundamentals of survey piloting and pretesting.

1.14.3.1 Pre-Test

After designing the Questionnaires, out of 14 (fourteen) colleges included in the study, these were sent to 03 (three) college librarians (Govt. College Arki, Govt. College Ghumarwin, and RKMV Shimla). Necessary corrections were made in the Questionnaires, as per their suggestions.

1.14.3.2 Pilot Test

After having the pre-test, for the Pilot test, more colleges were added. Now out of 14 (fourteen) colleges included in the study, the questionnaires were sent to 08 (eight) college librarians (Govt. College Arki, Govt. College Ghumarwin and RKMV Shimla, Govt. Degree College Nalagarh, NCMB Govt. College Hamirpur, Vallabh Govt. P. G. College Mandi, SCVB Govt. College Palampur and COE Govt. College Sanjauli). Necessary steps were taken to correct the Questionnaires, as per the suggestions received.

1.15 DATA COLLECTION

Personal visits were made to 14 different colleges of Himachal Pradesh to get responses from library staff, teachers and students. The collected data were recorded for data analysis & interpretation.

1.16 ANALYSIS & INTERPRETATION OF VITAL INFORMATION

Data collected with the help of questionnaires, refined, codified and organized for analysis and interpretation. Data Analysis is done in a Simple Percentage and in some cases, the cumulative Percentage Method is implemented with the help of SSPS software (Statistical Package for Social Sciences). Several tables, separate tables, line graphs, bar charts, column charts, pie charts, area graphs, cone charts, cylinder charts, etc. created in the chapter No-IV (Analysis, Interpretation and Presentation of data) with the help of MS Excel and SPSS software, to shape data in intelligent and translatable forms.

1.17 CONCLUSION

Because the purpose of this study is to understand the existing automation and networking state of the college libraries in Himachal Pradesh, Thus this research revolves around only college libraries. It's time to understand the different ways, the Mountain State libraries are following in providing digital services to its users. What kind of work was done in the Himachal Pradesh State College Libraries in a networked world? What library software packages were used for the library mentioned above? What were the automatic functions and resources in the library? Were libraries providing users with network services? Were college libraries given enough money? Did libraries of colleges receive the utmost support from the administration? Such were the questions that needed to be addressed. Through set criteria to include state colleges in the study, based on the information regarding state colleges where the Automation and Networking process started, vacant posts of librarians/assistant librarians, NAAC-accredited state colleges, acquired from Directorate of higher Education, Directorate of Medical Education and Research and Department of Technical Education, Vocational and Industrial Training of Himachal Pradesh and from individual state colleges. Due consideration is given to geographical representation and by applying Solvin's formula of sample size, a 10% sample size of 138 state colleges is taken for study. Out of 138 State colleges, affiliated with Himachal Pradesh University, 14 select state colleges have been included in the study. A descriptive research method was used to describe the existing condition of automation & networking in Himachal Pradesh's

participating college libraries. Solvin's formula of sampling was used to draw the exact total sample size of users and individual college users including students and teachers. Two concise, structured questionnaires with mostly close-ended questions were developed and finalized after going through the process of face validity, content validity, pre-pilot study, pilot study, applying Pearson's correlation formula to know the stability and Cronbach's alfa formula of reliability to know the internal consistency and average correlation. Personal visits were made to 14 different colleges of Himachal Pradesh to get responses from library staff, teachers, and students. The collected data were recorded for data analysis & interpretation.

Data was collected with the help of questionnaires, refined, codified, and organized for analysis and interpretation. Data Analysis is done in a Simple Percentage and in some cases, the cumulative Percentage Method is implemented with the help of SSPS software (Statistical Package for Social Sciences). Several tables, separate tables, line graphs, bar charts, column charts, pie charts, area graphs, cone charts, cylinder charts, etc. created in chapter No-IV (Analysis, Interpretation, and Presentation of data) with the help of MS Excel and SPSS software to shape data in intelligent and translatable forms.

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CHAPTER II

REVIEW OF LITERATURE

2.1 INTRODUCTION

A review of the literature is a synopsis of previous works on a certain subject. It provides guidance on what approaches are most suitable and helpful. So, it is not a mere analysis, but rather a remark on previous research. A literary review might only provide commentary, like an annotation book, or it could include critical analysis, like a review of regional literature. Here's how you may define a literature review:

"Literature reviews reports for basic or real subjects, and do not report the new scholarship itself. Methodologically, literature reviews, on the other hand, are intended to define summaries, interpret, and/or insert the context of key reports. "**(Cooper, 1988).**

The background of each chapter was established beforehand, and a literature review was included as part of the thesis. It was also a solid foundation built upon which presented a hypothesis and discussed the results of a study. As the name implies, a literature review is a critical examination of the published works that have been written on a certain topic. The literature evaluation recommends a different strategy for the investigation's planning.

The literature review, as defined by **Busha and Harter (1980),** is "a critical assessment of the many components of the research topic as described in the accessible sources." As they continue, they explain that when they look for evaluations of textbooks, they are trying to find and include already-written research papers, documents, books, and other materials that address the topic's core questions.

In this chapter, we took a close look at the previous research that has laid the groundwork for our investigation. Sixty papers from books, journals, conference proceedings/seminars, and electronic journals were taken into consideration for the purpose. Several facets of library automation might be seen as having strong ties to these themes.

A literature review involves finding and analyzing previous works on a certain subject. To compose a state-of-the-art in a scientific field. It involves reading relevant literature and making judgments based on what you find there. It helps provide a firm foundation for the theory behind present research and guides the direction of ongoing studies. Further, the literature review offers valuable direction on a particular issue, a firm foundation for the

research challenge, and an in-depth understanding of the research literature. It aids in avoiding repeating studies that have already been conducted.

2.2 METHODOLOGY AND SOURCE MATERIALS

An attempt has been made to collect and review the literature on the subject related to the present study. All the efforts were made to search and retrieve the articles using a different combination of search terms of the topic and collected full text of the most relevant articles on the current state, issues, and future directions of library automation both from India and abroad. The review of the literature was taken up by referring to the following sources: Library and Information Science Abstracts (LISA) from 1968 to 2016 published by Cambridge Science Abstracts, References and citations of various research articles have been observed and the relevant studies have been selected for the review, Bibliographies of books, thesis, dissertations, and reviewed articles have also been verified to understand the research trends on the topic of the study, Accessed websites such as Google search engine, Google Scholar, journal websites and databases. UGC-Infonet journals are available in full-text at (www.emeraldinsight.com) and Shodhganga (repository of thesis and dissertations of India)

2.3 SCOPE AND ARRANGEMENT OF THE REVIEW

The study concerned College Library Automation and Networking and studied users' satisfaction with automated and network-based services offered by select state Himachal Pradesh's college libraries. A review of the literature of the present study was limited to the following aspects;

(a) Literature published during the period from 2015 to 2024 was collected and reviewed.

(b) A review of the literature was classified into three areas.

(i) Library Automation.

(ii) Library Networking.

(iii) Users' Satisfaction.

☐ The present state, issues, and future opportunities for Networking and Automation in libraries, as well as the degree of user satisfaction, were compared across studies done on the subject in India and other countries.

☐ ICT applications, integrated library automation software packages, ICT infrastructure in libraries, automation in academic libraries, human elements of library automation, issues, opportunities for library automation and networking, and users' satisfaction with library services are the main topics covered in this study.

2.4 This is how we approach a literature study on Library automation, networking and user satisfaction:

2.4.1 Library Automation

Kosrow and Hinchliffe (2015) provided an analytical and contrasting account of the current state of library automation with its historical context and its potential future development. In light of recent debates regarding university libraries' collections, research methods, and prospects in the face of increased competition, this study analyses how librarians formerly thought technology would change their profession. The paper concluded with the authors' wish that, as concepts related to collections, exploration, and the future of academic libraries persist in being investigated in the professional dialogue, a fresh viewpoint, informed by the past, would be added.

Pozharsky and Rabinovich (2015) presented in their book titled "Advanced Computer Application in Library," that library management systems are a part of the information technology world, along with a variety of other systems. These are specifically made to provide consumers with information that they explicitly use but in electronic form. The book provides explanations of the advancement of automation, digitization, analytical techniques, etc.

Randive (2015) recommended the importance of resource sharing and interdependence between libraries was growing steadily, in his study titled "Library Networking in India". The finding, distribution, and categorization of stocks, as well as collection, and choices to share knowledge via network-based library services, had all benefited greatly from the use of computers in libraries. His research indicated that consumers would benefit from a system that allowed libraries to connect and allowed them to access national and international repositories.

Das (2016) shed light on the existing state of automation in libraries in a few selected libraries of colleges in Assam, paying particular attention to the Kamrup District (Rural). Based on the results of the survey, it is concluded that four (4) academic libraries had

funding issues while implementing automation. However, nine (9) out of ten (10) universities had insufficiently trained employees and a scarcity of personnel. An information gap existed between what users knew and what they needed. It had been observed that assistance from administrators was required in eight (8) out of ten (10) institutions. Out of ten (10) universities, seven (7) are dealing with the issue of sufficient space.

Naveen and Nagesh (2016) painted a detailed picture of the present state of library automation and the challenges faced in Government first grade colleges in Hassan district of Karnataka. The writers discovered in their work titled "Status and issues of library automation in Govt. first-grade colleges in Hassan district, Karnataka: a study," that just 23.53 percent (4) college libraries were completely automated, while 47.06 percent (8) were partly automated, 29.41 percent (5) were in the beginning stage, and the vast majority of college libraries (82.35 percent) use e-granthalaya for automation. Since most academic libraries lack the resources to invest in the necessary personnel and physical space to implement a fully automated library management system, they instead turn to open-source software (free software). Bar-coding of library materials was in the initial stage. The automation of libraries was often handled by a single computer.

Sarma (2016) concluded that based on his research of five other library open-source management systems (Evergreen, Koha, NewGenLib, OpenBiblio, and PhpMyBibli), Koha LMS was the most feature-rich and user-friendly of the bunch. He presented a comparative picture of the merits and demerits, operating procedures, vendor support, and a detailed and in-depth study of each Library management software and recommended Koha Library management software last. With the help of professionals, users currently using competing library management systems may switch over to Koha. Library automation software needed to be cost-effective in Government colleges and universities.

Shivkumaraswamy and Narendera (2016) primarily emphasized the automation procedure carried out at BG Nagara in the BGS Institute of Technology. Library automation was determined to be completed and updated to advance technology in the main automation in the library field and detailed many variables required to be addressed by librarians when doing automation work for their libraries. NewGenLib was the library management software in use, and it had been effectively implemented in the central library,

with barcoding for 30,000 volumes of books and library automation for every module of the programme completed.

Hildreth (2017) analyzed library automation and computer-based networking in North America in his book "Library Automation in North America: A Reassessment of the impact of new technologies on networking." Along with automated library systems and amenities, the author also discussed library networks and bibliographic resources. He spoke on national efforts, integrated, multifunction library systems, data ownership and usage restrictions, regional and state library networks, and national libraries. Personnel issues and technophobia were two of the difficulties encountered.

Kumar and Kemparaju (2017) mentioned in the article titled "Status of library automation in engineering college libraries in Karnataka," the state of library automation at VTU, Karnataka-affiliated engineering institutions. The research covers a variety of library-related subjects, including whether or not a LAN connection was available, the degree to which the library was automated, and the types of automation software used. 143 respondents reported having LAN connectivity in the library and it is recommended that there is a need to mobilize the funds and seek active support from the administration to boost the library automation.

Gautam and Sharwar (2017) discussed the automated cataloging system and its current state of use in northern India's major universities in their paper "Library Automation at Indian Central Universities: Issues and Challenges." Questionnaires were used to compile the data. There was an effort to be objective in this research by using interview and observation methods. The findings reveal a spectrum of accomplishments in the introduction of a cataloging system. The findings also showed that library users had been satisfied with the speed of the automated retrieval systems. It had done away with discrepancies and fostered a shift toward uniformity. The productivity of library professionals has also increased due to automation.

Sarkar (2017) revealed the current state of library automation in Nadia District, West Bengal's Engineering College libraries. The data input method, collecting status, and other relevant details have also been covered. The degree to which a certain university had automated all of its parts and the difficulties that had arisen in doing so were examined. Most libraries utilize LIBSYS, a library automation system developed by Innovative Interfaces. Just the JIS College of Engineering used DSPACE, a digital library software.

The JIS College of Engineering is the only campus where users may access the digital library. Library automation software has been used to streamline the cataloging, purchasing, periodicals, circulation, and data input processes at most universities. While the libraries at three universities have been fully barcoded, at the other two universities, this task has not yet been finished. Every university nowadays offers Internet access to its students. Sixty percent of universities and colleges do not do journal data entry. A majority of universities (80%) provide access to an online library catalog (OPAC). In contrast to the Kalyani Govt. Engineering College and JIS College of Engineering, no other college in the area provide a Web OPAC service. About 80% of universities and colleges now provide online library catalogs.

Dattatraya, Kalbande and Chavan (2018) focused on the existing state of automation in their study, titled "Status of Automation in Agricultural College Libraries." They provided the details of the current state and ongoing issues facing library automation in these institutions. It revealed that only 65% of libraries were automated and that the primary obstacles to library automation were shortages of personnel, resources, and training. A snapshot of the current state of library automation software and individual modules was provided in this research. Researchers discovered that libraries at privately funded universities were only beginning to experiment with automation. Only a library automation feature, a subset, including purchasing, transaction, and listing, made use of such libraries. Some libraries only utilized a subset of library automation features, such as those concerned with book purchases, circulation, and cataloging. Library automation features like OPAC, Serial Control, stock checking, budgeting, and so on were all possible to install.

Gupta and Sharma (2018) examined the current state of automation in Jammu District's degree college libraries in their study "Status of Automation in Government Degree College Libraries in Jammu District, J&K." Librarians and other college library administrators were surveyed by questionnaire to learn about the study's many aspects. The research team also hopes to learn more about the library's holdings, services, total employees, human resource qualifications, technological processes, software packages utilized, etc. It had been shown that whereas 33.33 percent of college libraries had automated some aspect of their operations, 66.67 percent of degree-granting institutions still had not done so. They recommended that in today's technologically advanced society, libraries must demonstrate that they had shifted from older, less efficient methods to more

current, more effective ones to remain relevant and financially viable. The relevant authorities should appreciate the libraries' value and provide librarians the administrative assistance and their services need to be reorganized by the institutions in light of the new circumstances.

Maheswarappa and Kumar (2018) conducted a study titled "Status and Problems of Automation in College Libraries, India: A Report on the Current State of Library Automation in India's Undergraduate, Engineering, Technological, and Management Schools," in which they detailed the successes and failures of library automation in public and private universities across India. They examined how those libraries were doing now in terms of infrastructure, staffing, library software, and other relevant factors. There were several obstacles to library automation, including the fact that most libraries were run by a lone librarian, a lack of competent library employees, a lack of IT understanding among staff, and a lack of financial backing from management. Not many academic libraries utilize serial control and acquisition modules. Library automation at any level calls for close cooperation between librarians and IT specialists. Automation of libraries is a group effort requiring contributions from librarians, other experts, and library patrons. Librarians need to refocus their efforts, develop new ways of thinking, and use innovative technology to keep libraries relevant.

Maheswarappa and kumar (2018) conducted an exploratory survey with their work, titled "Degree College Libraries and Their Automation Initiatives in Hyderabad Karnataka Region: An Exploratory Survey." They discovered that 33 (29%) of college libraries had none at all; just 42 (36.52%) and 24 (20.87%) had one or more computers, respectively. Additionally, the majority of libraries lacked printers, Xerox machines, scanners, and barcode printers. 53.04 percent of college libraries said they had not yet started library automation initiatives. Just fifty-four college libraries, or 46.95 percent, were employing software packages for library automation and had started LA activities. 24 (44.44%) libraries used e-Lib Aargees, while the remaining libraries 11 (20.37%) EasyLib, 6 (11.11% E-library Qualsoft Pvt Ltd, 5 (9.26%) NewGenLib, 3 (5.56%) SOUL (Inflibnet), 2(3.70%) Library Manager and 1 (1.85%) Biyani Technology Library Software were used for automation of libraries. Regarding the current state of automation of libraries, the ratio of libraries of colleges to application fields not only depicts a mixed image, but also a horrifyingly dire one. The infrastructure development of the college libraries in the Hong

Kong region was therefore behind schedule. This includes library automation requires technology, software, physical facilities, and human resources.

Rani (2018) emphasized the importance of libraries in meeting the information needs of students and teachers. Users in academic and digital libraries fall into a variety of categories, including students, researchers, teaching and non-teaching professionals, and executives, all of whom have varying information needs. This research analyzed how satisfied students and teachers were with library services and materials. The first step was to survey current and former customers of the organization to gauge their level of satisfaction. In this section, they looked at users' satisfaction and broke down the process in detail. How satisfied users were with the library's services.e.g. library's internet, OPAC, and browsing/email services. 17% of users were satisfied, and 21.1% of users were dissatisfied with internet services. OPAC service satisfaction was quite high at 12.3 percent, with 68.7 percent satisfied and just 4.3 percent not satisfied. In addition, the browsing and email services evaluated the level of contentment experienced by various library patrons. In regards to the library's e-journal service, 66% of patrons are very happy, 21% are satisfied, and 13% are not.

Rajendran and Kumar (2018) expressed and discovered that automation in libraries had altered routine tasks, and new storage and retrieval methods save the time of users and staff alike, as the authors of a report titled "Status of automation and networking among the College, libraries linked to Bharathiar university," assessed the current state of library automation at the academic libraries associated with Bharathiar University in Coimbatore, Tamil Nadu, by looking at the kinds of automation software and networking resources that were accessible to them. Researchers discovered that 92 academic libraries were fully digital and making use of a wide range of applications. Only two of the 92 libraries they surveyed used RFID. Less than half of libraries (40.2%) provide public access to their online catalogs through the Internet, and barely a quarter of colleges (25%) are interested in collaborating to pool their resources.

Kumar (2018) suggested that the academic community might benefit greatly from streamlined access to library materials provided by a resource-sharing network. Koha was the most widely used library management system in public and publicly funded universities. Most libraries automated their collections using expensive, proprietary software. A few examples include Book Magic, e-granthalaya, LibSys, LibSoft and SOUL.

With the help of professionals, patrons currently using competing library management systems may make the switch to Koha. Library automation software in Government of Kerala-owned colleges and universities needs to be cost-effective. If the Kerala State IT Mission had data centers, they might be able to host a centralized instance of Koha that could be used by all of the state's educational institutions. By using the pre-existing information technology infrastructure in state Govt. Kerala and able enough to establish a network for pooling available resources. To reach a common understanding and launch library networking initiatives, authorities, and educational institutions must cooperate.

Shaikh and Mohsin (2018) compared two popular library management systems, SOUL and Koha, highlighting their respective strengths and weaknesses in light of the growing importance of information technology (IT) in libraries today. The research concluded that library management software was crucial for the automation of public and academic libraries. In doing this analysis, the researcher was able to achieve his or her goals for the study. The open-source integrated library system Koha was proven to be more user-friendly than the proprietary SOUL. When it comes to library automation, Koha was one of the greatest web-enabled open-source programs available. Koha's Serial module analysis journals; were developed in an open-source age and require little setup and training to put into use.

Zaveri and Salve (2018) examined the current state of software used for automating the library in Mumbai's academic libraries. Research showed that most library systems were automated. The usage and procurement of the program was hampered by a lack of skilled personnel and a shortage of funds. Twenty-two libraries (81.5%) were automated, whereas five libraries (18.5%) were not. Even though a college's use of information and communication technology (ICT) in its library was a criterion for obtaining accreditation, only 18% of libraries were automated. Ten of the 22 libraries (or 45.5%) were completely automated, whereas 12 were only somewhat automated (54.5%). Six (28.5%) of the libraries surveyed made use of open-source software, while sixteen (76.2%) made use of proprietary programs. Twenty libraries (90 percent) relied on pre-made software due to a lack of in-house IT resources, whereas two libraries (9.1 percent) developed their applications. Eight libraries out of ten used SOUL (Software for University Libraries). 7 libraries (31.8%) used a variety of packages, including Libsuit. One possible explanation for SOUL's widespread adoption was that it was developed and promoted by the Information and Library Network of India (INFLIBNET).

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Jayaram (2019) studied in detail library automation software in his paper "A study on library automation status among the aided college libraries in Bengaluru," which looks at its availability, applicability, and the challenges that have arisen during its implementation and use. It is found that 81.81 percent of libraries had initiated automated process, with a lack of staff, poor infrastructure, limited resources, and improperly trained staff being the primary reasons for this. This research also provided an up-to-date snapshot of library software packages and library automation software modules. Some 30 (or 83.34 percent) of libraries currently use some form of proprietary software to streamline their operations. In terms of market share, EasyLib (33.34 percent) had the largest share among proprietary programmes. When compared to other modules, cataloging, circulation, and the OPAC (online public access catalog) are seen the most in action. Library automation had improved the services provided by the libraries that responded in terms of interlibrary loan (ILL), users' visits, and circulation, and would aid in the development of strong holdings.

Kuri and Om (2019) examined the situation of library automation in Karnataka state's government colleges that are affiliated with Rani Channamma University Belagavi. Only 48.27% of libraries of colleges were automated, with a want of information and communication technology (ICT) infrastructure and a shortage of skilled personnel cited as the major reasons for the remaining 51.752%. 42.86 percent of libraries use Easy Lib. Plus, E-Granthalaya. This research provided a snapshot of the current state of the widely used software and the various modules implemented by the chosen libraries. The research recommended that the Higher Education Department (DCE) of the Indian state of Karnataka implement standard library automation software and provide adequate funding to government degree college libraries so that they may buy the hardware upgrades required to fully implement the standard.

Mcpe and Gowtham (2019) provided in-depth explanations of automation and networking in their book titled "Library Automation and Networking." Both authors, suggested software requirements, consortia, software, forms, and the way users' informational need catered while toeing the rope between their own goals and those of their parent institution and fulfill Dr. S.R. Ranganathan's five laws of library science. Modern library automation systems reflect several significant shifts in response to technological and economic advancement. These tendencies are likely to continue to dominate and define the trajectory of automation development in Library automation in the future, barring a major shift in either technology or economics. Perhaps most obviously, there had been a shift toward

library networks, which are informational infrastructures that connect several libraries. Teletypes were often used in the third form of organization, which is merely a loose association of libraries with unique processes for accelerating ILL (inter-library loans). Although the majority of them were not heavily automated and hence fell beyond the scope of this work, others were striving hard to develop consortia for the same goals. Sharing resources, whether they be monetary or bibliographical, has become a buzzword.

Peter (2019) focused on how library automation has improved the efficiency with which librarians in that region of Nigeria carry out their daily tasks through his article, titled "Effect of Library Automation on Performance of Librarians at Private Universities in South-West Nigeria". The research showed that libraries of private universities standing 90% have implemented service automation. It was discovered that the computerized library at private colleges in southwest Nigeria improved librarian efficiency by a whopping 70 percent. Results indicated a good correlation between the automation of libraries and the efficiency of private university librarians (r =.372, p.01). The majority of private universities in South-West Nigeria had completely automated libraries, according to this research, which enabled librarians to improve the quality of their services. Based on the findings of this research, it was suggested that to better serve their patrons' contemporary information demands, university library managers should host workshops, seminars, and conferences to educate the importance of automating the libraries to both users and library staff.

Emasealu (2019) shed light on how the complexities of web development have facilitated a sea change in the way academic libraries operate, academic library development of the web and in Nigeria was among the topics, in "Automation of Academic Libraries and Web Development: A Reverie or Reality," he investigated. It was found that academic libraries in Nigeria make embarrassingly insufficient use of library management software's features; consequently, automation projects in Nigeria continue to sway back and forth, and the country's libraries have not yet achieved fully automated status. This is because only a subset of library services has been automated so far; the rest have only reached a partially automated state. Therefore, the author suggests that librarians get the proper training and strategically plan for all automation projects that aim to maximise library management, incorporate automation with web development, web nuances, and ICTs into library services. The functions of library management systems should align with web delve

software/systems, and it will be beneficial to insist on training and retraining library professionals in Nigeria.

Takkapa and Ready (2019) surveyed Sixty-nine-point four percent of polytechnic libraries for the study "Present Status of Library Automation in Polytechnic Colleges in Karnataka State: A Survey," who had access to computers and other relevant equipment. When compared to Aided and Government Polytechnic Libraries, Private Polytechnic Libraries are in a stronger position overall. The Polytechnic Libraries' current computer equipment and accessories were inadequate. 63.56% of Polytechnic Libraries have implemented some kind of automation using Library application software. Among the three types of polytechnics, the majority of libraries were now undergoing automation at Government and Private Polytechnics, while more than half of libraries at Aided Polytechnics had already achieved automation. So far, library automation has mostly concentrated on improving cataloging and circulation processes. The libraries at 84.44 percent of private polytechnics, 74.29% of aided polytechnics, and 60.60 percent of government polytechnics had built databases, with the rest in progress. This demonstrates that most Polytechnic libraries were prepared to implement automation. Most libraries struggle with issues including inadequate resources, unqualified employees, and outdated facilities.

Thorat and Banker (2019) expressed in their work, "Status of Library Automation: A Study of Libraries Affiliated to Shivaji University, Kolhapur," which had a significant effect on the services provided by libraries, the expertise of librarians, and the number of users who used the resources provided by libraries at colleges affiliated with Shivaji University. According to the results, the vast majority of employees and users considered computer-based information services superior to manual ones due to their higher levels of accuracy, consistency, and efficiency. Computerization had a good impact, elevating libraries' reputations, they all agree. Information technology (IT) influenced not just the technical services but also the services provided to library users. They were able to run their business and provide their services more effectively by using IT smartly. Professional librarians were increasingly interested in introducing technology-supported services to better serve users, as seen by their future intentions. Users also pointed out the drawbacks of IT, such as information overload, decreased interpersonal communication, virus issues, health problems (stress, eye, and lumbar discomfort), staff awareness concerns regarding IT, technostress, insecurity, and overall reluctance to new technology. Both librarians and

library patrons acknowledge the significant influence that information technology (IT) and library services based on IT have had on the development of cutting-edge pedagogical approaches to learning.

Velmurgun (2019) advocated in his article "Library Automation: An Overview," for library automation and networking. Library automation and online collaboration were still in their infancy in India. A CALIBER (Convention of Automation in Libraries) conference was held annually by INFLIBNET to address concerns about the increasing computerization of academic libraries. As far as it was concerned, INFLIBNET had made hardly any progress, therefore the United Grand Council needed to pony up some cash for some new gadgets and programs to accelerate the automating and networking process of libraries. After assessing both the present and the anticipated needs, the librarian and the administrators will establish priorities. It's crucial to choose an integrated library management software that works for the library and its users. The library's back catalog should be handled with care while undergoing any of the following processes: conversion, OPAC implementation, circulation and serials control, etc. Success relies heavily on the competence of both the staff and the users. A student's capacity to locate, assess, and apply pertinent information in service of learning was intrinsically linked to that student's eventual level of academic success. Users may be offered a wide variety of up-to-date services, including access to recent additions, book and journal contents, etc. Consequently, we must now come to terms with its existence and the idea of an automated library.

Gaffar and Pati (2020) assessed and better understood how Koha-Automation Software at Prof. Bhubaneswar Behera Central Library might benefit Sambalpur University, Sambalpur. this case study approach had been used. As an integrated Library software system that includes models suitable for libraries of all sizes, from tiny specialty collections to multi-million volume research collections, Koha comes highly recommended. The author suggested using Koha since it's a complete library management system that could scale to any size. The automation of academic libraries had been shown to be a useful tool for college administration in maintaining order in the library. To give consumers greater and more effective services, librarians need to assess their automation requirements and devise a strategy for selecting and implementing an automation system that aligns with the institution's purpose and values. Koha had improved the University Library's users' experience in many ways, including the speed with which they could find

and retrieve information, the ease with which they could conduct online searches for e-resources and OPACs, and the streamlined procedures for registering as a patron and checking out materials.

Pathumaragam and Maskoora (2020) claimed that Sadakathullah Appa College's library efficiently utilizes the Cataloguing, Online Public Access Catalog, Circulation Control, Stock Verification, and e-Gate Register functions made possible by AutoLib Library Management Software, as shown in this research. Web Modules and Serial Control, Journal Indexing and Question Banks, Acquisition Control, features in Advanced Modules, Journals, Non-book resources like CDs, etc., and e-books were not included in the catalog, it had been discovered. Users would not find much value in the search function. The Search module's Simple Search feature was always on. With AutoLib's Circulation Management feature, all services at the counter were mechanized. Management Reports may only be kept in written form. In addition, the e-Gate Register and Stock Verification were used to their maximum potential. There is a need for the database to expand to include journals and other non-book resources. The search's functionality had to be broadened to include both Advanced Search and Restricted Search. The SAC Library staff had the responsibility of educating the community about these resources and teaching library users how to access and make use of them. With System Administration's help, the library's budget statements would be a breeze to compile. It is recommended that the e-Gate service be made available to teachers and that Web Modules be used to provide much-appreciated library services.

Mozumder, Khanom, Barooh and Hussain (2020) assessed the state of library services offered by undergraduate institutions in the Barak Valley, Southern Assam. Libraries and their users have been given a new opportunity thanks to the rapid development of information and communication technologies and their implementation in a variety of library functions. The data-gathering processes and distribution strategies have undergone radical transformations in the Internet era. There was a need for a system like the College Library System, which was an information system, to ensure that all members of the user community had equal and fair access to the information and knowledge available to them. People of all sexes, social classes, religious persuasions, ages, and economic backgrounds seek new information and knowledge. Every library's primary goal should be to make available information and knowledge, not only from the library's holdings but also from other sources. However, Assam's college libraries were not yet completely automated owing to a lack of both an IT infrastructure suitable for academic libraries and appropriate

human resources. Because of this, academic libraries fall short of meeting the needs of their patrons.

Sivankalai (2020) painted a grim picture of the state of Library Automation and associated services at nine institutions in Eritrea's Institutions of Higher Education (IHE). EIT is the only university to have implemented library automation using RFID technology using Open-Source Software, whereas many other schools still rely on outdated card catalogs (KOHA). However, no library can sustain itself indefinitely; libraries are living, evolving organisms. There is no automation in any of the eight university libraries. The research recommends that parent organizations prioritize the development of library automation systems based on open-source software to enhance library automation and expand digital library collections. Many of today's best academic librarians still don't provide traditional announcement services, instead relying on the web and electronic mail to disseminate information to their patrons. A Strong Library Automation and Networking system is emphasized by the author. He underlined the need to provide enough training for librarians and other library employees to better serve library customers by prioritizing the automation of library resources and also providing users with access to resources and services available via the Internet.

Shafack (2021) investigated the problems that existed before and after automation was implemented at two academic libraries in Buea, Cameroon: The University of Buea Library and the St. Francis of Biaka University Institute Library. The purpose of this qualitative research was to learn more about the barriers to automation in Cameroon's university libraries. The research revealed that pre-automation difficulties included planning, budget, equipment, staff, technophobia, the Internet, and electricity; automation software included Pour Ma Biblioteque, DSpace, and Koha; and post-automation difficulties included equipment breakdowns, a lack of qualified personnel, a lack of funds, a fear of technology among both employees and patrons, a lack of reliable Internet, and power outages. This research suggests that academic libraries and their parent institutions should put more resources into training their staff and patrons to make the most of automated systems and ensure their long-term viability. It also suggests that libraries look into alternative energy options, such as solar power.

Survade, Patil and Dalve (2021) emphasized the fact that the writing of their work titled "SOUL 2.0 (Software for University Libraries) For Library Automation", highlighted the

SOUL Software implemented in the libraries of 3,756 Indian educational institutions. When it comes to software installation, however, the states of Gujarat and Maharashtra come out on top, followed by the North-Eastern States in third place, Madhya Pradesh in fourth, and Andhra Pradesh in fifth. There are now 1,099 SOUL installations in the state of Gujarat, 522 in Maharashtra, 338 in the North Eastern States, 304 in Madhya Pradesh, and 301 in Andhra Pradesh. The SOUL integrated library management software was emphasized further as they went through the program's many useful features. Electronic catalogs for libraries, a summary of SOUL modules, and the influence of automating the library were all ways in which SOUL Library automation systems had aided libraries in making their resources more accessible.

Panda and Chakerbrty (2021) conducted their research based on Library Automation and Cloud Computing, which were seen as a cutting-edge technological solution and an inspiring new direction in the field of librarianship by technocrats and enthusiastic librarians all over the globe. The paper delves into the origins of the problems plaguing the traditional library management framework and details the benefits, risks, and difficulties connected with automating libraries using cloud-based systems. As a result of the scalability of the cloud, it may be integrated with preexisting systems, requires less maintenance, offers Cloud security and authentication in place, and presents a disaster recovery issue. According to the data, the two library networks with the most libraries are the JNV Libraries Network Clusters No. 1 and No. 2, each of which has 300 and 287 libraries. You may utilize the Mobile-based OPAC, Android Mobile App, or Web-based OPAC to put e-Granthalaya to work in your library. Officially, 5364 deployments have been completed. India has a total of 5163 implementations, with the state of Maharashtra having the most (797), followed by the district of New Delhi (456 implementations).

Ajani and Buraimo (2022) evaluated the current state of library automation, the effects of automation on library services, and the difficulties university libraries have in sustaining automated systems for the efficient delivery of library services. 697 library staff members from 9 university libraries in Southwest Nigeria make up the study's population. For data collection, a standardized questionnaire (Appendix A) was employed. A total of 335 surveys were given out, but only 309 were deemed to be valid, yielding a 92.2% response rate. The results showed that In South West Nigeria, university libraries have some automation. The services provided by libraries are improved via library automation. The

problems included a lack of technical support from the vendor, budget issues, staff attitudes, and technophobia.

Babuprasad (2022) analyzed the results of library automation services implemented in government-funded, first-year college libraries in the Kolar area. Seven out of the eight libraries examined in this research were found to be fully automated. Seventy percent of librarians responded that automation had enhanced their services, while eighty-five percent of library patrons preferred an automated system. When it comes to handling automated services, one of the eight libraries was short in general employees. The researchers were restricted to include only carefully chosen educational facilities in their analysis. This research exposed the existing state of the first-grade college libraries in the Korab District's government libraries' automated services, even though many similar studies had previously been completed on library automation services in various parts of the globe.

Maru and Tadasad (2022) discussed the state and challenges of automation of public libraries in the State of Goa in their paper. they talked about the radical adjustments that the idea of information technology had made to libraries. It highlighted how important it is for the current library system to incorporate new information and communication technologies as they develop. There had been a significant shift in how people look for information, but there had also been equally potent technologies for information transmission on the opposing side. The only location where information could be freely accessed without restriction and accessible to every member of society's common man was in public libraries. This study aids in determining how the State Central Library, Taluka Libraries, and District Libraries of Goa State are automated. In time, it would also emphasize the challenges associated with implementing IT-based automation or operation in these libraries.

Nashipudi (2022) discussed how the Government First Grade College (GFGC) Libraries in Karnataka were now automating their operations. The research study's conclusions covered a variety of topics about schools and their libraries, primarily those relating to automation software, IT infrastructure, obstacles to library automation, the need for automation training, and others. Additionally, this study examined INFLIBNET N-LIST subscribers. The research cannot be applied to all academic libraries in Karnataka and is restricted to the GFGC Libraries of Karnataka. The Google Form was created to gather the information needed to complete the study's outlined objectives. Later, after being exported to Excel, the

data was tallied, examined, and evaluated. This article was entirely based on research, and the conclusions would be useful to the Department of Collegiate Education's administrators, researchers, and faculty members in developing a policy for the uniform implementation of the library automation project throughout all of Karnataka's academic libraries.

Sonone (2023) provided information on the study's topic, "An evaluative study of the use of SOUL Software in the university and college libraries with special reference to Maharashtra". The situation of libraries of colleges and universities in India, the history of automated libraries in India, the need to computerize university and college libraries, and the requirements for hardware and software for library computerization were all underlined by him. The need for and difficulties with automating these libraries were thoroughly discussed.

Jaiswal and Negi (2023) highlighted the situation and difficulties with library automation in degree colleges through their research article, "A study on library automation status among the selected degree college libraries in Gorakhpur, U.P.," affiliated with Deen Dayal Upadhyay Gorakhpur University in Gorakhpur. According to the survey, 8.5 percent of libraries were automated, and the main obstacles to automation were a lack of infrastructure, funding, qualified staff, and proper staffing. The research provided a state overview of the library automation modules of software and software applications utilized in the libraries. According to the report, 19 (63.33%) out of 30 libraries used EasyLib and SOUL software. The research primarily focused on the applicability, accessibility, and challenges encountered in the process of implementation.

Byoung-goon An, Hyekyong Hwang and Youngim Jung (2024) this study is to examine potential avenues for future development while analyzing the state of library automation systems at the moment. To find out more about the current state and level of satisfaction with library automation systems, as well as the status and awareness of open source-based library automation systems, a survey of librarians at institutions taking part in the KESLI and KCUE consortia, was performed. The majority of automation systems in use in libraries, according to the survey, were created through outsourcing in the 2000s and 2010s, and more than 50% of respondents expressed satisfaction with the system as a whole. It was discovered that the system's design and operational management, customer support services, and functionality all had an impact on overall satisfaction. More than

40% of respondents stated they will adopt library automation systems within three years, even though the majority of present systems do not rely on open-source software or cloud services. It is anticipated that this study will play a significant role in providing the groundwork for the eventual development of an open-source library automation system.

Ahmad, Samosir and Liailatus (2024) this study looks at the implementation of the Ministry of Foreign Affairs Diplomacy Library Automation. The purpose of this study is to learn how the Diplomacy Library uses Slims 9 to create the library automation system, as well as what challenges librarians encounter and how to solve them. This study employs qualitative techniques, including documentation, interviews, and observation. Interviews for this study were conducted with librarians at the Diplomacy Library of the Ministry of Foreign Affairs. The research's data analysis results demonstrate that the Ministry of Foreign Affairs Diplomacy Library's use of the Senayan Library Management System (SLiMS) has satisfied the requirements of the Technology Acceptance Model (TAM) theory. SLiMS is thought to be helpful for tasks at libraries, such as supporting patrons while they conduct information searches. This research has also revealed that the most common challenges encountered when processing SLiMS are that the internet network frequently goes down or becomes unstable, which can make it difficult to import or search data and necessitate a laborious automation process.

2.4.2 Library Networking

Massis (2016) argued for the benefits of the Internet in his article, "The Internet of Things and its Impact on the Library." This essay was written to examine the Internet of Things (IoT) and how it might affect libraries. The author provided a survey of the literature and opinions on this subject that had been addressed by experts, researchers, and practitioners. The author made the case that libraries did not necessarily need to give in to the often-borderline hysteria surrounding the rhetoric regarding security and privacy. However, librarians must take an active part in the discussion and the actions that follow to respond to users who access library networks and devices with collected, reasoned, and open answers to questions about what they are doing to make sure that security and privacy vulnerabilities are regularly addressed. By focusing on this subject, we were able to set the scene and offer several solutions to the IOT's security and privacy issues.

Leskovec (2016) in his paper titled "SNAP: A General-Purpose Network Analysis and Graph-Mining Library." The author described SNAP (Stanford Network Analysis

Platform) in this article, presented its functionality, went into detail about how it was implemented, and provided performance benchmarks. Designed for a single big-memory system, A condensed in-memory graph representation, maximum performance, and the ability to handle dynamic graphs with nodes and edges that are added or removed over time are all combined in SNAP. SNAP is capable of processing large networks with billions of edges and hundreds of millions of nodes. More than 140 different graph algorithms are available in SNAP, which can effectively manage characteristics and metadata on nodes and edges, manipulate massive graphs, compute structural properties, produce regular and random graphs, and generate nodes and edges. Large graph handling aside, SNAP's ability to handle fully dynamic networks and their properties, which could be changed during computation at a cheap cost, was another asset. In addition to describing a set of publicly available social and informational real-world networks called the Stanford Large Network Datasets.

Wang, Carver and Phelan (2016) noted in their paper, "Sharing and community curation of mass spectrometry data with Global Natural Products Social Molecular Networking," The NP community had no other means of exchanging data than through published papers, and NP databases were not searchable with raw data, therefore the potential of the many chemistries found in NP for biotechnology and medicine remained unrealized. Mass spectrometry (MS) techniques are excellent for characterising NP in large quantities, but a data exchange and curation system are desperately needed. The authors established an open-access knowledge repository for community-wide organisation and sharing of tandem mass spectrometry (MS/MS) data that has been gathered, processed, or recognised: the Global Natural Products Social Molecular Networking (GNPS; http://gnps.ucsd.edu). Crowdsourced curation of publicly accessible community-wide reference MS libraries will facilitate better annotating in GNPS. Data-driven social networking should make it easier to identify spectrum and encourage teamwork. Through ongoing reanalysis of deposited data, we also establish the idea of "living data."

Kalbande (2018) In his paper titled "Resource Sharing and Networking in Agricultural College Libraries Under Jurisdiction of Mahatma Phule Krishi Vidyapeeth: A Study" emphasised that it is unrealistic to expect a library to hold all of the materials required to satisfy the needs of all of its patrons. Rather, through resource-sharing arrangements that allow them to provide their patrons with access to a greater variety of resources, the majority of libraries expand their local collections. With the assistance of diverse

organisational structures and technological infrastructure, libraries participate in regional, national, and international services for the loan and borrowing of items. Therefore, the perspective of librarians on library networking and resource sharing, as well as their desire to share various sorts of materials and academic activities, is examined in this research. The current survey was carried out from January 2014 to December 2014 using a well-structured questionnaire and in-person interviews.

Babatunde, Alhassan and Babalola (2020) examined the challenges and advantages of utilising resource sharing services in their paper, "Effective Resource Sharing Services In University Libraries In North Central Nigeria." Twenty (20) university libraries in North Central Nigeria and a total of sixty (60) librarians made up the population of the study, which used a survey research design. According to research, electronic books, journals, magazines, e-newspapers, human resources, e-theses, and e-dissertations were exchanged across university libraries. Subsequent investigation revealed that resource sharing programmes were running as efficiently as possible in university libraries in North Central, Nigeria, but that these libraries face difficulties in offering network-based library services due to booming budgets.

Kalbande and Suradkar (2021) In their paper titled, "The Perception of Library Network Membership in Agricultural College Librarians in Maharashtra: A Survey," A study conducted by the Consortium for e-Resources in Agriculture (CeRA), along with institutional repositories Krishikosh, AGRICAT, and IDEAL eGranth, examined the function of agricultural libraries in the networked digital age. They also investigated funding provided by the Indian Council of Agricultural Research (ICAR), a noble effort to enhance and expand agricultural libraries. In this survey study, male and female academic librarians from agricultural colleges in Maharashtra, India, were asked how they perceived their affiliation with different library networks. The Mahatma Phule Agricultural University and its affiliated college libraries employ 57 librarians in total, 40 were chosen using a purposeful sampling technique. The study looked at how library networks were perceived and the motivations behind joining different networks. The results indicate that, among other things, the union catalogue, inter-library loans, consortium usage, centralized acquisition, and document delivery services were the main reasons why librarians joined library networks.

Muhammad, Khurram and Abid (2021) In their work titled "Resource Sharing among Medical Teaching Libraries: A Developing Country Perspective," the authors examined and, using references to perception and willingness, identified the resource sharing prospects for medical teaching libraries in Lahore. 26 prestigious medical libraries from all public and private degree-granting institutes in Lahore, Pakistan, made up the study's sample. The survey research methodology was applied to this investigation. The research concluded that sharing resources was a wise move. It raises user satisfaction levels. It enhances library collections, which go beyond just books from the library. By developing union catalogues, libraries were willing to start resource sharing. This study could be used to create a real-time formal resource sharing network that would benefit all medical libraries in Pakistan.

Olubunmi and Mercy (2022) defined resource sharing, as a term recognised by the process of connecting libraries to exchange information and resources efficiently is known as library networking in an article titled "Resource Sharing in Academic Libraries: A Tool for Collaboration." Due to the exponential development in the amount of information produced, it helps to overcome constraints such as prohibitive buying costs, handling bibliographies, material storage, etc. Sharing resources is one way to make the most of library resources. As a result, sharing library resources has become crucial in the modern environment and is widely accepted.

  Additionally, the government ought to set aside sufficient cash for the purchase of information technology infrastructure that academic libraries require for resource sharing. In particular, for uncommon information resources with high demand but low supply and initial availability in print format, the report advocated giving preference to the least common modes of resource sharing, such as interlibrary loan. The research also suggests that academic libraries create regulations that would ensure that sharing of library resources is done correctly in academic libraries.

Onwubiko (2022) in his study titled "An Assessment of Networking and Resource Sharing in Federal University Libraries in Nigeria," 86 librarians in the population were specifically selected from 43 federal university libraries, served as the study's population sample, which was led by four research objectives and questions, respectively. A questionnaire with 34 modified Likert items was the main data collection tool used in the study. The results were analysed for clarity, frequency and percentile are used and displayed in tables and figures.

The results of the survey showed, among other things, that most federal university libraries in Nigeria focused more on local networking than wide area networking. This means that none of these libraries can claim to be fully engaged in global networking to benefit from the wealth of knowledge available in developed countries' university libraries. The author suggested further that the National University Commission (NUC), the body responsible for controlling and overseeing universities, collaborate to support and finance the formation of a consortium of university libraries in Nigeria through the Tertiary Education Trust Fund (TETFUND).

Omoike and Ikegune (2023) emphasised changing resource sharing and networking amongst academic libraries in Nigeria. Most libraries fail to provide their users with the information needs and services they require on time as a result of resource sharing and networking, which is one of the notable phenomena that has not received the proper attention. It was found that the majority of libraries in poor nations struggle with the precarious problem of not being able to provide high-quality services to their numerous library users due to insufficient budgetary support for libraries and a generally uncooperative or incompetent attitude among library staff. Therefore, resource sharing and networking across the many libraries gained attention as a means of addressing this ongoing dilemma. Discussed about various resource kinds that can be shared was the relevance of resource sharing and networking. Additionally emphasised were the effects of ICT on networking and resource sharing as well as the numerous obstacles that had to be overcome.

Kasim, Abba, Jibril, Isah and Babadoko (2023) examined the primary advantages of library consortiums: resource sharing, in their paper titled "Exploring the Benefits of Library Consortium: The Information Resource Sharing." By pooling resources, libraries and information centers can offer more resources and services for less money. The importance of resource sharing in providing users with effective and efficient library and information services was examined in various information sources (primary and secondary literature). The requirements for effective resource-sharing practices among libraries were also underlined in the research. The importance and advantages of sharing resources as they relate to librarians' and library staff's social, academic, and developmental lives were made abundantly evident. They advocated an ideal library networking model for resource sharing as well as illustrations using DELNET, INFLIBNET, GILLDDNET, and NULIB. The investigation reached its conclusion that resource sharing is unavoidable and

unquestionably a vital instrument for creating a library and information service, effective and efficient. The study presented suggestions for addressing the issues preventing libraries from effectively sharing resources.

Choi (2024) the book is introduced in this chapter, which begins with a lighthearted discussion of what it's like to be an IT professional in the modern IT environment. The primary IT domain groups to which Enterprise IT engineers belong are then briefly defined, along with their duties and necessary skill sets, strengths, and weaknesses are discussed. In addition, a study plan that forms the core of the book is outlined in this chapter. The chapter examines the value of learning a programming language and comprehending software development, particularly Python inside DevOps, from the viewpoint of a working ICT engineer. The main focus of this book is on Python in DevOps, which serves as a foundational resource for readers beginning their path into network automation. In conclusion, the chapter offers details on the minimal system prerequisites required to construct an entirely functional Python, Linux, and network automation ready-to-use lab on a single laptop or PC, as well as the suggested software suite for configuring virtual devices, including Linux servers, routers, and switches.

Zhou (2024) the Internet of Things, or IoT, is a rapidly expanding field with a steadily rising rate of adoption in daily life. Automation has made it feasible to successfully integrate this technology into many traditional systems and enhance their performance because of the social role of objects and the identity that they possess. One of the most evident uses of IoT architecture for smartening is in libraries. Several architectures have been proposed thus far for IoT-based library intelligence. Nevertheless, there hasn't been a low-cost, perfect architecture that can meet every need in a variety of smart library applications. The suggested approach uses Software Defined Networking (SDN) to lower deployment costs and enhance network component management. This design uses a cluster-based topology to build the communication platform for network active objects. To control books and library property, passive Radio Frequency IDentification (RFID) tags are also used. The performance of the proposed method has been assessed in two stages: through real-world implementation and computer simulations. Based on the results, it can be said that this study was successful in developing a smart library design that is both economical and functional, which represents a significant improvement over traditional library.

(iii) Users' Satisfaction

Ijiekhuamhen, Aghojare and Ferdinand (2015) In their study titled "Library Assess Users' Satisfaction on Academic Library Performance: a Study," authors quantified users' satisfaction with academic library performance by assessing how well clients felt about the services, infrastructure, place, and information provided by an academic library at Federal University of Petroleum Resources (FUPRE). 381 university students made up the study's sample population. Questionnaires were the instrument utilised in this study to collect data. For easy understanding, research questions were addressed using frequency, bar charts, tables, and percentages. The study's key findings showed that the respondents had a high level of satisfaction with the infrastructure, location, space, services, and collection/information of the library as a whole. The study also shows that many respondents use the library for many purposes, with the majority of respondents using internet access there as their primary reason for visiting. The respondents advocated for the library to remain open longer, increase internet bandwidth; publish a guide on information searching techniques; and publish the most recent collection; some thought the library should publish indexes and bibliographies; provide guidance on consultation and research methods; organise a workshop on how to find information; and make staff more amiable and knowledgeable.

Ikolo (2015) The author's research paper, "User Satisfaction with Library Services: A Case Study of Delta State University Library," concentrated on how satisfied users were with the services offered at the main library of Abraka's Delta State University in Delta State. The aim was to determine whether or not library users were satisfied with the staff, resources, environment, services, and other aspects of the library. Every registered user of Delta State University's Abraka Campus Library, Site II, served as the study's population using the descriptive survey method. For the sample size data were collected via a questionnaire, and simple random sampling was chosen. The results showed that the services provided by Delta State University are subpar and insufficient. The majority of users expressed satisfaction with the availability of information sources in the library, however, they did note that the majority of these sources are not loanable. The results also demonstrated a strong correlation between consumers' opinions of the library collection and their contentment with information sources. There are ample reading books and a clean environment in the library, but no functional restrooms or lighting.

Verma and Parang (2015) authors of the paper "Use and User's Satisfaction on Library Resources and Services by Students of School of Physical Sciences, Mizoram University, Aizawl: A Study," argued that ICT has affected every aspect of library management, including collections, services, and user satisfaction. The current study aims to investigate how PG students at the school of physical sciences use the library's resources and services. In the present digital era, information has become a fundamental prerequisite for all human activity. Academic libraries are a vital component of university systems' teaching, learning, and research processes. They have consistently made an effort to show that they can lead their academic positions, i.e., meet users' information needs, despite the changing ICT landscape. Analysis of user satisfaction is crucial for assessing library collections and services since users' methods and as technology advances, so do how users seek out information.

Tiemo and Ateboh (2016) In their study titled "Users' Satisfaction with Library Information Resources and Services: A Case Study College of Health Sciences Library Niger Delta University, Amassoma, Nigeria," researchers looked into users' satisfaction with the information resources and offerings offered by the College of Health Sciences (CHS) library at Niger Delta University, Nigeria. The goal was to gauge patron satisfaction with library information services and resources. To direct the study, 2 (two) research questions were developed. A population of 687 registered users of the College of Health Sciences Library was used in the survey research design. 180 respondents made up the sample size that was chosen at random. The instrument for gathering data was a self-made questionnaire. The research's findings included the fact that users liked the library's lending services, the ability to renew titles, and extended hours for internet access. The study also showed that users were unhappy with the scant reference materials available in their respective topic areas, as well as with outdated national and international publications.

Masrek and Gaskin (2016) in their study, "Assessing Users' Satisfaction with Web Digital Library: the case of Universiti Teknologi MARA," sought to investigate the factors that influence users' satisfaction in the setting of academic web digital libraries (DL). Using the structural equation modelling (SEM) method, A model that was developed and evaluated was predicated on the updated information system success model. The research instrument for the study was a self-administered questionnaire using survey research methods. Students enrolled in the Bachelor of Information Management programme at Malaysia's Universiti Teknologi MARA made up the study's population. IBM SPSS and

AMOS statistical software to conduct descriptive and inferential analyses, including SEM was used. The results show that major predictors of users' satisfaction with the web DL include information quality, systems quality, service quality, perceived utility, perceived simplicity of use, and cognitive absorption. The study has created an empirically based framework that illustrates key aspects affecting DL satisfaction from a theoretical point of view. For upcoming investigations, researchers with expertise in the evaluation of DL effectiveness may choose to use the paradigm. Alternately, the framework can be expanded even further by including additional variables like user or organisational characteristics.

Xu and Du (2018) asserted that the Information System Success Theory, Technology Acceptance Model, and Affinity Theory were integrated into their study, "Factors Influencing Users' Satisfaction and Loyalty to Digital Libraries in Chinese Universities," to identify the variables that might have an impact on users' satisfaction and steadfastness in using digital libraries. 426 legitimate survey forms were gathered. The proposed research model and hypotheses were put to the test using structural equation modelling. The findings showed that perceived utility, perceived ease of use, and affinity for digital libraries (DLs) were largely influenced by system and service quality rather than information quality. Perceived utility was influenced by both perceived simplicity of usage and DL affinity. Additionally, user satisfaction was significantly impacted by perceived usefulness and DL affinity, which in turn affected user loyalty. Additionally, we discovered that user variations such as age, gender, and educational attainment strongly impacted the affinity of DLs, which in turn affected users' satisfaction and loyalty. The quality of digital libraries can be improved by librarians and service providers; implications are given.

Yeboah, Adams and Boakye (2018) study, "User satisfaction with library resources in public Colleges of Education in Ghana," found that most respondents were generally satisfied with the circulation services of the libraries, in contrast to CA, where a combined majority of 57 (77.6%) of the respondents were dissatisfied with the circulation services. The study found that the majority of respondents were dissatisfied with user education. Only during new student orientation sessions, when librarians were typically allowed to train the students, on what they should and shouldn't do in the library as well as how to use it. However, based on the study's findings, it can be said that Ghana's education colleges generally lack the necessary and pertinent library material to provide its users with satisfactory services. The goal of improving the institutions to be more competitive will be defeated if practical actions are not taken to stabilise the situation.

Xu and Du (2019) their investigation focused on the parallels and discrepancies in graduate and undergraduate students' satisfaction with digital libraries (DLs).To evaluate the 426 valid survey responses collected, one-way ANOVA and descriptive statistics were applied. The theories of Information System Success, Technology Acceptance Model (TAM), and Affinity provided guidance for these methods. The results demonstrated that graduate students were more satisfied than undergraduate students with the system quality, information quality, and service quality, as well as affinity, perceived ease of use, and perceived utility of digital libraries. User attributes such as age, frequency of use, and experience had a substantial impact on how satisfied undergraduate and graduate students were with digital libraries. University librarians and service providers should be aware of the parallels and discrepancies between graduate and undergraduate students' experiences with digital libraries to enhance user satisfaction. They should also endeavour to enhance the system, content, and service quality of these resources. This will increase users' perceptions of the digital libraries' usability, usefulness, and affinity.

Long, Hai and Nga (2019) in their study, "Measuring Users' Satisfaction with University Library Services Quality: Structural Equation Modelling Approach," the authors aimed to gauge how satisfied users were with the calibre of library services offered by universities. 525 students in economics majors, including business administration, banking and finance, accounting and auditing, commerce, and tourism, participated in the survey. To create the research model, the authors integrated structural equation modelling (SEM) and exploratory factor analysis. The results demonstrate that five factors, including location, assurance, responsiveness, reliability, and service information, have a beneficial influence on users' satisfaction with the calibre of library services. The findings also show that satisfaction levels fluctuate between groups based on gender and study time.

Chen, Ho and Kuo (2022) Their study, "Service Quality of and User Satisfaction with Non-State-Owned Academic Libraries in China: Integrating the Fuzzy Delphi Method with the Kano Approach," aimed to demonstrate the multifaceted nature of perceived service quality, how it affects users' satisfaction, and provide an example of academic service quality in a non-state-owned library. Answers to questionnaires were retrieved using a sample of 453 valid respondents. The questionnaire's content validity and question clarity were checked by ten specialists who were invited to assess it. In this study, qualitative indexes and the Kano model's features of academic service quality in libraries were established using the Fuzzy Delphi approach. The Kano model's attribute classification

shows a correlation between three aspects, encompassing information control, physical environment, and emotional service, all of which bolster the viability of using integrated models to evaluate the calibre of library services. Based on the users' satisfaction results matrix improvements, there are nine factors to improve service quality and two significant enhancements to increase users' perception of service quality. Additionally, users are less conscious of using academic resources ethically and of academic standards, although these aspects have little impact on the level of service.

Negi and Pant (2024) the author in their paper titled, "Awareness and Satisfaction of Users towards RFID based Circulation System: a Study" advocated Radio Frequency Identification (RFID) which has completely changed library management systems by offering efficient and automated solutions for a range of operations-related tasks likely, libraries can now maintain high-speed inventory management and enhance security thanks to RFID technology, which also automates material handling, reduces data entry errors, improves customer service, and updates records more quickly. Users' awareness and satisfaction have become essential for libraries as the usage of RFID technology spreads. The goal of this work was to comprehend the various facets of employing library circulation services in an RFID setting. The results show that a sizable portion of users are aware of these technologies and the benefits they offer while utilizing the library's circulation services. Unfortunately, some library professionals were reluctant to use services because they were unfamiliar with this technology. The results also showed that, to shape user satisfaction and awareness, it was imperative to arrange training and user engagement programs concurrently with the implementation of technology-assisted services. Library circulation, library patrons, RFID technology, user awareness, and user satisfaction have all contributed to a decrease in the number of employees needed at the circulation desk, freeing them up to offer more services that were focused on the needs of the user.

2.5 Gap Identified After Literature Review

That which has not been examined or is under-explored is the gap, often known as the missing piece or parts in the study literature. This might refer to the study's subjects or samples (their sizes, distributions, and so on), researchers, data sources, analyses, and other factors. The following gaps have been identified after a thorough literature review: -

Almost all the studies done on Library Automation and Networking were oriented toward university, college, Public and Special libraries. There was a smaller number of studies where professional and non-professional Govt. college libraries are covered on the said topic. After depth review of the literature, it is also found none of the studies conducted on the topic at Himachal Pradesh's state college libraries' automation & networking. Since Himachal Pradesh is one of the leading states in Information literacy, it becomes pertinent to evaluate the libraries' automation and networking framework and informational infrastructure of state colleges. Especially it is essential to evaluate the library resources and services after the implementation of Automation and Networking facilities.

2.6 Conclusions

An attempt has been made to collect and review the literature on the subject related to present study and covered all the three areas of studies. Library automation, Library Networking and users' satisfaction. All the efforts were made to search and retrieve the articles using a different combination of search terms of the topic and collected full-text of the most relevant articles on the state, difficultiess and future of library automation both from foreign and India. The review of the literature was taken up by referring to the following sources: Library and Information Science Abstracts (LISA) from 1968 to 2016 published by Cambridge Science Abstracts, References and citations of various research articles have been observed and the relevant studies have been selected for the review, Bibliographies of books, thesis, dissertations, and reviewed articles have also been verified to understand the research trends on the topic of the study, Accessed websites such as Google search engine, Google Scholar, journal websites and databases. Full text journal of UGC-Infonet at www.emeraldinsight.com. , and Shodhganga (repository of thesis and dissertations of India)

A review of literature of the present study is limited to the literature published during the period from 2015 to 2023 was collected and review of literature was classified in two classes.i.e. international literature and National Literature. Studies conducted about the present topic both in foreign and India are compared to compare and contrast the current state, issues, and future prospects of networking and library automation. The major areas covered in this study are the state of ICT infrastructure in libraries, issues with networking and library automation, ICT applications, academic library automation, integrated library automation software packages, and human elements of library automation are explored.

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CHAPTER III

DEVELOPMENT AND STATUS OF AUTOMATION AND NETWORKING AT STATE COLLEGE LIBRARIES

3.1 INTRODUCTION

Libraries are today seen as locations where information is retrieved through sources like electronic catalogue listings, full-text journals, and Internet access, rather than as locations where books, journal, periodicals and nonprint resources are gathered and shelved. The automation of library operations, such as acquisitions, cataloguing, circulation, interlibrary borrowing and lending, and report have given librarians the ability to take on a more expansive role and satisfy the information demands of their users everywhere.

The state college libraries in Himachal Pradesh have subscribed to the NLIST e-resources, which are a component of the e-ShodhSindhu consortium. Colleges have access to more than 6,000 journals, 164,300 e-books and 6,000,00 e-books of NDL via N-LIST. Libraries of select state colleges have known for a while for creating sizable collections inside their own buildings will never be able to satisfy the multidimensional information needs of their users. In order to access online information databases both statewide and globally and to operate more efficiently, they began automating their collections. This chapter provides a quick overview of the current status of college library collections, as well as the history of each college library. Its physical collection and journey towards initiative and historical turn towards automation and networking at state college libraries of Himachal Pradesh, and a vivid picture of each college's growth and progress up to this point of time.

3.2 INITIATIVE AND HISTORICAL STEP TOWARDS AUTOMATION AND NETWORKING AT STATE COLLEGE LIBRARIES OF HIMACHAL PRADESH

As per the state college library, the rules / standards set by the Directorate of Higher Education Shimla vide Gazette notice of 31 July 1990 for state college libraries affiliated with the University of Himachal Pradesh aimed at ensuring that college libraries must have resources and services to meet successfully for kknowledge-based information requirements for educators and students. The college library of state must be function in the guidelines of a professional librarian and he should serve as the chief of the department and is responsible for developing and promoting reading habits among library members, including students and teachers, professional development and education, promotion and dissemination of knowledge-based information. resources, as well as the physical

environment and staff needs. IT-based services necessitate fresh approaches, strategic planning, adequate resource allocation, and the choice and emergence of useful tools and technology. The Department of Higher Education adheres to the College Library Standards set by the UGC as a guide need to be implement in addressing these issues. Present professional knowledge and principles are based on some set protocols, best practices, guidelines and statements for the development of consensus and support for the information needs of teachers and students, management decision-making and strategic decisions, lifelong learning and professional skills of teaching staff, educational programs and student research. *(Directorate Orders, n.d.)*

Although the process of Library automation and Networking was introduced in the country in the last decade of the 20th century; But, in college libraries of Himachal Pradesh it was in the concept stage until 2008. The meeting of the staff of the college libraries and regional libraries in Himachal Pradesh was held on 26/08/2008 under the leadership of Dr. O.P. Sharma, Director of Higher Education Shimla, who set standards and is a milestone in the history of Automation and Networking at Himachal Pradesh University-affiliated State College Libraries in the mountainous region. The minutes of the trial are as follows: -

a) All stake holders in a state college are instructed to take the necessary steps to make library books computerized.

b) All state College Professionals have also been instructed to link libraries through the broadband channel.

c) A brief discussion was held to introduce the appropriate software for self-paced college library resources.

d) After the discussion, the chairperson formed a five-member committee under Sh. S.K Dadhwal, chief of the Centre-State Library Solan. The committee recommended that it submit its report on computer library material, broadband space, automation software, and the college library network.

The Committee prepared the Automated Guidelines for the state College Libraries. Therefore, the SOUL 2.0 dynamic Library software from INFLIBNET has been selected for the dynamic college library resources automation and all state college libraries are required to become members of the INDEST-AICTE Consortium, IIT Delhi; the Library

and Information Services Centre for Scholarly Content (N-LIST); and the UGC-INFONET Digital Library Consortium. *(Directorate Orders, n.d.)*

3.3 LIBRARIES AND INFORMATION NETWORK AT STATE COLLEGE LIBRARIES OF HIMACHAL PRADESH

The digital library network of state colleges affiliated with the networking centre operated by Himachal Pradesh University Shimla includes textbooks and e-books, assisting undergraduate students, undergraduate students and members only. State college libraries are participants in the project. Students, researchers, and members of the academic staff all have free access via this initiative to a library of more than 31,355,000 full-text electronic books and more than 6000 electronic journals covering a wide range of topics. Almost every month, the centre receives a large number of new educational resources. Opens Internet access doors for electronic services. The college library provides access to electronic resources through the N-LIST (National Library Service Infrastructure and Professional Content Information Services). Under this, access to e-books, journals and other e-documents online is also available to members of the library.

Himachal Pradesh University, Shimla, has developed guidelines for bringing the same standards to public college libraries across all its sub-colleges to achieve the goals of the university. Planning, storage, collection development, electronic and web resources, visual user resources, human resources, financial management, and other important services are all covered in the guidelines, as well as the library's status as a department and its role as Head of the Department (HOD) in collaboration with another department.

3.4 HIMACHAL PRADESH

Dasas were the first people to be documented in the area. After some time, the Aryans came and negotiated with the local communities. Officials from hill stations accepted the authority of the Mauryan, Kaushan, Gupta, and Kanuaj dynasties in following years. The Rajas of the Himalayas imposed arbitrary agreements on their connections during the Mughal era. Numerous regions in India were unified under Ranjit Singh's rule in the nineteenth century. The British came, conquered the Gorkhas, and formed deals with other Rajas and then annexed their respective kingdoms. Up until 1947, nothing changed. On April 15, 1948, only a few days after India's independence, 30 local districts were united to form what is now known as Himachal Pradesh. It was on November 1st, 1966 that the Punjab was officially recognised, and as a result, some lands were added to Himachal

Pradesh. A state of absolute dominance, Himachal Pradesh was established on January 25, 1971. The empire is bounded on the north by Jammu and Kashmir, on the west and southwest by Punjab, on the south by Haryana, on the southeast by Uttarakhand, and on the east by China. Elevation from sea level ranges from 350 to 6975 metres; coordinates are 30°22′40″N to 33°12′40″N and 75°45′55″E to 79°04′20″E. At a 2011 count, the country's 68,64,602 residents were evenly split between men (34,81,873) and women (33,82,729) over its 55,673 square kilometres of land. (***Government of Himachal Pradesh, India, n.d.***)

3.5 HIMACHAL PRADESH UNIVERSITY

Himachal Pradesh University was founded on July 22, 1970. The main town of Shimla is about 5 kilometres away from this location on Summer Hill. Various types of trees, including deodars, oat trees, pine trees, and rhododendrons, create a verdant forest around the University. The wooded area around Summer Hill is beautifully visible from the University. To the east, the campers basked in the morning light, while to the west, they saw a magnificent sunset. The university's high ideals are inspired by the breathtaking snow-capped mountain ranges it overlooks. The tranquil ambiance and healthy temperature make it an ideal place to focus on your studies. Covering an area of 200 acres, the university campus was planned to have a unique architectural style. Himachal Pradesh University is the only university in the state with many academic departments and associated institutions. Jawahar Lal Nehru, the first Prime Minister of India, is often cited for his convocation speech at the University of Allahabad, in which he said that a university represents humanism, tolerance, the community, development, the study of ideas, and the search of truth. It represents the inevitable progression of humanity towards greater heights. *(Himachal Pradesh University, n.d.)*

3.5.1 DISTINCT FEATURES OF UNIVERSITY

1. Approved by the National Examinations and Accreditation Council (NAAC).

2. The prestigious UGC Centre for Excellence in Himalayan Studies.

3. NRI (Self Financing) Pioneer Program.

4. First to start Distance Education in the country.

5. Wisdom-wise and professional advice.

6. HPU Alumni Succeeded in All Categories.

7. A fair and reliable semester test program.

8. Departments of Specialist Assistance in History, Physics, Bio-Technology, Chemistry, Bio-Science.

9. Academic Staff College is one of the leading countries in India.

10 Excellent performances in sport and culture at national level.

11 General conditions for higher education.

12 A large number of students qualify for NET, GATE and other competitive exams every year.

13 Liaison with national and international institutions.

14 Culture of holding seminars, workshops, conferences, seminars, etc.

15th national level achieved in the NCC, NSS, organizers of youth welfare programs.

16 Free educations for female students. One seat per department is reserved for one baby girl. *(Himachal Pradesh University, n.d.)*

3.6 TOTAL NUMBER OF STATE COLLEGES

TABLE 3.1 TOTAL NUMBER OF STATE COLLEGES

S/NO	COLLEGE	TOTAL
1	State Colleges	128
2	State Medical Colleges	06
3	State Ayurvedic Colleges	01
4	State Nursing Colleges	02
5	State Dental College	01
6	State Sanskrit Colleges	07
7	State B.Ed. Colleges	03
8	State Engineering Colleges	05
9	State Pharmacy colleges	05
	total	**158**

*(**Directorate of higher education Himachal Pradesh, Directorate of medical and research Himachal Pradesh, & Directorate of Technical Education, Vocational and Industrial Training, Himachal Pradesh, n.d.)**

3.7 DISTRICT WISE NUMBER OF STATE COLLEGES IN HIMACHAL PRADESH

Table 3.2: District wise number of state colleges in Himachal Pradesh

S/NO	DISTRICT	NO OF STATE COLLEGES
1	Bilaspur	STATE COLLEGES-5
2	Chamba	STATE COLLEGES-9
3	Hamirpur	STATE COLLEGE-6
4	Kangra	STATE COLLEGE-29
5	Kinnaur	STATE COLLEGE-01
6	Kullu	STATE COLLEGE-07
7	Lahul Spiti	STATE COLLEGE-02
8	Mandi	STATE COLLEGE-17
9	Sirmour	STATE COLLEGE-14
10	Shimla	STATE COLLEGE-18
11	Solan	STATE COLLEGE-10
12	Una	STATE COLLEGE-10
	TOTAL	**128**

3.8 STATE COLLEGES INCLUDED IN THE STUDY

Table: 3.3 State colleges included in the study

S. NO	College	Establishment Year	Grade by NAAC	Students	Teachers	Total
1	Vallabh Government College, Mandi, Distt. Mandi	1948	A	6300	150	6450
2	Government College of Teacher Education (GCTE) Dharamshala, Distt. Kangra	1956	B	136	12	148

3	Government College Chamba, Distt. Chamba	1958	B+	3000	114	3114
4	NSCBM Government College, Hamirpur, Distt. Hamirpur	1964	B++	4500	70	4570
5	Government College Una, Distt. Una	1968	B	5000	96	5096
6	Government College Sanjauli, Distt. Shimla	1969	B+	3200	102	3302
7	Rajkiya Kanya Mahavidyalaya (RKMV) Shimla, Distt. Shimla	1971	B+	3500	100	3600
8	Government College Nalagarh, Distt. Solan	1973	B++	750	35	785
9	Government College Arki, Distt. Solan	1994	B	1100	50	1150
10	Government College Ghumarwin, Distt. Bilaspur	1994	B	2932	75	3007
11	Government College Joginder Nagar, Distt. Mandi	1994	B	2500	50	2550
12	Government College Palampur, Distt. Kangra	1994	B+	4100	55	4155
13	Government College Dharampur, Distt. Mandi	2005	B	505	30	535
14	Government College Naura, Distt. Kangra	2005	C	485	29	514
Total				**38008**	**968**	**38976**

3.8.1 VALLABH GOVT. COLLEGE, MANDI, DISTT. MANDI

Figure: 3.1 Vallabh Govt. College Mandi

The college is recognized by the UGC, New Delhi, covered under sections 2 (f) and 12 B of the UGC Act. 1956. The college is named after Sardar Vallabh Bhai Patel, 'Iron Man,' the builder of modern India. It was founded in 1948 as a first-class college of ancient Himachal Pradesh. It is now among the best public colleges offered for the purpose of the study. The college has registered significant growth in enrolment over the years. From the 70 students on the list, the number has risen to 6300 during this study period. The college initially led commerce classes in 1965 and evening classes in 1966. In 1984, it became a center of higher learning. Recognizing the changing needs of the times, the college started a Bachelor of Arts (B.B.A.) under a scholarship program and a Biotechnology career course in 1996 at the undergraduate level. In addition, the B.C.A. Courses under the funding program were introduced in 2001 to strengthen the employment sector and provide more opportunities for students. B.Ed. was started in 2005 and under a program of self-financing to educate teachers at a high level. The college, meanwhile, offers a variety of U.G. courses in Arts, Science, Commerce, Computer Applications, Management, and Education (B.A., B.Sc. non-medical, B.Sc. Medical, and B.Sc. in Biotechnology as a study subject, B. Com, B.B.A., B.C.A., and B.Ed.) And PG studies in English, Hindi, Economics, Mathematics, Political Science, and Commerce. Certificate Courses, Diploma, and Advanced Diploma focused on our activities are presented as Extra Courses related to existing degree programs in standard Floriculture, Mushroom Cultivation, and Apiculture. Marketing Management, Computer Application, Journalism and Mass Communication. These courses can be chosen by students of any broadcast. The Foundation Course in Human Rights Education began with a 2009-10 session. The Post Graduate Diploma in

Computer Application (PGDCA) under the Self-Financing Scheme began in 2012. The college is affiliated with Himachal Pradesh University Shimla, educating young people in various fields, namely, humanities, science, and commerce, at the undergraduate level. Admission to all fields in the first year of bachelor's degree is offered in accordance with HPU policy.

3.8.1.1 College Library

Figure: 3.2 Library Vallabh govt. college Mandi

The college library has 151 members and 6300 students enrolled. The college has a good library collection of 38500 books. 7 newspapers distribution in Hindi, 5 in English and 40 journals and magazines enrich students and teachers. Book-Bank is also available at the library, which helps low-income students SC and ST.

Figure: 3.3 terminals for e-journal and e-books searching
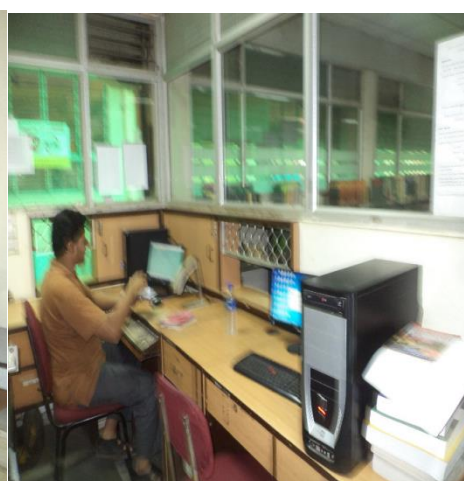
Figure: 3.4 Automated circulation counter

The library has been moved to the New Library Block, and its automation has begun. The college has already purchased the SOUL Network version from INFLIBNET Ahmadabad and the automatic component. The library is a member of the NLIST consortia and subscribes to e-books and e-journals for its members. The New Library Block has a well-equipped Conference Hall to hold conferences and seminars. *(Vgcmandi.in, n.d.)*

3.8.2 GOVERNMENT COLLEGE OF TEACHER EDUCATION(GCTE) DHARAMSHALA
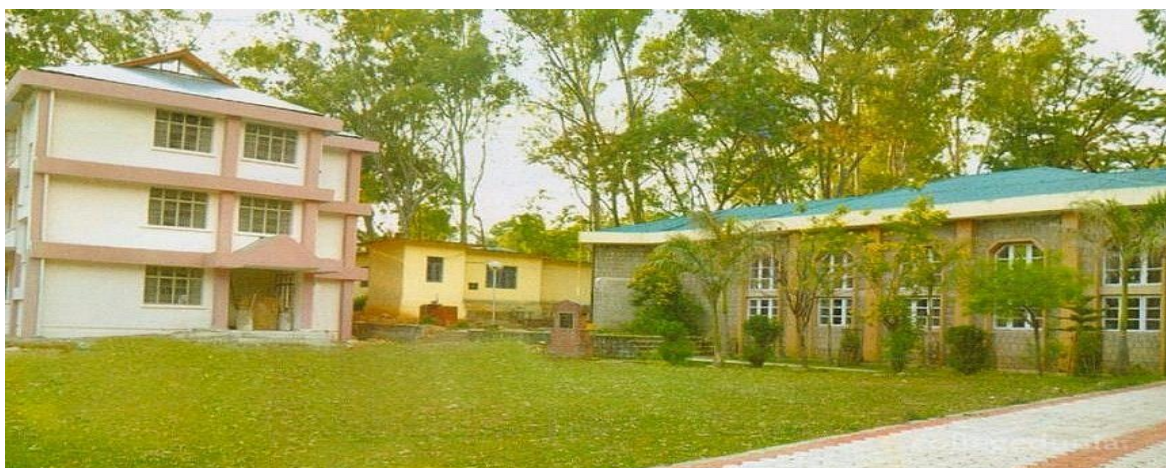
Figure: 3.5 Government college of teacher education Dharamshala

Since the beginning of college in 1956, college insignia has revealed the goal of the college, namely, "विद्यामृतमश्रुते", meaning "by Gyan and Yog, we will find immortality." as follows:

• Facilitating Learning Area: Creating a learning environment that allows for the pursuit of higher knowledge, relevant skills, and experience.

• Higher Education: Gaining knowledge, skills, values, and attitudes by teaching the learning process to prepare professionals to change lives.

• Comprehensive Development: Developing the personality of current and future teachers through physical, mental, social, emotional, and spiritual development to lay the foundation for lifelong learning and character development.

3.8.2.1 College Library

Figure: 3.6 Library govt. college of teacher education Dharamshala

The college library has 12 teacher and 136 students who are its registered members. The College Library, fully computerized and "NListed," is one of the best places in the region. On the shelves of the library there are about 17,423 books on a variety of topics, 07 journals, and all major newspapers. Library automated its sources with INSLIBNET SOUL 2.0 library software.

Figure: 3.7 terminals for e-journals & e-books   *Figure: 3.8 Automated Circulation counter searching*

The library is an active member of the INFLIBNET library network. The library is also affiliated with the NLIST library organization. Under the National Mission Education Program students can access online more than 51000 e-books and 2100 journals at: http://nlist.inflibnet.ac.in/downloads.php *(Gcte.in, n.d.)*

3.8.3 GOVT. COLLEGE CHAMBA
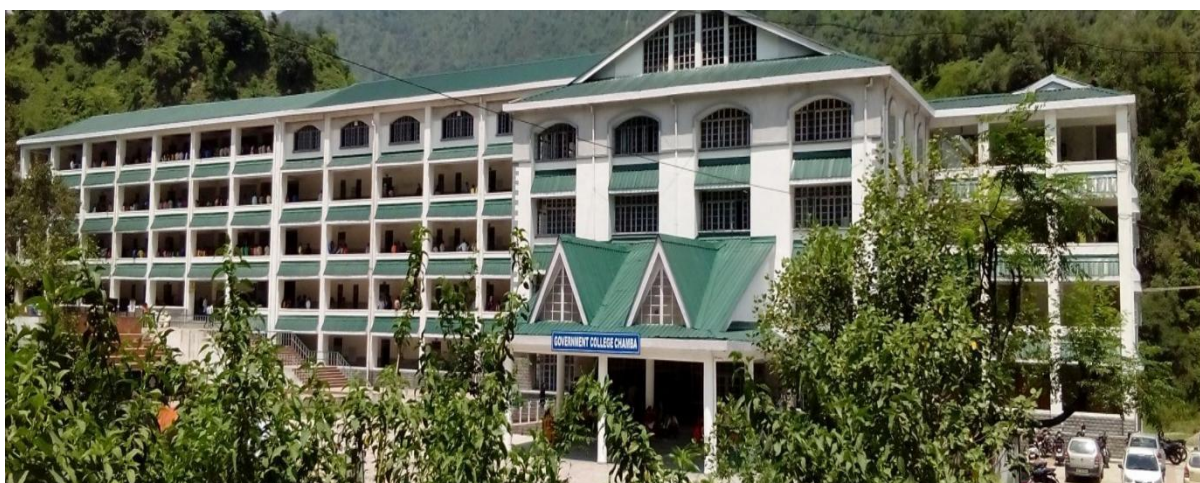
Figure: 3.9 Govt. college Chamba

Govt. college was established by the Government of Himachal Pradesh on 15th May, 1958 as a co-educational institution in the historical Akhand Chandi Palace of Chamba (hereinafter first campus). The institution is located at the base of a gently sloping valley that looks out over Chowgan, a large rectangular ground that serves as the centre of many campus events. In the middle of the bustling city of Chamba, it offers a breathtaking panorama. In September 2016, NAAC awarded the Govt. Degree College Chamba a "B+" grade for accreditation. A total of 3000 students will be enrolled in the college's undergraduate and graduate programmes during the 2020-21 academic year, thanks to the support of the Himachal Pradesh government and the efforts of the college's innovative staff of 114.

The state of Himachal Pradesh foots the bill for the whole operation of the institution, and it has been officially recognised by the University Grants Commission (hereafter UGC), New Delhi, under the provisions of sections 2(f) and 12B of the UGC act of 1956. Using the principles of the Rashtriya Uchchatar Shiksha Abhiyan, the institution is now offering undergraduate courses using the Choose Based Credit System (CBCS) starting with the 2013–14 school year. The college is connected with Himachal Pradesh University in Shimla (RUSA). At Govt. Degree College Chamba, one may earn a Bachelor of Arts, Bachelor of Science, or Bachelor of Commerce. The college has twenty-five (25) programs i.e., B.Sc. in Physics, Chemistry, Mathematics, Geology, Zoology, Botany, B.Sc. Physical Science with computers, B.A. in English, Hindi, Sanskrit, Mathematics, Economics, History, Political Science, Public Administration, Geography, Sociology, Education,

Journalism & Mass Communication, Music (Vocal), Music (Instrumental), Physical Education and B.Com.. Recently education has been included as teaching program in humanities. Apart from B.A., B.Sc., B.Com., B.Voc., has been introduced in Retail Management and Hospitality & Tourism with 45 seats in each, to provide access to vocational education and employability to the students. About 2900 students are enrolled in these undergraduate courses.

Most of the students are from rural and tribal areas and more than 60% are girls. Govt. Degree College Chamba offers 20 seats each in post-graduation program in five (5) major subjects of the humanities i.e., English, Hindi, Economics, History and Political Science. Admission in these courses is made on the bases of merit of entrance test conducted by the affiliating Himachal Pradesh University Shimla. Government Degree College Chamba offers 40 seats each in BCA and BBA and 30 seats in PGDCA under self-finance programs. The college has well established semi-automated libraries in both the campuses having more than 41373 books, equipped with Software for University Library (SOUL) software, e- journals, N-list subscription and adequate reading space. All the laboratories in both of the campuses are equipped with latest equipment and required gadgets for the students as well as for the faculties. The college has separate Information and Communication Technology (ICT) laboratory in computer science department with 50 latest computers connected with the optical fibre internet of speed ranging from 10-30 Mbps. Each department of the college is connected with broadband internet with internet-booster to enhance the speed of download.

3.8.3.1 College Library

Figure: 3.10 Library govt. college Chamba

The college has well established semi-automated libraries in both the campuses having 41373 books, equipped with Software for University Library (SOUL) software, e- journals, N-list subscription and adequate reading space. The college features a fully internet-connected computerised library. It features distinct areas for text books and reference books and a respectable assortment of books overall. The library has subscriptions to up to eleven newspapers, several magazines, and three journals. It is urged of students to use the library during business hours on all workdays. Students have access to the Soul software. Webopac is accessible on campus via the local network via 192.168.0.3/webopac.

Figure: 3.11 terminals for e-journals & e-books Searching   Figure: 3.12 OPAC facility
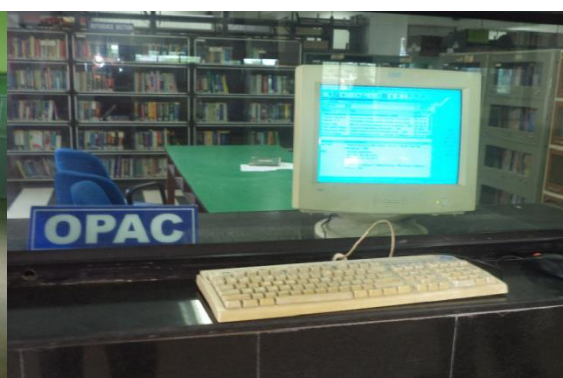
(Govt. Degree College: Chamba, n.d.)

3.8.4 NSCBM GOVT. COLLEGE, HAMIRPUR

Figure: 3.13 NSCB Govt. College Hamirpur

Since its inception in 1965, the NSCB Govt. College Hamirpur has reached the fifty seventh of its beautiful journey. The college has been working as a centre for innovation for the past 50 years. The school has grown into one of the best in all of Himachal Pradesh

with a singular focus on developing students into active, responsible, and accountable members of society. The National Association of Schools of Music (NACC) re-accredited it with a "B" grade last year. The university provides a wide range of graduate programmes in English, Hindi, Commerce, and Economics, in addition to degrees in the Humanities, Sciences (both medical and non-medical), and Computer Science.

Courses in Tourism & Travel Management, Journalism, and Computer Application are available in addition to the BBA, BCA, and PGDCA degrees in finance that are offered at this university. The skills of a highly trained college provide quality education based on the value in various fields. The college campus is spread over an area of 22 hectares, with a regular playground for all-important outdoor sports. Indoor games are available on campus, as well as a gym. The college has well-equipped laboratories for various fields of science, as well as online computer labs. VPN Broadband & Lease Line resources are used to connect various departments. The new college library is also linked to INFLIBNET's Library Management Software 'SOUL.' the construction of a modern indoor stadium is underway. Seven residences (Type-IV) and Four (Type-II) have recently been constructed.

Student channels and strengths may be translated via participation in a wide range of college activities, including athletics, cultural events, NSS, NCC, Rovers & Rangers, and more. The school's reputation as a showcase for excellence in academics, athletics, culture, and allied topics grew substantially throughout the course of the year. College events and news may be found on the college's website.

3.8.4.1 College Library

Figure: 3.14 Library NSCB Govt. College Hamirpur

The college library has 70 staff members and 4500 students whose members are registered. The INFLIBNET Library Management software "Soul" software is now connected to the new college library. College Library, fully computerized and "NListed," is one of the best in the province. The library has about 32000 books, including 3346 references and 10,000

Figure:3.15 terminals for e-journals & e-books   Figure:3. 16 Automation software
SOUL
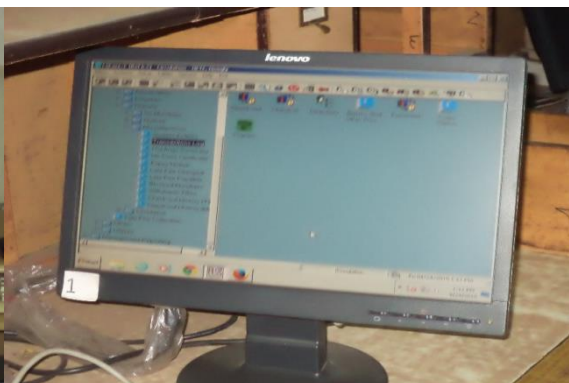
searching

books available, on various shelves, 15 journals, 35 magazines and all five leading newspapers. Under the National Mechanical Education Program, students can access online more than 51000 e-books and 2100 journals. at: http://nlist.inflibnet.ac.in/downloads.php (***Netaji Subhash Chander Bose Memorial Govt. College – Hamirpur, n.d.***).

3.8.5 GOVT. COLLEGE UNA

Figure: 3.17 Govt. College Una

Government. PG College Una has an unusual difference in Himachal Pradesh being the first well-performing college to be crowned the UGC. Since 1968, the year it was founded, the college has added many feathers to its theme and has passed the time test. The faculty is committed to imparting the best possible education to students. Government. College

Una began its evolution in 1968 from a rented building of a local DAV school. In 1993 the college relocated to its building on Una-Nangal Road. The college has completed 43 years of honours and during this time has registered impressive growth in terms of enrolment, diversity of student choice infrastructure, etc. The growing aspirations of students and parents in all sections of society are reflected in the increasing demand for education. especially in professional professions that focus on careers in the higher education system. Government. P.G. College Una has led among all state colleges starting the MBA and MCA simultaneously from this academic period which is 2012-13.

3.8.5.1 College Library

Figure: 3.18 Library Govt. College Una

The college library has 96 staff and 5000 students registered members. The college library has a well-stocked library of 22,000 books. 58 Registered Periodicals. SOUL Library Software is used to simplify library resources. The library is connected to INFLIBNET. UGC-INFONET Digital Library Consortium, INFLIBNET centre, and INDEST-AICTE Consortium, IIT Delhi run the National Library and Professional Content Services (N-LIST) Project, of which the College is a part. Students, researchers, and faculty members may use the initiative to get unrestricted access to over 31,35,000 full-text e-books and over 6,000 e-journals covering a wide range of disciplines. The centre gets a substantial amount of new instructional materials almost every month. Under this initiative, readers may access full-text e-books and either download them to read offline or print them off from the publisher's website. Students who would want to utilise the facility should email the Library Employee or Library Assistant listed on the website. The college library now has access to the Internet and N-List resources, making them more useful to students.

During the 2017-2018 academic year, a book bank was established to assist students from the poorest classes.

Figure:3.19 Librarian's automated counter   Figure:3.20 terminals for e-journals & e-Books searching

There are 364 books in the Library Bank. There is also a special library for BBA and BCA students in the Self-Finance branch. It has subscriptions to three magazines, two daily newspapers. *(Government Post Graduate College Una (H.P), n.d.)*

3.8.6 GOVT. COLLEGE SANJAULI, SHIMLA

Figure: 3.21 Govt. College Sanjauli Shimla

"Tamso ma Jyotirmaya," we emerge from the depths of ignorance into the radiance of understanding. Government College at Sanjauli, Shimla- 6 has adopted this slogan as its institutional guiding principle. The College has a special place in history since it was the first institution to get the Centre of Excellence designation on January 12, 2006, and it also has the distinction of being the first to provide a Bachelor's Degree in Shimla, which it did on July 1, 1969. Accessible via Sanjauli, Lakkar Bazaar, and Circular Road, it is roughly 2 kilometres from The Ridge.

There is a lot of pride in the centre because of its long and storied past. The majestic design of the main structure, which now houses the Administrative Block and Computer Laboratories, pays homage to a time when the Queen of Hills was not overrun by a sea of concrete. In April of 1869, Harriet Christina Tytler established what would later be known as North Stoneham College as the headquarters of the Himalayan Christina Orphanage, an industrial orphanage for children from throughout the world. Mayo Industrial School for Orphans and Orders of European Girls was reopened in the latter part of 1872. In spite of this, on March 1, 1905, during the Lieutenant-Governorship of Sir Charles Rivaz, K.C.S.I. and the Episcopate of Rev. George Alfred Lefroy, D.D., the third Bishop of Lahore, the church reopened after extensive renovations costing Rs. 73545/-. The architect, Mr. A. Gaddock Esq., and his sons, the builders Mr. Rivett and his sons, created the structure. After the country gained its independence, the building was renovated as a B.Ed./B.T. Until it is fully independent, the women's college is connected to Punjab University.

Despite the lack of Computer Applications degree programmes, the institution seems to be making great progress in education, since it offers degrees in the arts, sciences, and commerce (although not in computer science). Moreover, B.C.A. The investigation was initiated in 2006. Some institutions offer B.C.A. programmes (Bachelor of Computer Applications) as part of a financial aid package. Earning a Degree in One's Calling (B.Voc.) On June 24th, 2017, during the 2017-2017 school year, the programme officially began. There are thirteen different majors available at the Faculty of Arts. It is important to remember that space is restricted in each class and enrolment is determined by merit.

3.8.6.1 College Library

Figure: 3.22 Library Govt. College Sanjauli Shimla

The College Library has 102 staff members and 3200 students enrolled members. It has a fine collection of 33691 books and has subscribed to 35 magazines. The College Library participates in N-LIST, an initiative of the UGC-INFONET Digital Library Consortium, the

INFLIBNET centre, and the INDEST-AICTE Consortium at IIT Delhi that aims to improve
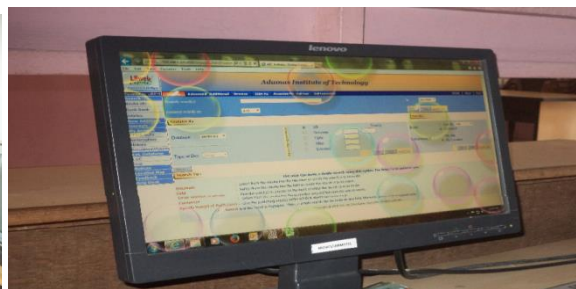
Figure: 3.23 terminals for e-journals & e-books   Figure: 3.24Automation software SOUL searching

access to scholarly content in India. Students, researchers, and faculty members may use the initiative to get unrestricted access to over 31,35,000 full-text e-books and over 6,000 e-journals covering a wide range of disciplines. The centre gets a substantial amount of new instructional materials almost every month. Under this initiative, readers may access full-text e-books and either download them to read offline or print them off from the publisher's website. Students interested in using the centre should provide their email addresses to the library personnel. In order to better serve students, the college library has added five laptops with VPN (Virtual Private Network) capability and N-List location. *(government degree college sanjauli shimla-171006,* **n.d.)**

3.8.7 RKMV SHIMLA

Figure: 3.25 RKMV Shimla

Rajkiya Kanya Mahavidyalaya (R.K.M.V), NAAC's B ++ degree institution and "The Most Powerful College" The only public college for girls in Himachal Pradesh is run by the UGC. The College is undoubtedly located in one of Shimla's best places, on Elysium

Hill, between Lakkar Bazaar to the left and Longwood to the right. Thousands of students have passed through its doors during more than eighty years of existence, and it has long been regarded as the educational institution of the city's premier. "This Hill is neither hot nor so cold in winter, author of the book, "Shimla Past and Present," Sir, Edward John Buck praised the environment of Elysium Hills. In 1838, The name "Elysium" was chosen in honor of one of Lord Auckland's sisters. The Greek term means "happy place" or "paradise." The name fits perfectly when visualized as a hill surrounded by snow-capped peaks and verdant valleys. Ten minutes' stroll will get you to the well-known Ridge. RKMV has an impressive and lengthy history. Attention should be paid to the past. The Roman Catholic Church operated the Elysium Hotel or Elysium Lodge, which was located in a warehouse in the 1850s. Up until 1856, both boys and girls attended the school; after that, the boys were moved to Mussoorie and the girls to Chakrata. Thereafter, a place to sleep or a house was rented to various tenants and a farm. Sir George Greaves and Sir William Elles, both former Adjutant-General in India, were among the following employers. Major Kemp purchased the land in 1893 in order to operate a dairy farm. He remained there until 1900, when Mr. Harington, a former agent and chief engineer of the Kalka-Simla Railway, took ownership of the site. When India was split in 1947, the home was held by Mr. Hussain Bux and Company, who ran a sewing business at Scandal Point in the Mall. Later on, Raja Padam Chandra of Jubbal purchased it. Raja Padam Chandra has been a brilliant educator and philanthropist who deeply cares about the welfare of the community. He donated the building to the university as a gift. Degree College was founded in 1945. After that, the college joined Punjab University and changed its name to "Rana Padam Chandra Sanatan Dharam Bhargava College." The college exclusively offered Intermediate Science (Health and Non-Medical) courses and all Arts subjects for middle and graduate students. The M.A. programs in Political Science, Mathematics, and Economics have already started. The Government of Himachal Pradesh took over the College in 1977 and a year later, in 1978, at the behest of the public, this was the only girls' college. After that, it was called Rajkiya Kanya Mahavidyalaya. RKMV has grown from a small college with 919 students in 1978 to a school in the province that is in dire need of admission. The organization currently encourages and sharpens the minds of more than 4,000 young people every year, offering them a wonderful place for development and success. RKMV has become a state-of-the-art educational institution. Emphasis is placed on education based on a continuous vision of helping girls succeed in a highly competitive

world. Since its founding in 1977, R.K.M.V. has grown progressively but magnificently. The college offered a Bachelor of Arts and Sciences during those early years. but Commerce was soon added. In addition to English Honors, the college also offers scholarships such as BCA and e-commerce, as well as extra classes in travel and tourism management, journalism and mass communication, and computer applications. The college's evening division, Sandhya Sangeet Mahavidyalaya, is connected to Bhatkhande Sangeet Vidyapeeth in Lucknow. Additionally, it provides students and aspiring students with degree programs in classical dance and music. Raja Virbhadra Singh, the prime minister at the time, laid the cornerstone for the new science building and hall on April 1, 1994. There is enough for 400‑500 persons in the auditorium. This location hosts several cultural, educational, and extracurricular events. The college is home to a sizable library with many books, journals, and magazines. Among the world's oldest college libraries is this one. During peak hours, the library and its extensive library are filled with more than 35,000 books, magazines, and periodicals on a variety of subjects. With its complete computerization, the library offers unrestricted access to data regarding electronic resources. The reading room is open.

The two hostels of the college also have accommodation and accommodation for female students. The old Sainik Girls Hostel can accommodate 72 girls. The Race Hostel, opened On August 9, 2007, on Women's Empowerment Day, by Chief Minister Raja Virbhadra Singh, and could accommodate 90 girls in 30 rooms, with classrooms, classrooms, computer labs, language lab.

3.8.7.1 College Library
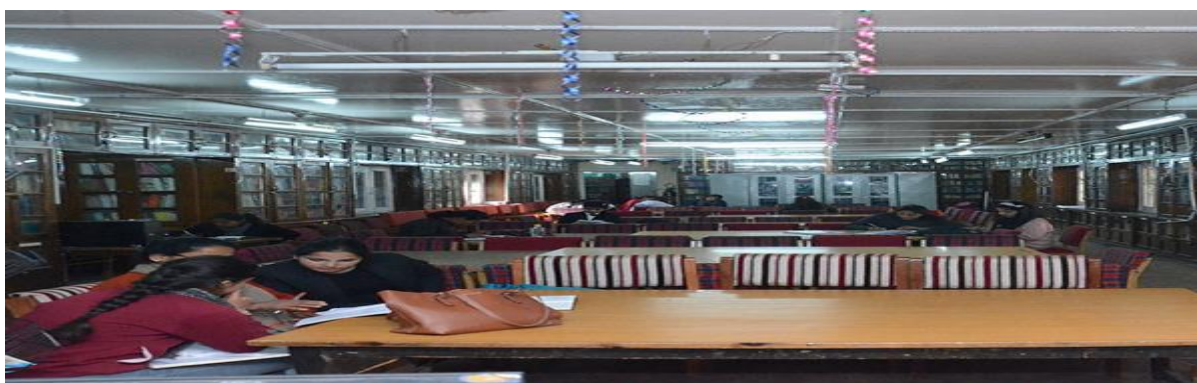
Figure: 3.26 Library RKMV Shimla

N-LIST College ID: 1402 AISHE CODE: C-11427 2F / 12B, Status: Yes. Rajkiya Kanya Mahavidyalaya, prime minister of the HP Govt. Educational Centre, has a well-functioning library that caters to the needs and needs of 100 staff and 3500 students daily. There are more than 13586 books in the library, packed in 165 almirahs. There is also a separate Reference Section with rare/valuable books. At the library, students are given 15 newspapers daily. Twenty-two magazines and 06 journals are registered for competitive exams. 06 online computers have been installed in the College Library for the benefit of students. Library users can access electronic resources on these computers. The library provides online access to e-journals and e-books through INFLIBNET under the N-LIST program, where access to 31,35,000+ eBooks and 9000+ journals. E-books with full text can be downloaded or printed directly from the publisher's website under this project.
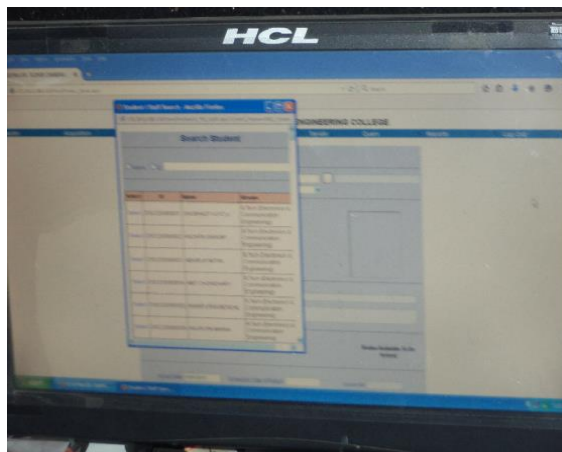
Figure: 3.27 terminals for e-journals & e-books Searching   *Figure: 3.28 Automation with SOUL software*

The SOUL2.0 (ILMS) system is used by the library to manage its services. Books are listed on this software, and the author, title, and title by the keyword can be searched. We use the DDC system for book sorting. Efforts are being made to integrate the library promptly.

We have a large study/living area that is always full all day. The library is used to display documentaries, movies, etc., to enhance students' knowledge. Library staff also issue all registered students (old + accepted) Card / Library cards.

The library is serving better with only two staff members, namely one librarian and one Astt. librarian. *(Rajkiya Kanya Mahavidyalya : Shimla, n.d.)*

3.8.8 GOVT. COLLEGE, NALAGARH

Figure: 3.29 Govt. College Nalagarh

Since its inception in 1973 to date, with 13 teachers and less than 200 students, the college has made a low start and offered a degree in Humanities and Science. Since the college did not have its own campus, classes were held in the former governor's court at the Handoor Estate. However, the college now has one of the largest areas among colleges in Himachal Pradesh (30 hectares). A new era began in the history of the college with the introduction of the commercial stream in 1993. The college acquired its first building, now called the Science and Commerce Block (Old Block), in 1991 and the establishment moved from the palace to the present location. The college took drastic steps during the launch of post-graduate studies in Economics and Political Science in 1997. The rapid growth of the college made it important that the college built more space, so a beautiful new building was erected in 1997. now with administrative offices, classrooms, a library, a pub, a few door rooms, an NCC office (girls), two large halls, a staff room, a lecture hall, IGNOU room, computer labs, and shops. It is now more commonly known as ―New Block. The year 2009 marked a new phase of educational development with the opening of a postgraduate course in English, followed by Economics, Pol. Science, M. Com & M.Sc. in Chemistry. BCA and PGDCA funding courses were presented to the college in 2009 based on feedback provided to participants. Government. Nalagarh College is one of two colleges in Himachal Pradesh designated as a community college for skills development under MHRD.

3.8.8.1 College Library

Figure: 3.30 Library Govt. College Nalagarh

The College Library plays an important part in shaping students' general personalities. It helps in inspiring and inculcating reading habits among the students. Library has registered 35 staff members and 750 students as its members. Our college library information system is fully computerised. It has 11500 general study books, 4$_1$00 reference books, 95000 e-books, 6000 e-Journals and ten daily newspapers.

Figure: 3.31 Automated Library with SOUL software and OPAC facility

The most critical single element in providing the greatest opportunities for students to self-explore their academic abilities is the library of a college. Information Technology is becoming more important in today's changing knowledge environment for expanding access to information. In the era of Information technology, our college library has also been upgraded. Besides this, we are also shifting towards electronic media by making available educational CDs in the library. A number of instructional and general magazines and newsletters are also subscribed to by the College library. The College library also assists students in their preparation for different competitive tests by supplying required

study materials. SOUL 2.0 software by INFLIBNET is used to automate the library. The library is partially automated. The library is also a member of NLIST Library consortia and subscribed to e-books and e-journals for its members. *(government college nalagarh, 2023)*

3.8.9 GOVT. DEGREE COLLEGE ARKI

Figure: 3.32 Govt. College Arki

The college, located 4 km from Arki on the Arki-Kunihar route, is located in a clean, picturesque area of Batal Ghatti, District Solan, H.P.-173208, providing a wonderful atmosphere for learning. Founded in 1994, Govt. College Arki has established itself as the educational icon of District Solan, providing educational opportunities for students. In a short time, the NAAC approved the grade "B", an academic college affiliated with H.P University. The college, which has emerged as a center of learning, provides quality education to students in the Arki area, which is mostly rural. The people of Arki will always remember July 15, 1994, the day the college was established, as a red day because the college has dropped higher education at their doorstep. It has adequate infrastructure in classrooms, laboratories, library, well-equipped computer lab with Wi-Fi connection playground, etc. It is divided into three categories: art, science, and administration. In addition, a four-story hostel has been built for SC and ST students (girls only). In 1996, the former chief Minister of H.P., Shri Virbhadra Singh, laid the foundation stone of a college building and approved a three-acre total construction of the Science Block. Gujrat Ambuja Cement Ltd donated the Arts Block to the facility. Classes were first conducted at Govt. Sen. Sec School ground. before moving to the overcrowded campus of Batal Ghati in 1998 for two months and the necessary changes were made to the I & PH Department store for a college. The lack of adequate housing did not deter the efforts of dedicated teachers and curious students, although the building did not fully meet the needs of the growing campus. The college motto, "We taste the immortality of wisdom," echoes the sentiments of

founding members. They thought that the future would be for people who believe in gaining fame with moral values, and in line with their dream, students now sincerely recognize that 'quality and not' quantity is the origin of the 21st century. The excellent results of the college each year, along with the co-curricular activities, students make a mark in all walks of life, which shows that students are following in the footsteps of their ancestors who gained "immortality" by gaining broad horizons of understanding. They adhere to a culture of accountability rather than rights.

3.8.9.1 College Library

Figure: 3.33 Library Govt. College Arki

The library registered all staff and students as its members (40 staff and 1100 students). The library purchased SOUL 2.0 (library management software) from INFLIBNET and the computerization process was in progress. The library is an automatic component. There were 6730 books in total. The library added 26 magazines (10 English and Hindi newspapers, 16 magazines) and 10 journals to their subscription list. Through the N-LIST service, the library provides free links to e-journals and e-books via INFLIBNET. There were over 31,35,000 eBooks and 9000 e-journals available. A 14-computer Resource center has been built in the library for this purpose. *(govt. college arki, n.d.)*

Figure: 3.34 e-journal searching facility   *Figure:3.35 automated circulation counter*
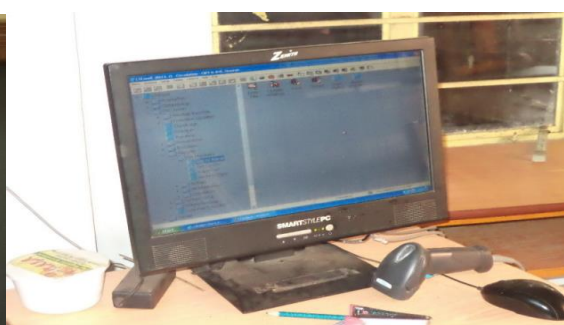
3.8.10 SWAMI VIVEKANAND GOVT. DEGREE COLLEGE, GHUMARWIN

Figure: 3.36 Swami Vivekanand Govt. College Ghumarwin

Swami Vivekanand Govt. Ghumarwin College, Distt. Bilaspur H.P. was founded as a coeducational school in Government Kalari Primary School in 1994. Before 1999, or more specifically, from 1995 to 1999, classes were typically held in rented space. In 1999, the college moved into its stunning new home, constructed by ACC Limited Barmana. The campus currently encompasses 14.45 hectares and has 4850.89 square meters built-in. When the institution was established in 1994, only arts courses were offered. In 1998, courses in commerce and science were introduced to the curriculum. Under the financing programme, the BCA and PGDCA, two new professional programmes, were introduced in 2009–2010. Additionally, the M.A. in English was added during the 2012–2013 academic year and another professional programme was made available during the same period under the BBA funding programme. The college kept expanding its postgraduate programmes throughout time in response to the demands and specifications of the students. The M. Com. and MA programmes in political science started in the 2019–20 academic year, whereas the PG programmes in mathematics and physics started in 2017–18. The college currently provides six graduation programmes, one supplementary course, and twenty-five-degree programmes for students. The UGC recognized the centre by sections 12 (B) in 2008 and 2 (f) in 1999. The college received a Grade B in the first round of the NAAC accreditation process in 2014. Additionally, the college supports local students through its IGNOU Centre, which opened its doors in 2010. 45 teachers instruct a student body of over 2600.

3.8.10.1 College Library

Figure: 3.37 Library Swami Vivekanand govt. college Ghumarwin

All staff and students are registered members of the library (Staff-75, students-2932). The library began its automation process in 2009. The Integrated Library Management System's (ILMS) library automation component the college library is automated with SOUL 2.0 software. All SOUL rating module management, OPAC, navigation, cataloguing, serial controls, and discovery. The library uses only two modules: Catalogue and OPAC. The OPAC module is one of SOUL's most appealing features. With limited knowledge of each item, such as Author, title, Business Organisation, Title, Class Number, Login Number, Publisher, etc., it features a basic and sophisticated search center. It is free for instructors and students to use the library's resources to find the information they require.

Figure:3.38 terminals for e-journals *Figure: 3.39 Xerox machine in the library*

Students can use five computers in the college library that are both LAN and broadband-linked. To access online information, students must first register with N-LIST and receive a username and password. Research materials include the British encyclopedia, Americana, Indian cultural heritage, visual aids, Oxford English Dictionary, Hindi vishwakosh, and

biographies of notable scientists, philosophers, freedom fighters, and historians that can be used by students and teachers.12472 books on a wide range of topics, reference books, and books about the culture are available at the library. The library had subscribed to twenty-four magazines, eighteen journals, and fifteen newspapers.

UGC-INFONET Digital Library Consortium, INFLIBNET Center, and INDEST-AICTE Consortium, IIT Delhi are partners in the National Scholarly Content and Information Services (N-LIST) Library Project, of which the College is a part. Students, researchers, and faculty members may use the initiative to get unrestricted access to over 31,35,000 full-text e-books and over 6,000 e-journals covering a wide range of disciplines. Almost every month, the center receives a large number of new educational resources. *(Gcghumarwin, 2021)*

3.8.11 GOVT. COLLEGE, JOGINDERNAGAR
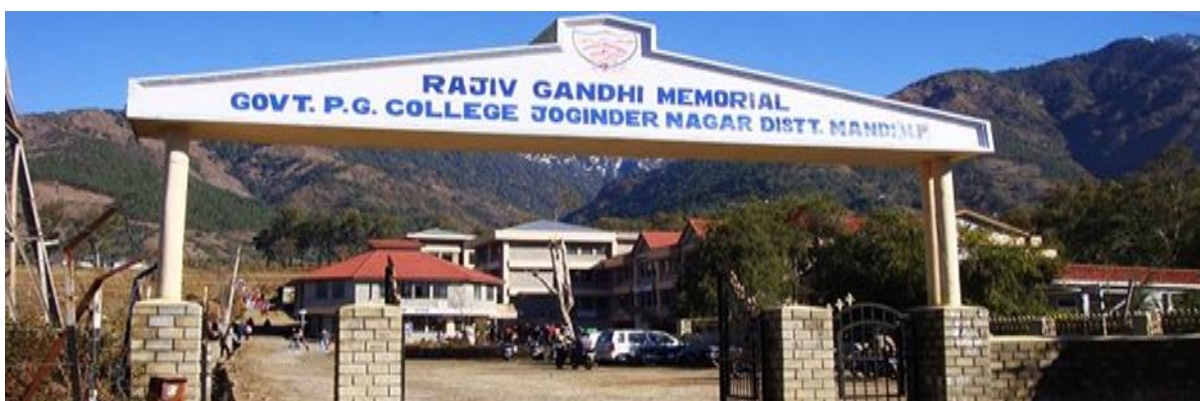
Figure: 3.40 Govt. College Joginder Nagar

Education is the only tool that can easily change the social environment for the better. Everyone has the right to have access to high-quality educational opportunities. Since its founding in 1994, Rajiv Gandhi Memorial Govt. College Joginder Nagar has provided undergraduate education in the fields of Science, Arts, and Commerce. To meet the needs of the local youth, further graduate-level programmes were added, including master's degrees in English and economics as well as business administration, computer science, and physics. Students from Padhar, Dharampur, Neri-Langna, Lad Bharol, Bir, Matroo, Chauhar, Barot Valley, and even Chhota and Bara Bhangal have applied to the institution, which is encouraging. The institution is home to hardworking professors and modern facilities. A contemporary library that is also well-maintained may be found here. There is a strong tradition of athletics at the university, and its students often return with medals

from competitions of all kinds to display at the cultural centre. To develop their skills, students might join organizations like the NCC, NSS, Rovers, and Rangers. At the time of enrolment, students may consult the Career Counselling and Guidance cell and the College Scholarship Guidance office for assistance in making informed scholarship and course selections. There is a Grievance Redress College Committee that students may go to if they are having problems, and they are required to take part in college development activities. Daily access to the college bulletin board is made available, and students are making effective use of this resource to further their education and professional development.

3.8.11.1 College Library

Figure: 3.41 Library govt. college Joginder Nagar

Every single faculty member and student has a library card (50 staff members, 2500 students). The college library serves as a resource for student's academic and personal development by providing a welcoming and easy-to-use space for study. There are now around 12,000 volumes in the college library. These publications span the genres of textbooks, reference books, general textbooks, and non-textbooks. There are now 10 newspapers and 20 magazines that are subscribed to by the library. Local area networks (LANs) have been set up to provide library patron's online access. The university's library

Figure: 3.42 Automated circulation counter

is furnished with computers running SOUL. The library purchased SOUL 2.0 (library management software) from INFLIBNET and the computer-aided operation is completed and the library is automatically owned. The library is a member of the NLIST consortia and subscribes to 51000 e-books and 3000 e-journals. *(Rajiv Gandhi Memorial Government College Jogindernagar, District Mandi, H.P., n.d.)*

3.8.12 SHAHEED CAPT. BIKRAM BATRA GOVT. DEGREE COLLEGE PALAMPUR

Figure: 3.43 Shaheed captain Vikram Batra Govt. College Palampur

Shaheed Captain Vikram Batra Govt. college, Palampur (Kangra) came into being with the notice of Department of Education No. No (15), 3/86-Shiksha II II 07-04-1995. Captain Vikram Batra, a hero and martyr from the 1999 Kargil conflict, inspired the subsequent renaming. The UGC recognized the College under Sections 2(f) and 12(B) of the UGC Act, 1956, as stated in its decision no. 8-471 / 2008 (CPP-I) dated September 29, 2009. Himachal Pradesh University Summer Hill Campus, Shimla-5, is the location of an associated college. Up until June 18th, 2008, classes were held in temporary quarters,

however as of June 19th, 2008, classes are being held in the main college building. There are 12 classrooms and many laboratories for subjects including biology, chemistry, geography, mathematics, and computer science. To meet this growing population, a brand modern hostel with 105 beds has been constructed. The institution makes good use of its means. With 38 Pentium-IV computers, 3 printers, 1 Xerox machine, and other devices, the college's computer lab is well-equipped. Internet access through LAN is offered in each department head's office at all faculties. The laboratories in the sciences are spacious, modern, and comfortable. Over 7500 volumes covering many different topics may be found in the college library. It also publishes or distributes twenty periodicals and eleven daily newspapers. The automated library software SOUL 2.0 is being deployed right now. The E-System was successful because to the NME (National Educational Equipment) initiative, which aided in expanding access to knowledge via the creation of electronic texts like books and periodicals, as well as free educational materials. Palampur has excellent rail connections to several cities. The college now provides Bachelor's degrees in Business Administration (BBA), Computer Information Systems (CIS), and Journalism, as well as Master's degrees in Economics (MA) and a variety of additional professional courses (e.g., BS in Economics). MBA, MCA, PGDCA, BJMC, and Tourism & Travel management are just a few of the anticipated future professional offerings.

3.8.12.1 College Library

Figure:3.44 Library Shaheed Captain Vikram Batra Govt. College Palampur

Figure:3.45 automated circulation counter and terminals for e-journals and e-book searching

Shaheed Capt Bikram Batra College Library is a pool of knowledge-rich resources. The library have a rich collection of textbooks offered by the college for undergraduate classes in Arts, Commerce, Post-Graduation in Economics, and Professional Courses in BBA and BCA, which are updated periodically. It is the ongoing responsibility of its active librarian to keep up-to-date with information. The library list includes the number of regular magazines and newspapers. All staff and students are registered as members (55 staff members, 4100 students) There are 7500 books and 30 magazines. The library uses the version of SOUL Software 2.0 LE to create computer and internal library functionality and to provide various library resources such as Online Public Access Catalog (OPAC), Circulation, etc. The library is partially automated. Concerning the Library Automation at the moment, there are seventeen computer programs connected to a local network, two Symbol Bar Code Scanners scanners, two TVSE single-line Bar Code Scanners; Two printers are used. The library is a member of the N-LIST National Library Service Infrastructure and Professional Content Information Services. Opens Internet access doors for electronic services. The college library provides access to electronic resources through the N-LIST (National Library Service Infrastructure and Professional Content Information Services). Under this, access to e-books, journals and other e-documents online is also available to members of the library. ***(Govt. College Palampur Himachal Pradesh, n.d.).***

3.8.13 DR. SARVEPALLI RADAHAKRISHANAN GOVT COLLEGE DHARAMPUR

Figure: 3.46 Dr. Sarvepalli Radhakrishanan Govt. College Dharampur

The town of Dharampur, which has a subdivision, is situated 65 kilometers northwest of the Mandi and roughly 22 kilometers north of Sarkaghat. Situated on the left bank of Sound Khad is the village. It is far beyond what it was twenty years ago. The State Government formally opened Government Dharampur College in the district of Mandi (H.P.). watch On December 17, 2006, Notice No. EDN-A (Kha) - (16) -10 / 95-III-loose date was issued. Inaugurated on February 14, 2016, the newly built college building was christened by Dr. Sarvepalli Radhakrishnan Govt. Degree College Dharampur by Honourable Chief Minister Sh. Virbhadra Singh. It offers a sizable playground on its lovely campus. It is a cooperative learning environment that offers students majoring in humanities, science, and commerce a fulfilling education that leads to employment. To help students grow as individuals, the college also provides a range of intellectual, cultural, and athletic opportunities. Students will thrive in the learning atmosphere that the college offers. Students will appear to find this college to be a rewarding place to study. The college has made an effort to incorporate current and cultural streams into its activities since its founding. Its goal is to impart knowledge that will give students a sense of dedication and service.

3.8.13.1 College Library

Figure: 3.47 Library Dr. Sarvepalli Radhakrishanan Govt. College Dharampur

Figure:3.48 Computers, printer, scanner, Xerox machine in librarian's chamber
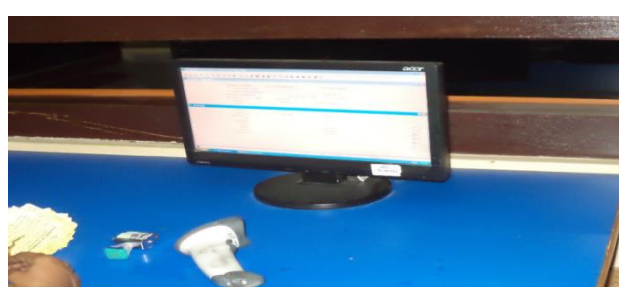
Figure:3.49 Terminal showing SOUL window & Hand Scanner at Automated Circulation Counter

Any educational establishment's library is its beating heart and soul. The library's primary mission is to serve as a resource for and research partner to the student body. For those studying on campus, the library is a peaceful haven. Students and scholars may use the library as a "gateway" to the many print/physical, digital, and external resources available to them. All faculty and students are now official library members (30 staff members, 505 students,). There are two separate reading rooms in the library, so it can comfortably house 100 students and 20 faculty members. The library is open every day from 10:00 a.m. to 5:00 p.m. There are four PCs available, each with an active internet connection. All of the books in the library are given accession numbers, and those numbers are recorded in the SOUL 2.0 catalog. The library is partially automated. The committee considers students' needs and provides reference books, competing test books, magazines, journals, etc. The library has about 4100 books and subscriptions to five newspapers (one English and four

Hindi). The library also subscribes to 11 magazines and 4 journals such as Pratiyogita Darpan, Him Pratiyogita Sansar, Competition Success Review, Samsaamyiki Mahasagar, India Today (English), Business Today (English), Junior Science Refresher, Grihshobha, Yojana, Employment News and Himalayan Journal of Contemporary Research, University News and Third Opinion. There is a library of books in the library with 95 books for the poor and prominent students throughout the course. *(gcdharampur,n.d)*.

3.8.14 GOVT COLLEGE NAURA

Figure: 3.50 Govt. College Naura

Government. College Naura was established in 2007 with the Arts and Commerce streams. The college has the great privilege of having the Science stream approved in college from the 2017-18 session. The college has well-trained faculty members and dedicated support staff who have shown a team spirit for the college to grow. Various committees have been set up to look after the welfare of students and the efficiency of the college. Units NSS, Red Ribbon, and Rovers and Rangers make students responsible and disciplined. The college offers a variety of bursaries and prizes to students of various categories for their academic growth.

The college campus has its buildings, rich library, spacious classrooms, gymnasium, state-of-the-art laboratories, smart rooms, playground, computer center, multi-purpose hall and modern canteen. It encourages all students and the college's academic staff to make use of the various resources offered by it.

College with the spirit assists the students to learn and expand their knowledge day by day. It helps to utilize the library resources as it contains thousands of books, newspapers, and magazines. College prevents users from misusing and abusing of mobile phones, T.V., and the internet which causes disruption, health risks and wasted precious time and motivates

them to take an active part in sports and other activities to maintain a healthy and balanced personality. In a real sense, education means acquiring the right knowledge and attaining strong values so that one can be a clean person and a responsible citizen.

3.8.14.1 College Library

Figure: 3.51 Library Govt. College Naura

Government. College Naura Library enrolls all staff and students as its members (29 staff, Students-485).

Figure: 3.52 terminal for SOUL and laser   Figure: 3.53 Xerox machine inside the library
printer   counter

The library purchased the SOUL 2.0 (library management software) from INFLIBNET and the computer-aided operation has been completed. The library is fully automated. There are 3034 books in total. The library subscribed to 5 English and Hindi newspapers, 5 magazines and 10 journals. At the library, the 5-computer Resource centre is designed for this purpose. *(Govt. Degree College Naura, n.d.)*

3.9 CONCLUSION

Automation and networking development and status of Himachal Pradesh's state college libraries till the present time; show the journey, struggle and obstacles state college libraries encountered. Before knowing the automation and networking development and status in select state college libraries, a sincere effort was made to understand the history and development of hilly state Himachal Pradesh, Himachal Pradesh University, Shimla, and the colleges and their respective library individually. Although the process of Library Automation and Networking was introduced in the country in the last decade of the 20th century in college libraries of Himachal Pradesh it was in the concept stage until 2008. The meeting of the staff of the college libraries and regional libraries in Himachal Pradesh was held on 26/08/2008 under the leadership of Dr. O.P. Sharma, Director of Higher Education Shimla, who set standards and is a milestone in the history of Automation and Networking in Himachal Pradesh University-affiliated State College Libraries in the mountainous region. The minutes of the trial became the torch bearers to initiate the process of library automation and networking and that all stake holders in a state college are instructed to take the necessary steps to make library books computerized. All state College Professionals have also been instructed to link libraries through the broadband channel. A brief discussion was held to introduce the appropriate software for self-paced college library resources. After the discussion, the chairperson formed a five-member committee under Sh. S.K Dadhwal, chief of the Centre-State Library Solan. The committee recommended that it submit its report on computer library material, broadband space, automation software, and the college library network.

The Committee prepared the Automated Guidelines for the state College Libraries. Therefore, the SOUL 2.0 dynamic Library software from INFLIBNET has been selected for the dynamic college library resources automation and all state college libraries are required to become members of the Library and Information Services Center for Scholarly Content (N-LIST), UGC -INFONET Digital Library Consortium, INFLIBNET Center and INDEST-AICTE Consortium, IIT Delhi**. *(Directorate Orders, n.d.).***

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ANALYSIS, INTERPRETATION AND PRESENTATION OF DATA

4.0 DATA ANALYSIS, INTERPRETATION AND PRESENTATION FROM THE DATA COLLECTED THROUGH QUESTIONNAIRE PREPARED FOR LIBRARIANS/LIBRARY IN CHARGES

College libraries are currently in the process of revamping their operations with the assistance of automation and networking, which is essential for the management of collections, the provision of enhanced and high-quality services, the elimination of unnecessary duplication of efforts, resources' sharing with other libraries, and the broadening of the dissemination of information. The college libraries are not an exception, and this category of libraries is not very far behind in the application of automation and networking for the library operations and services. This is done in order to provide better facilities and services to their user community, which is primarily comprised of students and the faculty members. In this particular research, data were collected from 14 different state college libraries throughout the state of Himachal Pradesh. The current endeavour would expose the automation and networking status and utilisation of resources and services in state college libraries of the hilly state since there are very few studies linked to automation and networking that are accessible in those libraries. In order to answer the research questions and bring this particular study to a conclusion, it is important to do an analysis and interpretation of the data that was obtained. In the present study, necessary primary data for evaluation & assessment were collected through a structured questionnaire prepared for Librarians. The questionnaire contains (i) General Information about the College and (ii) Library Profile. The Library Profile is structured as (i) General information on Library, (ii) Information & Communication Technology Infrastructure of the Library, (iii) Library Automation & Networking, (iv) Networked Services of the Library, and (v) Problems faced/facing for implementation of Library Automation & Networking/ Networked Services. The questionnaires were prepared in the google form and e-mailed to 14 states select college libraries. There are a total of fourteen (14) state college libraries in Himachal Pradesh that are included in this research. All of these libraries are recognised by the UGC and are associated with Himachal Pradesh University Shimla. It was determined that data would be gathered from all of the college libraries that fall within the scope of the current research, i.e. from all of the people who are being studied as a whole. As a result,

one conclusion that can be drawn from this is that the study's sample is representative of the study's whole population. According to the results of the study, 14 of the 14 state college libraries responded to the questionnaire. The questionnaire was sent to all of the state college libraries. Therefore, the percentage of the responses received is 100%.

The data analysis is followed here based on responses received from the above 14 college libraries. Data Analysis has been done by the Simple Percentage Method and in some cases, the Cumulative Percentage Method has also been applied with the help of SSPS (Statistical Package for Social Sciences) software. Several tab cross-tabulations, bar charts, pie charts, column charts, line graphs, area graphs, etc. have been created in this chapter with the help of MS Excel as well as SPSS software to shape the data in intelligible & interpretable forms so that the relations of the research problems can be studied & tested.

4.1 AUTOMATION AND NETWORKING STATUS OF COLLEGE LIBRARIES OF HIMACHAL PRADESH

Demographic profile and other aspects

The characteristics of the samples were analyzed concerning demographic variables such as gender, designation, educational qualification, and experience of library professionals and Automation of libraries and networking conditions in a few Himachal Pradesh state colleges.

4.1.1: Gender-wise distribution of Librarians/In charges (n=14)

Table: 4.1.1 Gender-wise distribution of Librarians/In charges

Gender	Frequency	Percent
Male	7	50.0%
Female	7	50.0%
Total	14	100 %
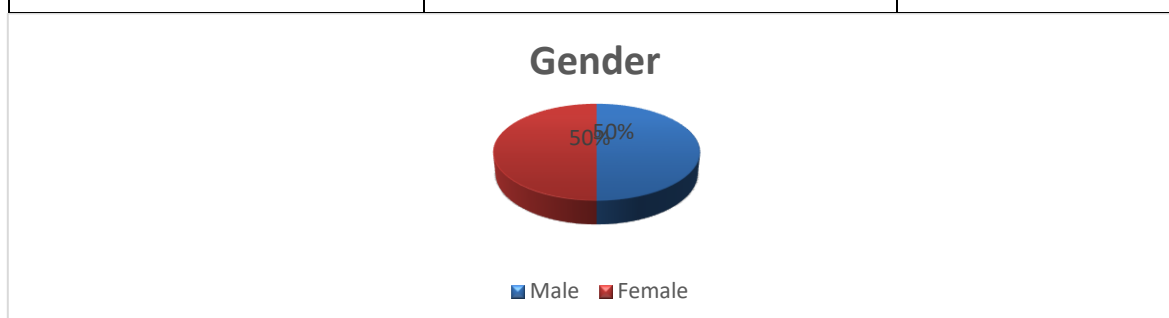
Figure: 4.1.1: Gender-wise distribution of Librarians/In charges

As depicted in Table and Figure 4.1.1 50% of Librarians/In Charge were male and the remaining 50% were female. While including the libraries in the study equal representation is given for both male and female librarians/In charges.

4.1.2: Designation-wise distribution of Librarians

Table: 4.1.2 Designation-wise distribution of Librarians

Designation	Frequency (No. of libraries)	Percent
Librarian	9	64.3%
Assistant Librarian	5	35.7%
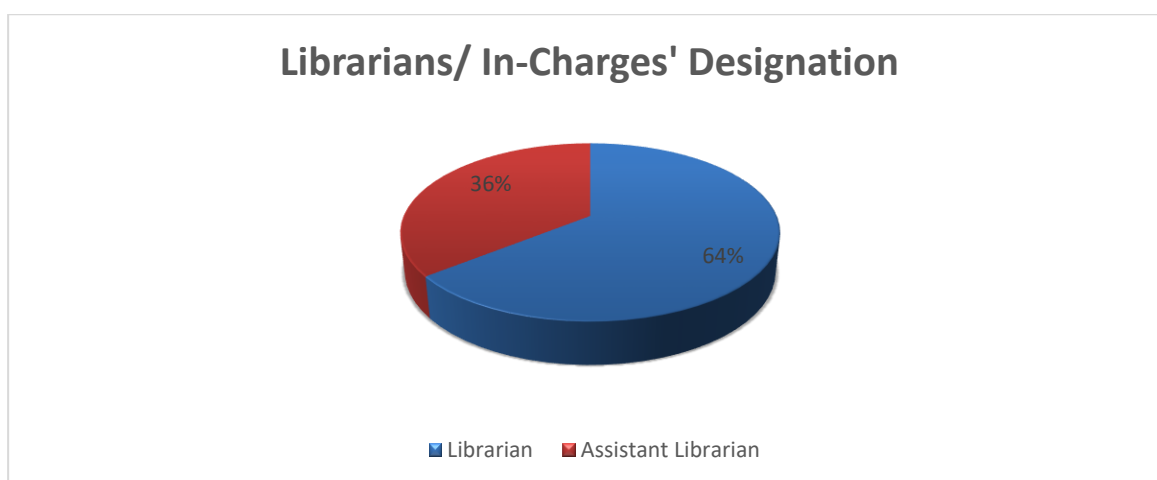
Figure: 4.1.2 Designation-wise distribution of Librarians/In charges

Table and Figure 4.1.2 show the designation of library In-charges. In 09 (64.3%) college libraries, the post of librarian was filled up whereas, in 06 (35.7%) libraries, the post of librarian was lying vacant, and assistant librarians were performing the duty of a librarian. The information was obtained through RTI, out of 126 UGC-sanctioned posts of librarians, only 26 are filled and 100 posts lying vacant as of 31/12/2019 and some librarians were about to retire from 2020 onward.

4.1.3: Education qualification-wise distribution of Librarians

Table: 4.1.3 Education qualification-wise distribution of Librarians

Qualification	Frequency (No. of Libraries)	Percent
Postgraduate	13	92.9%
Under Graduate	1	7.1%

117
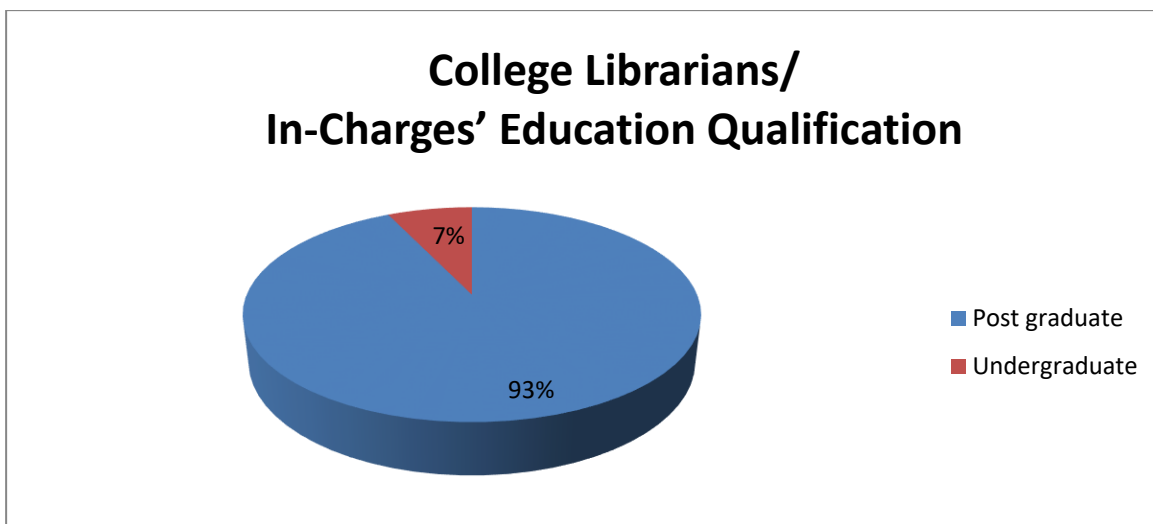
Figure:4.1.3 Education qualification-wise distribution of Librarians

Table and figure 4.1.3 depict the educational qualifications of librarians/In-Charges. Significant of 13 (92.9%) Librarians/ In-Charges were post-graduate, whereas 01 (7.1%) was undergraduate. It is a serious matter, as per UGC guidelines, a college librarian/In charge should be post-graduate with UGC NET. However, no librarian/In Charge is UGC NET qualified.

4.1.4: Experience-wise distribution of Librarians

Table: 4.1.4 Experience-wise distribution of Librarians

Experience in Years	Frequency (No. of libraries)	Percent
6-10 years	1	7.1%
11-15 years	3	21.4%
16-20 years	1	7.1%
Above 20 years	9	64.3%
Total	14	100%
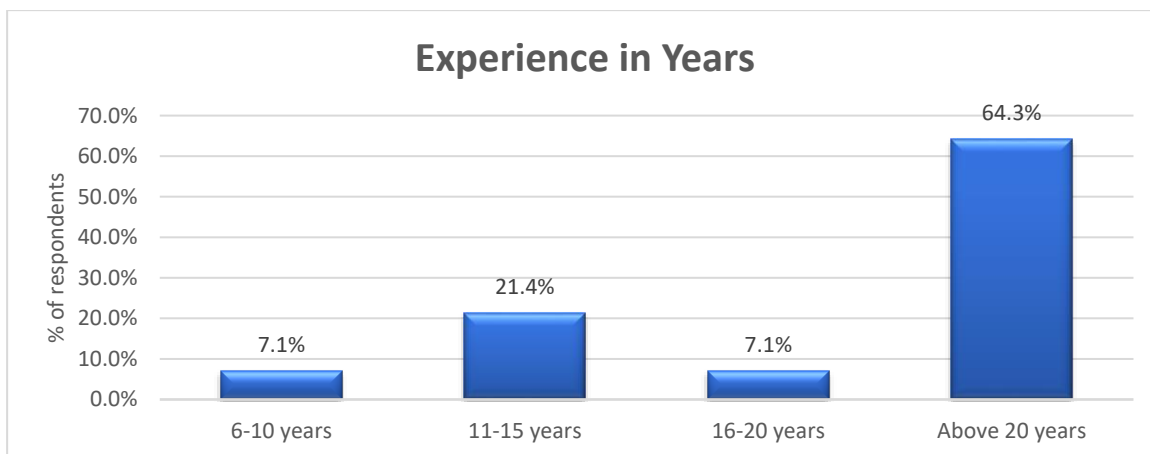
Figure: 4.1.4 Experience-wise distribution of Librarians

As shown in Table and Figure 4.1.4, 09 (64.3%) Librarians/In-Charges had more than 20 years of experience, while 03 (21.4%) had 11-15 years, 01 (7.1%) had 6-10 years and 01 (7.1%) librarian/ In-Charge had 16-20 years experience. All the Librarians/in charge had sufficient experience.

4.1.5: Number of staff members in the colleges

Table: 4.1.5 Number of staff members in the colleges

Number of Staff Members	Frequency (No. of libraries)	Percent
<=50	6	42.9%
51-100	5	35.7%
>100	3	21.4%
Total	14	100.0%
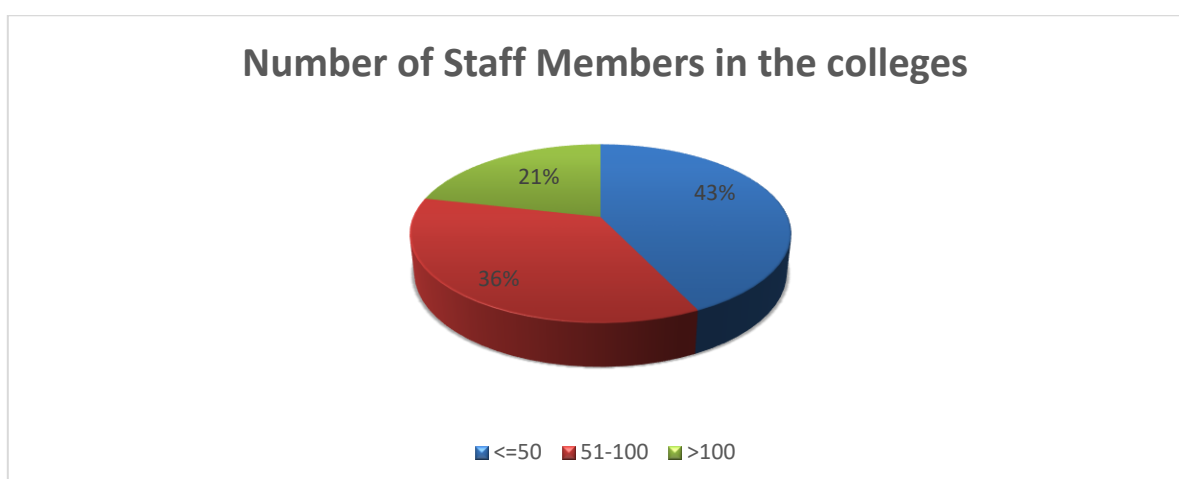
Figure: 4.1.5 Number of staff members in the colleges

From table and figure 4.1.5 it is quite clear that out of 14 select state colleges, 42.9% of colleges had up to 50 staff members, followed by 35.7% have 51-100 and 21.4% of colleges had more than 100 staff members. All the colleges had more than 50 staff members and all were active members of the library.

4.1.6: Number of students in the colleges

Table: 4.1.6 Number of students in the colleges

Number of Students	Frequency (number of libraries)	Percent
<=1000	3	21.4%
1001-2000	1	7.1%
2001-3000	4	28.6%
3001-4000	2	14.3%
4001-5000	3	21.4%
>5000	1	7.1%
Total	14	100.0%
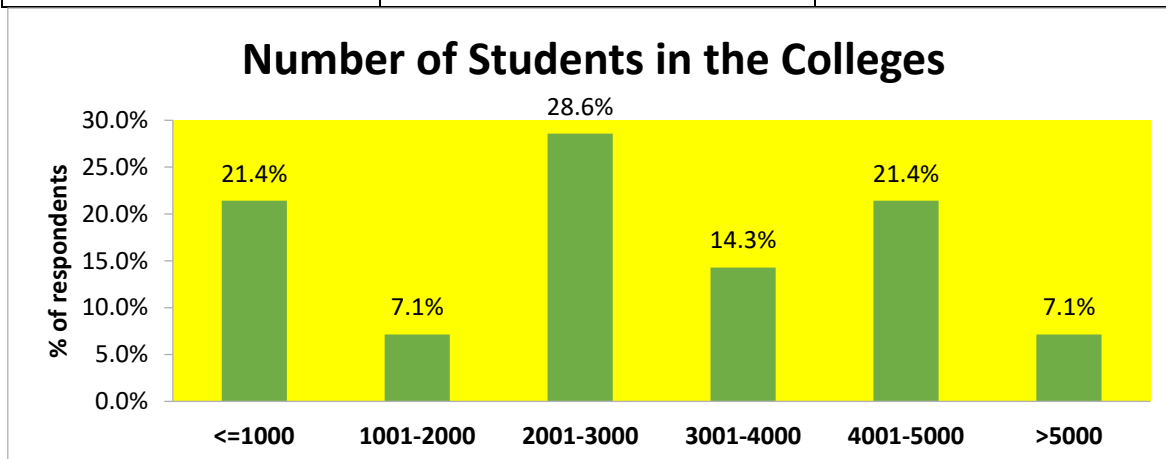
Figure: 4.1.6 Number of students in the colleges

Table and figure 4.1.6 depict that out of 14 select state colleges, 04 (28.6%) colleges had 2001- 3000 students, followed by 03 (21.4%) had 4001-5000, 03 (21.4%) had up to 1000 students. While 02 (14.3%) of colleges had 3001-4000 students and 01 (7.1%) of colleges had 1001-200 students. Only 01 (7.1%) college had more than 5000 students. The strength of the students was good and all were given library membership compulsorily.

4.1.7: NAAC grade accredited colleges

Table: 4.1.7 NAAC grade accredited colleges

NAAC Grade	Frequency	Percent
A	1	7.1%
B	6	42.9%
B+	4	28.6%
B++	2	14.3%
C	1	7.1%
Total	14	100.0%
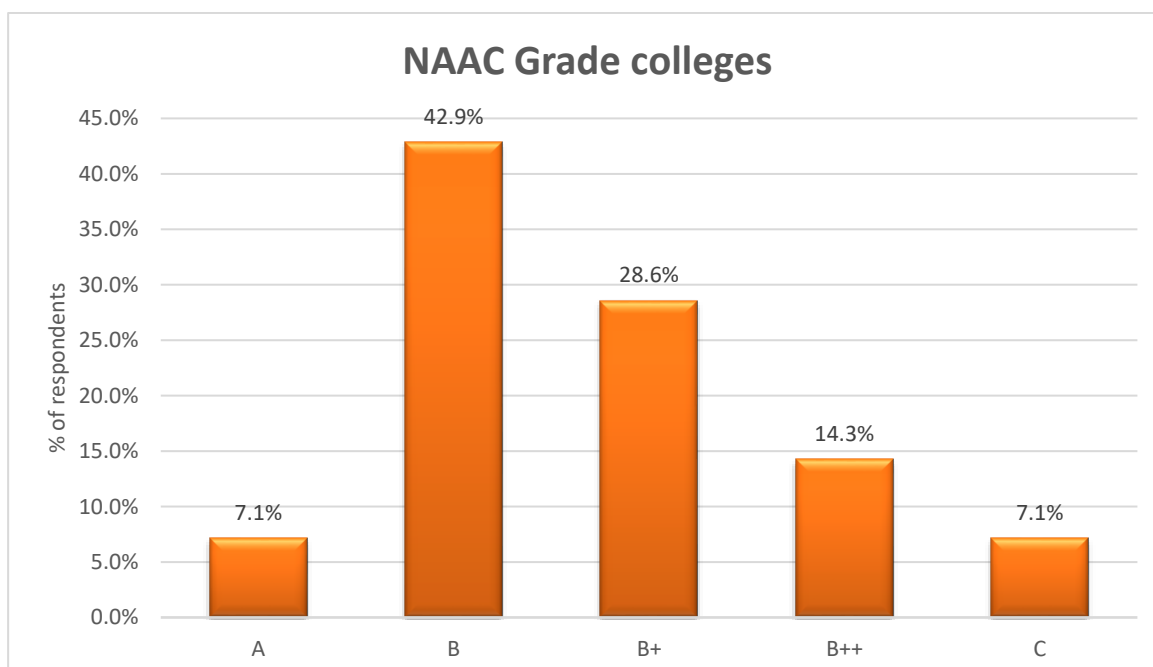
Figure: 4.1.7 NAAC grade

Table and Figure 4.1.7 show the response related to NAAC grades scored by colleges. As shown in the table, 06 (42.9%) colleges have NAAC grade B, whereas 04 (28.6%) colleges have grade B^+. 01 (7.1%) college scored the highest grade i.e., A. While 02 (14.3%) colleges have NAAC grade B^{++}, whereas only 01 (7.1%) colleges have grade C. As there are certain norms for college libraries to get NAAC accreditation and one can judge the condition of a library by its NAAC accreditation grade.

4.1.8: Year of establishment of library

Table: 4.1.8 Year of establishment of library

S/No	Name of Library	Year of Establishment
1	Library, Vallabh Govt. College, Mandi	1948
2	Library, Govt. College of Teacher Education Dharamshala	1956
3	Library, Govt. College Chamba	1958
4	Library, NSCBM Govt. College, Hamirpur	1964
5	Library, Govt. College Una	1968
6	Library, Govt. College Sanjauli, Shimla	1969
7	Library, Rajkiya Kanya Mahavidyalaya Shimla	1971
8	Library, Govt. College, Nalagarh	1973
9	Library, Govt. College, Arki	1994
10	Library, Govt. College, Ghumarwin	1994
11	Library, Govt. College, Joginder Nagar	1994
12	Library, Govt. College, Palampur	1994
13	Library, Govt. College, Dharampur	2005
14	Library, Govt. College, Naura	2005

Table 4.1.8 shows the year of establishment of state college libraries in Himachal Pradesh. It can be concluded that the oldest library in Himachal Pradesh is VGC Mandi which was established in 1948, whereas Govt. College Naura and Govt. College Dharampur Library is the latest one established in 2005. Whereas GCTE Library, Govt. College Chamba, NSCBM Govt. College, Hamirpur Library, GC Una Library, COE Govt. College Sanjauli Library, RKMV Library, and G.C. Nalagarh, Library were established in 1956, 1958, 1964,1968, 1969,1971, and 1973 respectively. GC Arki, Library, GC Ghumarwin Library, GC Joginder Nagar, Library, and GC Palampur, Library were established in 1994. To get a real picture related to automation and networking the college libraries established from 1948 to 2005 included in the study.

4.1.9: Nature of library building

Table: 4.1.9 Nature of Library Building

Nature of Library Building	Frequency	Percent
Attach	7	50.0%
Separate	7	50.0%
Total	14	100.0%
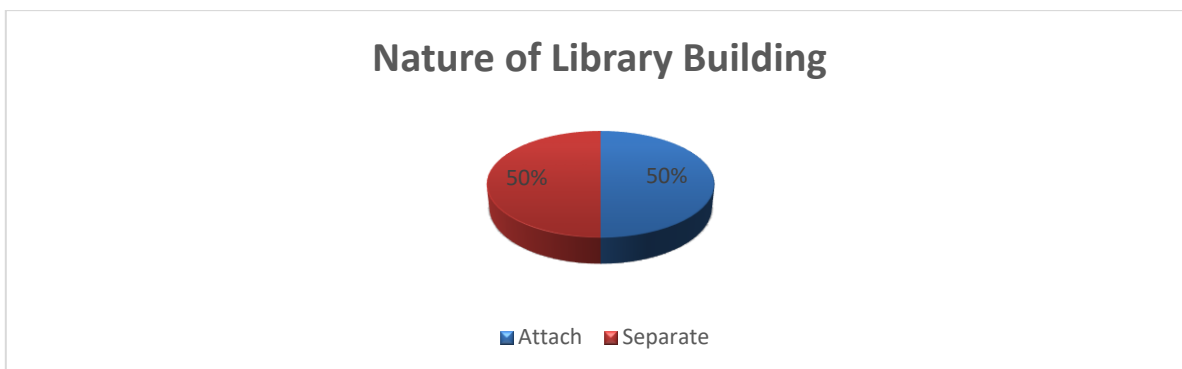
Figure: 4.1.9 Nature of Library Building

It is shown in the table and figure 4.1.9 that half (50%) of the college's library building is attached to the college's building, while the remaining half of them are separated. A separate building has the advantage of a peaceful atmosphere, but it should be easily accessible and needs to be built in the center of campus.

4.1.10: Carpet area of libraries

Table: 4.1.10 Carpet area of libraries

	N	Mean	Standard Deviation	Minimum	Maximum
Carpet Area of Library	14	1887.61	1632.02	100.00	4575.00

Table 4.1.10 reveals that the average carpet area of the library was 1887.61 with a standard deviation of 1632.02. the minimum carpet area used by colleges was 100 and the maximum was 4575. As the library is a growing organism, so carpet area of any library needs to be sufficient enough to accommodate more resources in the future.

4.1.11: Number of Floors and Sitting Capacity of Library

Table: 4.1.11 Number of Floors and Sitting Capacity of Library

		Frequency (No. of libraries)	Percent
Number of Floors	One	10	71.4%
	Two	4	28.6%
Sitting Capacity (Number of Users)	1-100	7	50.0%
	101-200	5	35.7%
	201-300	1	7.1%
	301-400	1	7.1%
	401-500	0	0.0%
Total		14	100.0%
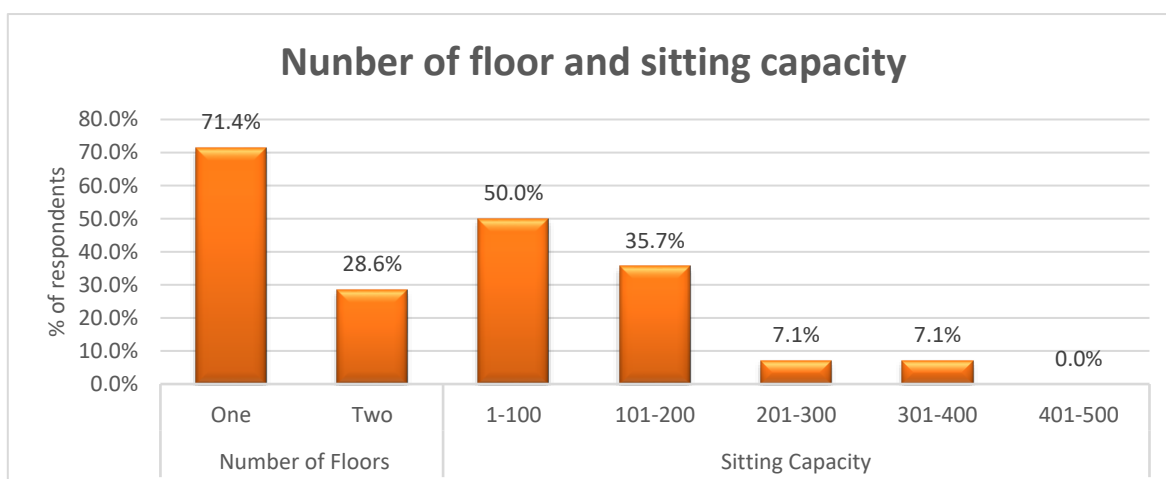
Figure: 4.1.11 Number of Floors and Sitting Capacity of Library

Table and figure 4.1.11 depict that out of 14 select state colleges, 10 (71.4%) colleges had only one floor, whereas 04 (28.6%) colleges had two floors in the library. 07 (50%) college's library had 1-100 sitting capacity, followed by 05 (35.7%) had 101-200, 01 (7.1%) had 201-300 and Only 01 (7.1%) college library had 301-400 sitting capacity. The reading room/table is the heart of any library and the sitting capacity of any library is the mirror that attracts users.

4.1.12: Registered members in the library

Table: 4.1.12 Registered members in the library

	Range	Frequency (No. of libraries)	Percent
Registered Staff Members	<=50	6	42.9%
	51-100	5	35.7%
	>100	3	21.4%
Registered Students	<=1000	4	28.6%
	1001-2000	2	14.3%
	2001-3000	2	14.3%
	3001-4000	2	14.3%
	4001-5000	3	21.4%
	>5000	1	7.1%
Total		14	100.0%
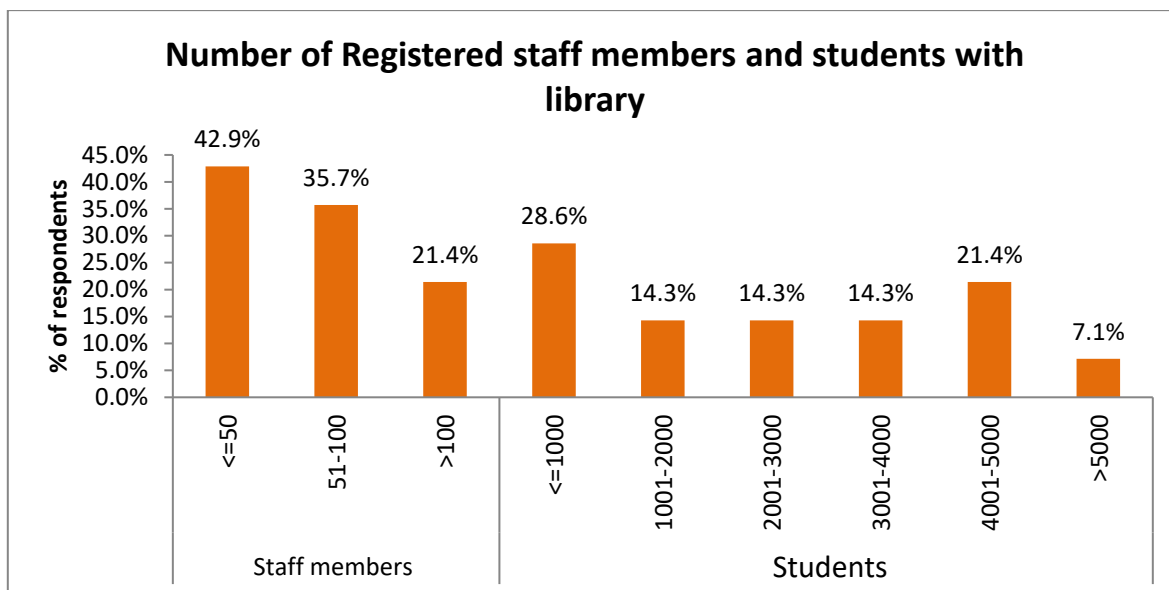
Figure:4.1.12 Registered members in the library

Table and Figure 4.1.12 show the response related to the total number of registered staff members and students in the library. As shown in the table, in 06 (42.9%) colleges, up to 50 staff members were registered with a library, whereas in 05 (35.7%) colleges, 51-100 registered, and 03 (21.4%) colleges, more than 100 staff members were registered with the library. Whereas 04 (28.6%) colleges, up to 1000 students were registered with library followed by 03(21.4%) colleges, 4001-5000 students were registered, 02 (14.3%) colleges, 1001-2000 students were registered, 02 (14.3%) colleges, 2001-3000 students were registered and 01 (14.3%) college, 3001-4000 students were registered with the library. Only in 01 (7.1%) college, more than 5000 students were registered with the library. The strength of students and staff members was good and all were given library membership compulsorily.

4.1.13: Library staff

Table: 4.1.13 Library staff

Library Staff	Yes		No	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Librarians	9	64.2%	5	35.7%
Assistant Librarians	8	57.1%	6	42.9%
Library Assistants	1	7.1%	13	92.9%
Restorers	0	0.0%	14	100.0%
Library Attendants	6	42.9%	8	57.1%
Peons	9	64.3%	5	35.7%
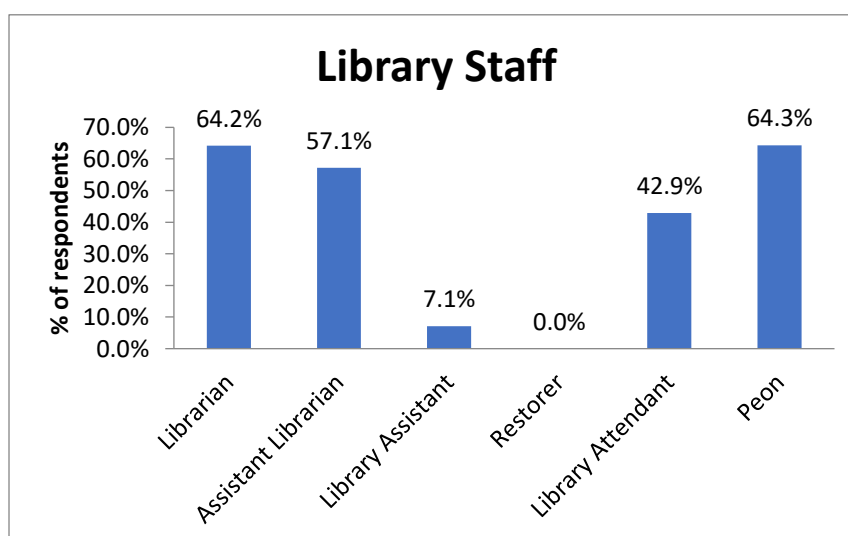
Figure: 3.8.13 library staff

It is shown in table and figure 3.8.13 that 09 (64.2%) colleges had librarians and 08 (57.1%) colleges had assistant librarians. Only 01 (7.1%) colleges had library assistant and 06 (42.9%) colleges had library attendants. 09 (64.3%) colleges had peons in the library. However, no library had a restorer. It is a matter of great concern that out of 14 posts of each cadre, 05 posts of librarian, 06 posts of assistant librarian, 13 posts of library assistant, 14 posts of restorer, 11 posts of Library attendant and 05 posts of peon were lying vacant. One can understand that with the scarcity of library staff, no library can provide library services including automation and networking smoothly, and overburden and workload can decrease the working efficiency of library staff which affects the purpose of the library for that it exists.

4.1.14: Library staff's education qualification

Table: 4.1.14 Library staff's education qualification

	Up to graduation		Post graduate		Vacant	
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Librarian/IC	1	7.1%	13	92.9%	5	35.7%
Assistant Librarian	1	7.1%	7	50.0%	6	42.9%
Library Assistant	1	7.1%	0	0.0%	13	92.9%
Restorer	0	0.0%	0	0.0%	14	100%
Library Attendant	2	14.3%	1	7.1%	11	78.5%
Peon	1	7.1%	0	0.0%	5	35.7%

Library staff's Educational Qualification
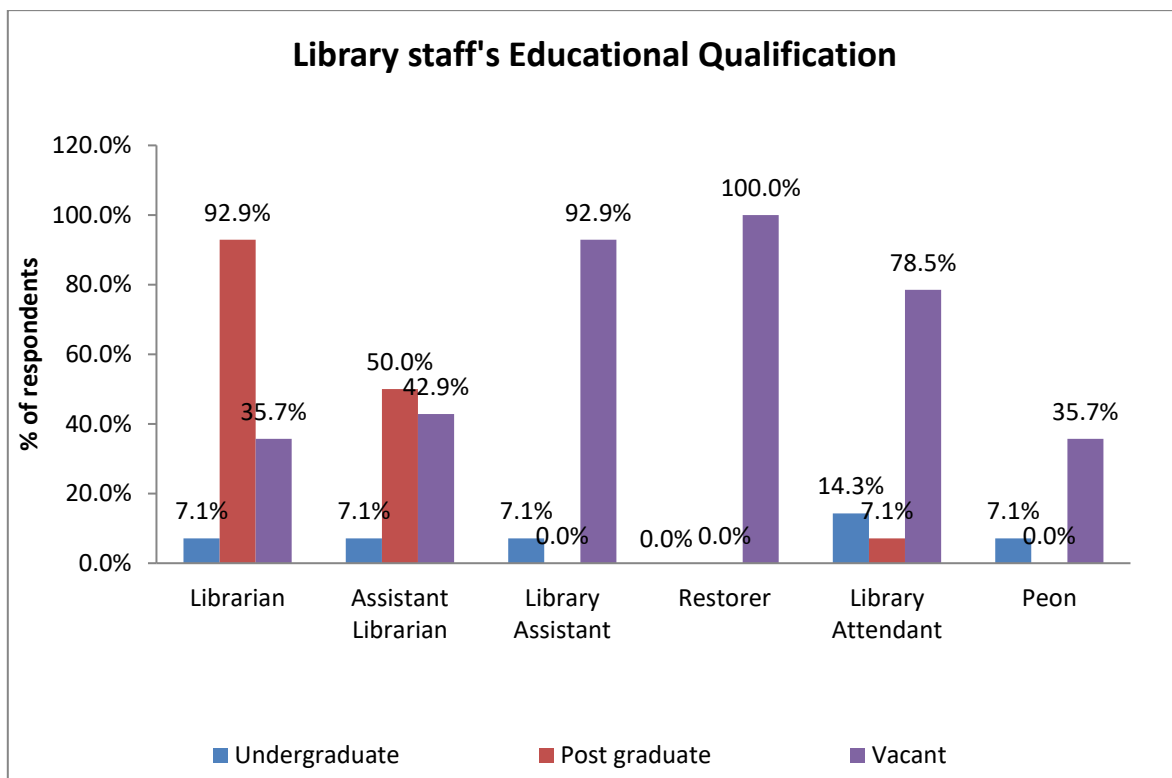
Figure: 4.1.14 Library staff's educational qualification

It is shown in the table and figure 4.1.14 that a significant of 13 (92.9%) librarians/In-charges are postgraduates and 01 (7.1%) librarian/In-charge was an undergraduate.07 (50%) assistant librarians, were post graduate and 01 (7.1%) assistant librarian was undergraduate. Only 01(7.1%) library assistant was an undergraduate. 02 (14.3%) library attendants were undergraduate 01 (7.1%) was postgraduate and only 01 (7.1%) peon was undergraduate. It is a serious matter, one library in charge was undergraduate, as per UGC guidelines, a college librarian/In charge should be post-graduate with UGC NET. However, no librarian/In Charge is UGC NET qualified. No, any library can provide automation and network-based services to its users if the library staff is not fulfilling the required educational qualification. Recently, on 15 January 2024, the Himachal Pradesh Government filled 93 vacant posts of college assistant librarians by transferring school librarians concerning letter no EDN-HE (15)B(6)-Transfer/2020-Lib, Directorate of Higher Education, Himachal Pradesh, Shimla-171001 dated 15 January 2024. No one is UGC NET qualified and most of the assistant librarians do not fulfill the required educational qualifications and they are almost on the verge of retirement.

4.1.15 Library working hours

Table: 4.1.15 Library working hours

Library Working Hours Per Day	Frequency	Percent
6-7 hrs	12	85.7%
7-8 hrs	2	14.3%
Total	14	100.0%
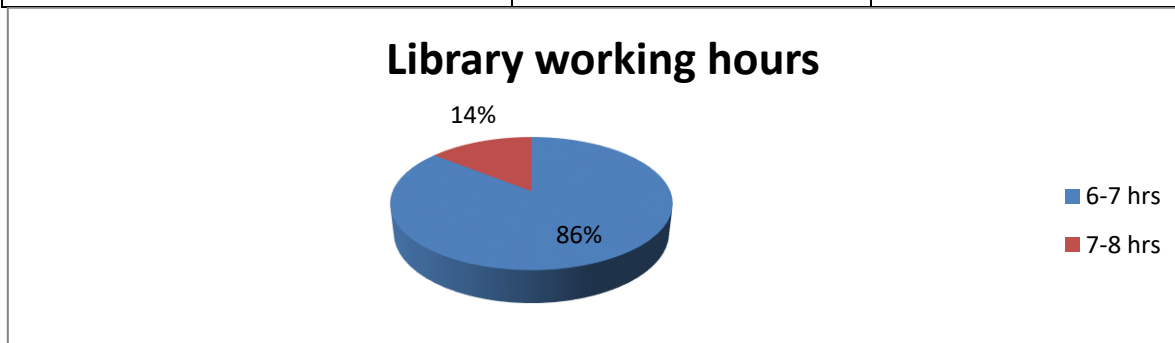
Figure: 4.1.15 Library Working Hours

Table and figure 4.1.15 exhibit that most of (85.7%) colleges have 6-7 library working hours per day, whereas 14.3% of colleges have 7-8 working hours per day. Each college library provides automation and networking services to users for 6-8 hours

4.1.16: Availability of library resources

Table: 4.1.16 Availability of Library Resources

Availability of Library Resources		Frequency (No of libraries)	Percent
Availability of Books	<=10000	4	28.6%
	10001-20000	5	35.7%
	20001-30000	1	7.1%
	30001-40000	3	21.4%
	>40000	1	7.1%
Number of Periodicals (Newspapers, Journals and magazines)	<=20	3	21.4%
	21-30	4	28.6%
	31-40	2	14.3%
	>40	5	35.7%
	Total	14	100.0%
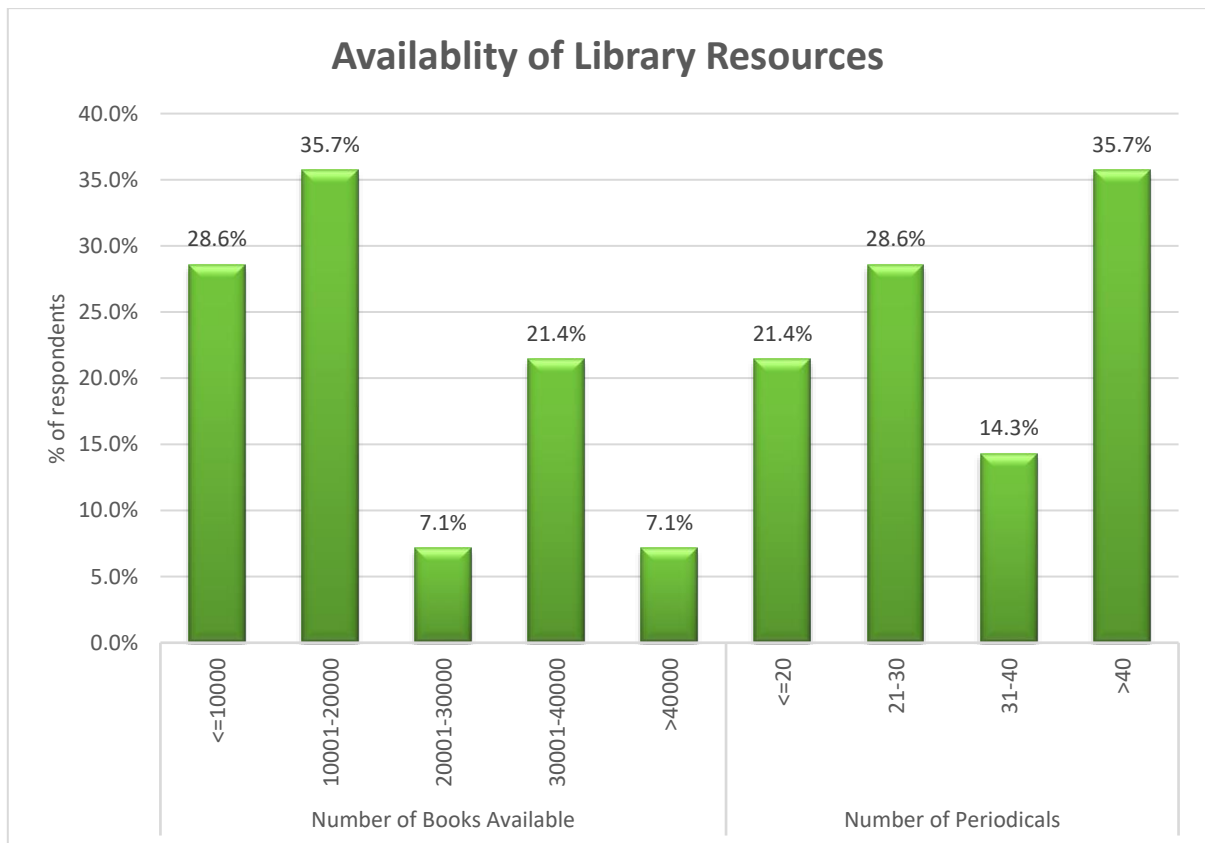
Figure:4.1.16 Availability of Library Resources

As shown in table and figure 4.1.16, 05 (35.7%) libraries had 10001-20000 books followed by 04 (28.6%) had up to 10000 books, 03 (21.4%) had 30001-40000 books and 01 (7.1%) had 20001-30000 books. There was only 01(7.1%) college which had more than 40000 books in the library. So far it is concerning with the availability of periodicals 05 (35.7%) libraries had more than 40 periodicals, whereas 04 (28.6%) libraries had 21-30 periodicals, 03 (21.4%) libraries had up to 20 periodicals, and 02 (14.3%) libraries had 31-40 periodicals.

4.1.17: Library budget

Table:4.1.17 Library budget for the year 2017-2018, 2018-2019 and 2019-2020

College	2017-18	2018-19	2019-20	Total
Vallabh Govt. College, Mandi	200000	200000	250000	650000
Govt. College of Teacher Education Dharamshala	50000	45000	25000	120000
Govt. College Chamba	418697	604111	820000	1842808
NSCBM Govt. College, Hamirpur	0	0	0	0
Govt. College Una	432000	17144	270000	719144
COE Govt. College Sanjauli, Shimla	155364	104003	557487	816854
Rajkiya Kanya Mahavidyalaya Shimla	200000	150000	200000	550000
Govt. College, Nalagarh	270000	0	108000	378000
Govt. College, Arki	196743	93154	82335	372232
Govt. College, Ghumarwin	0	0	0	0
Govt. College, Joginder Nagar	104066	132000	121818	357884
Govt. College, Palampur	75000	80000	85000	240000
Govt. College, Dharampur	100000	100000	100000	300000
Govt. College, Naura	500000	600000	300000	1400000

Table 4.1.18 Library budget

Library Budget	N	Mean	Standard Deviation	Minimum	Maximum
Year (2017-2018)	12	225155.83	150239.17	50000	500000
Year (2018-2019)	11	193219.27	207946.33	17144	604111
Year (2019-2020)	12	243303.33	231470.85	25000	820000

Tables 4.1.17 and 4.1.18 reveal the descriptive statistics of library budgets for three different years from 2017 to 2020. The average library budget for the year 2017-2018 was Rs. 225155.83 with a standard deviation of Rs. 150239.17. The mean library budget for the year 2018-2019 was Rs. 193219.27 with a standard deviation of 207946.33. The average library budget for the year 2019-2020 was Rs. 243303.33 with a standard deviation of Rs. 231470.85. Again, it is regretful that Govt. college Hamirpur and Govt. College Ghumarwin had not spent a single penny for three consecutive years.

4.1.19: Availability of Desktop Computers for Users

Table: 4.1.19 Availability of Desktop Computers for Users

	Frequency	Percent
2-5	7	50.0%
6-10	5	35.7%
>10	2	14.3%
Total	14	100.0%
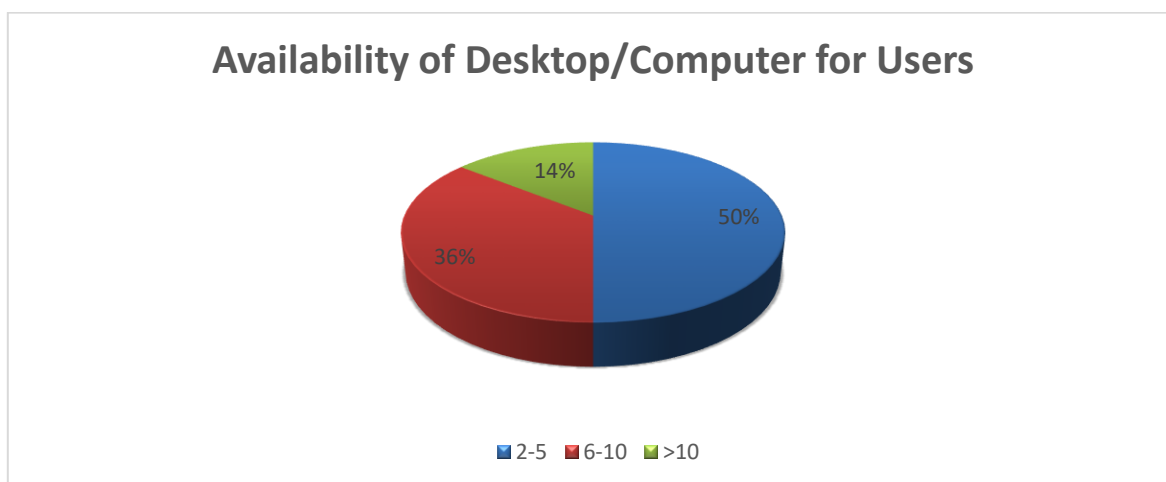
Figure:4.1.17 Availability of Desktop Computers for Users

From the above Table 4.1.19 and Figure 4.1.17, it can be concluded that 07 (50%) colleges had 2-5 desktops in the library for users, and 05 (35.7%) colleges had 6-10 desktops. Only 02 (14.3%) colleges had more than 10 desktops in the library for users. Computers play a vital role in providing automation and network-based services and it is a pitiful condition that no library has enough desktop computers to cater to the informational need in the digital library world.

4.1.20: Information and communication technology infrastructure in the library

Table: 4.1.20 Information and communication technology infrastructure in the library

ICT Infrastructure	Yes		No	
	Frequency (No of libraries)	Percent	Frequency (No of libraries)	Percent
Library Server	14	100%	0	100%
Printers	13	92.9%	1	7.1%
Barcode Reader/ Scanner	5	35.7%	9	64.3%
Xerox Machine	10	71.4%	4	28.6%
UPS	12	85.7%	2	14.3%
Audio Player	2	14.3%	12	85.7%
CD/DVD Player	2	14.3%	12	85.7%
Projector (Multimedia/Over Head/LCD)	2	14.3%	12	85.7%
Telephone	4	28.6%	10	71.4%
Fax Machine	1	7.1%	13	92.9%
CCTV	11	78.6%	3	21.4%
Digital Camera/ Web Camera	4	28.6%	10	71.4%
Any other	0	0.0%	14	100.0%
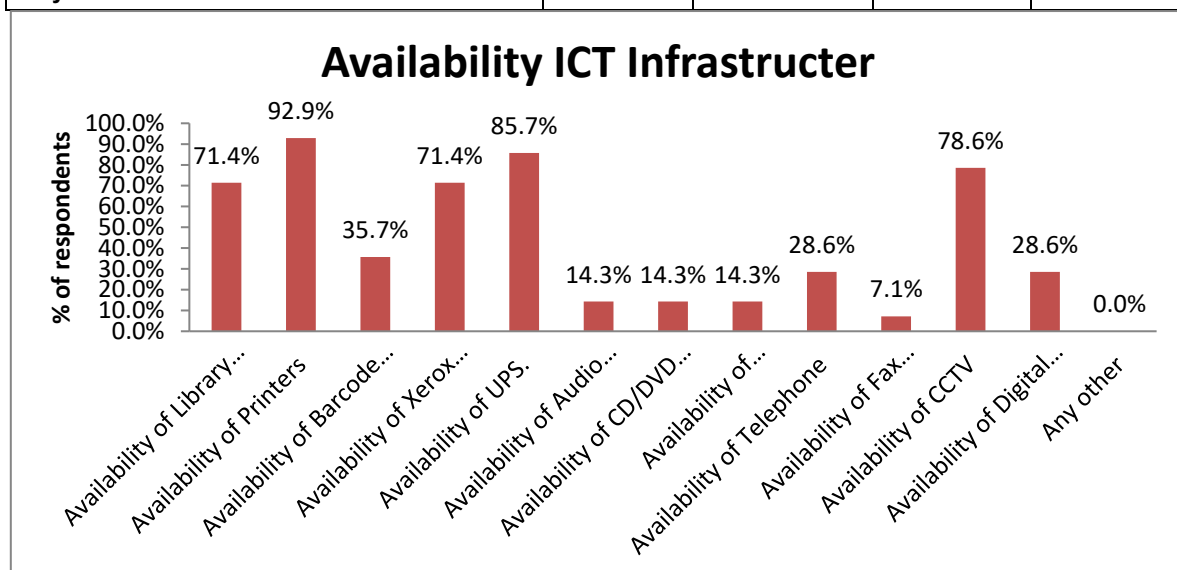
Figure: 4.1.18 Information and communication technology infrastructure in the library

Table 4.1.20 and Figure 4.1.18 show the availability of information and communication technology infrastructure in libraries. As shown in table 3.8.20, 10 (71.4%) libraries had a server, 10 (71.4%) libraries had Xerox machine, 12 (85.7%) libraries had UPS, 11 (78.6%) libraries had CCTV and 13 (92.9%) libraries had printers. While libraries don't have 09 (64.3%) libraries hadn't bar code readers, 12 (85.7%) libraries hadn't audio players, 12

(85.7%) libraries hadn't CD/DVD player, 12 (85.7%) libraries hadn't projector, 10 (71.4%) libraries hadn't telephone, 13 (92.9%) libraries hadn't fax machine and 10(71.4%) libraries hadn't digital camera. Only 04(28.6%) libraries had telephone, 05 (35.7%) had barcode readers and 02 (14.3%) of libraries had audio players. It is not a good sign that no library is enriched with the required minimum ICT infrastructure.

4.1.21: College library expenditure on ICT for the year 2017-18, 2018-19 and 2019-20

Table: 4.1.21 College library expenditure on ICT for the years 2017-18, 2018-19, and 2019-20

College	2017-18	2018-19	2019-20	Total
Vallabh Govt. College, Mandi	100000	0	0	100000
Govt. College of Teacher Education Dharamshala	0	0	0	0
Govt. College Chamba	0	0	0	0
NSCBM Govt. College, Hamirpur	0	0	0	0
Govt. College Una, Distt. Una	5900	5900	5900	17700
COE Govt. College Sanjauli, Shimla	0	0	0	0
Rajkiya Kanya Mahavidyalaya Shimla	0	0	0	0
Govt. College, Nalagarh	0	0	0	0
Govt. College, Arki	0	238197	0	238197
Govt. College, Ghumarwin	0	0	0	0
Govt. College, Joginder Nagar	0	50000	0	50000
Govt. College, Palampur	100000	150000	200000	450000
Govt. College, Dharampur	0	0	0	0
Govt. College, Naura	50000	40000	30000	120000

Table: 4.1.22 Expenditure on ICT

Expenditure on ICT	Frequency (No of libraries)	Percent
Yes	6	42.9%
No	8	57.1%
Total	14	100.0%
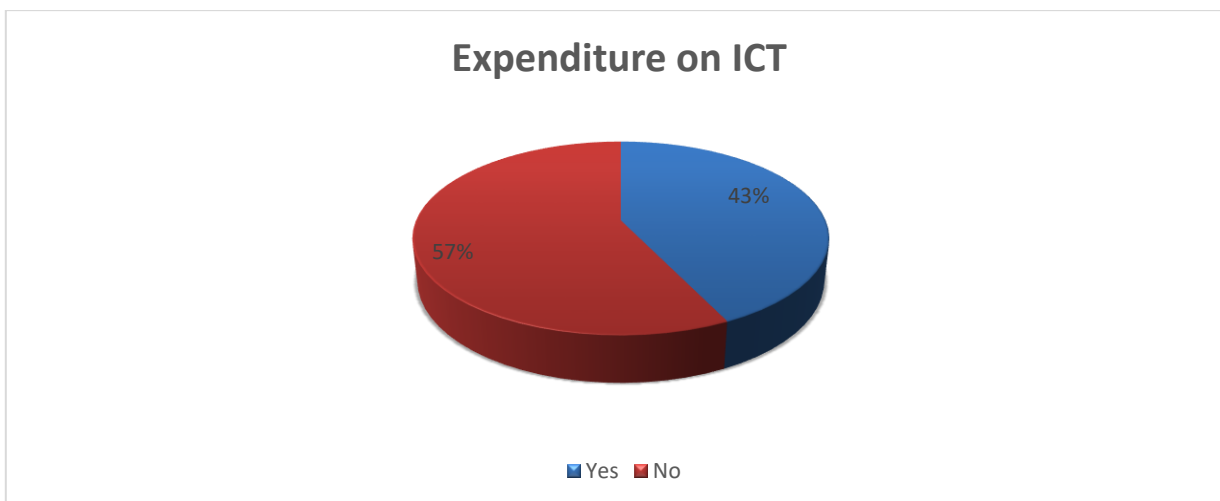
Figure: 4.1.19 Expenditure on ICT

From Table 4.1.21, 4.1.22 and Figure 4.1.19, it can be concluded that 08 (57.1%) colleges did not spend on ICT, whereas 06 (42.9%) colleges have spent on ICT. ICT infrastructure is the basic need for providing automation and network-based services, but it is a matter of great concern that only 03 out of 14 libraries spent on ICT infrastructure for consecutive three years.

4.1.22: Library automation year

Table: 4.1.23 Library Automation Year

Year of Library Automation	Frequency (No of libraries)	Percent
2009	6	42.8%
2012	2	14.3%
2013	1	7.1%
2015	1	7.1%
2016	1	7.1%
2017	1	7.1%
2019	1	7.1%
2021	1	7.1%
Total	14	100.0%
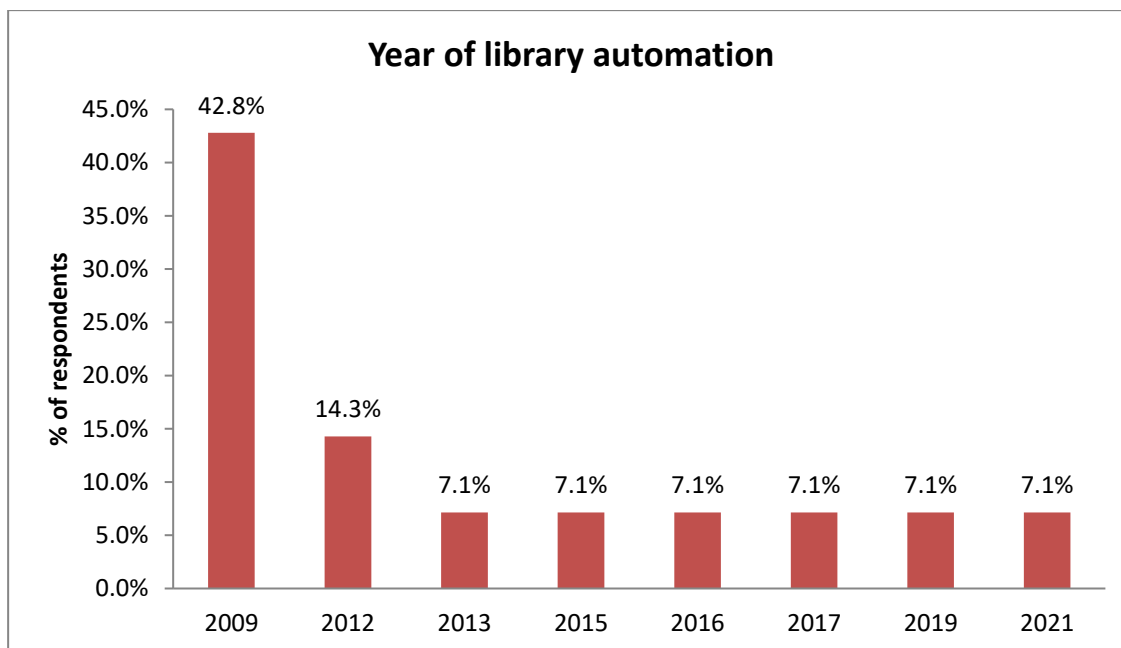
Figure: 4.1.20 Library automation year

Table 4.1.23 and Figure 4.1.20 shows the year of library automation. As shown in the table out of 14 libraries, 06 (42.8%) libraries initiated library automation in 2009, whereas 2(14.2%) libraries were initiated in 2012 and 06 (42.8%) initiated in 2013,2015,2016,2017,2019 and 2021. Only 06 libraries started library automation in 2009 and 04 libraries were initiated after 2015, not a good sign for providing automation-based routine library services.

4.1.23: Automation status of libraries

Table: 4.1.24 Automation status of libraries

		Frequency	Per cent
Automated Library	Yes	14	100.0%
	No	0	0.0%
Status of Automation	Fully	2	14.3%
	Partially	12	85.7%
	Total	14	100.0%
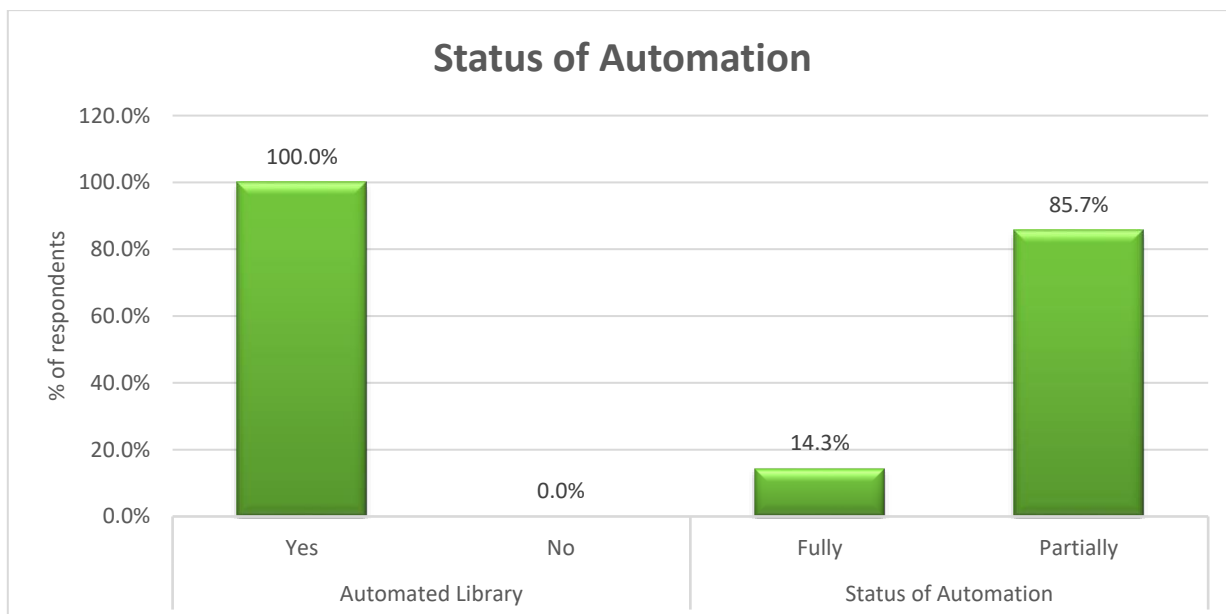
Figure: 4.1.21 Automation Status of Libraries

Table 4.1.24 and Figure 4.1.21 interpret that all of the libraries were automated. 12 (85.7%) libraries were partially automated and 02 (14.3%) were fully automated. Only 02 libraries out of 14 were fully automated, one can imagine how the 12 libraries are providing automated services by using all the software modules.

4.1.23: Software module used for library automation purpose

Table: 4.1.25 Software module used for library automation purpose

Software Module used for Library Automation purpose	Automated		Not Automated	
	Frequency	**Percent**	**Frequency**	**Percent**
Administration	8	57.1%	6	42.9%
Acquisition	5	35.7%	9	64.3%
Cataloguing	14	100.0%	0	0.0%
Circulation	6	42.9%	8	57.1%
Serial Control	2	14.3%	12	85.7%
OPAC	9	64.3%	5	35.7%
Report	7	50.0%	7	50.0%
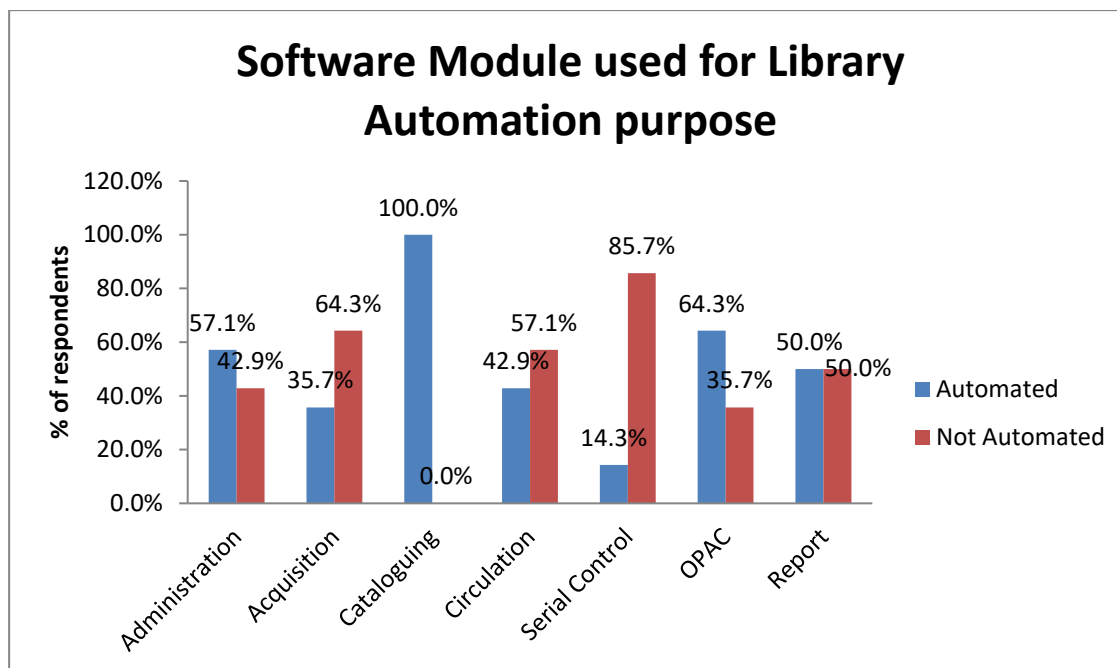
Figure: 4.1.22 Software Module Used for Library Automation Purpose

As shown in table 4.1.25 and figure 4.1.22, 08 (57.1%) libraries, which were automated used an administration module for library automation purposes. While 05(35.7%) library used Acquisition module, 14 (100%) libraries used catalogue module, 06 (42.9%) used circulation module, only 02 (14.3%) libraries used serial control module, 09 (64.3%) libraries used OPAC and 07 (50%) libraries used report module. It is again a great concern that only one catalogue module was being utilized by all 14 college libraries.

4.1.24: Usage of library software for automation

Table: 4.1.26 Usage of library software for automation

Library software used for automation	Frequency	Per cent
Soul	13	92.9%
Alice for Window	1	7.1%
Total	14	100.0%

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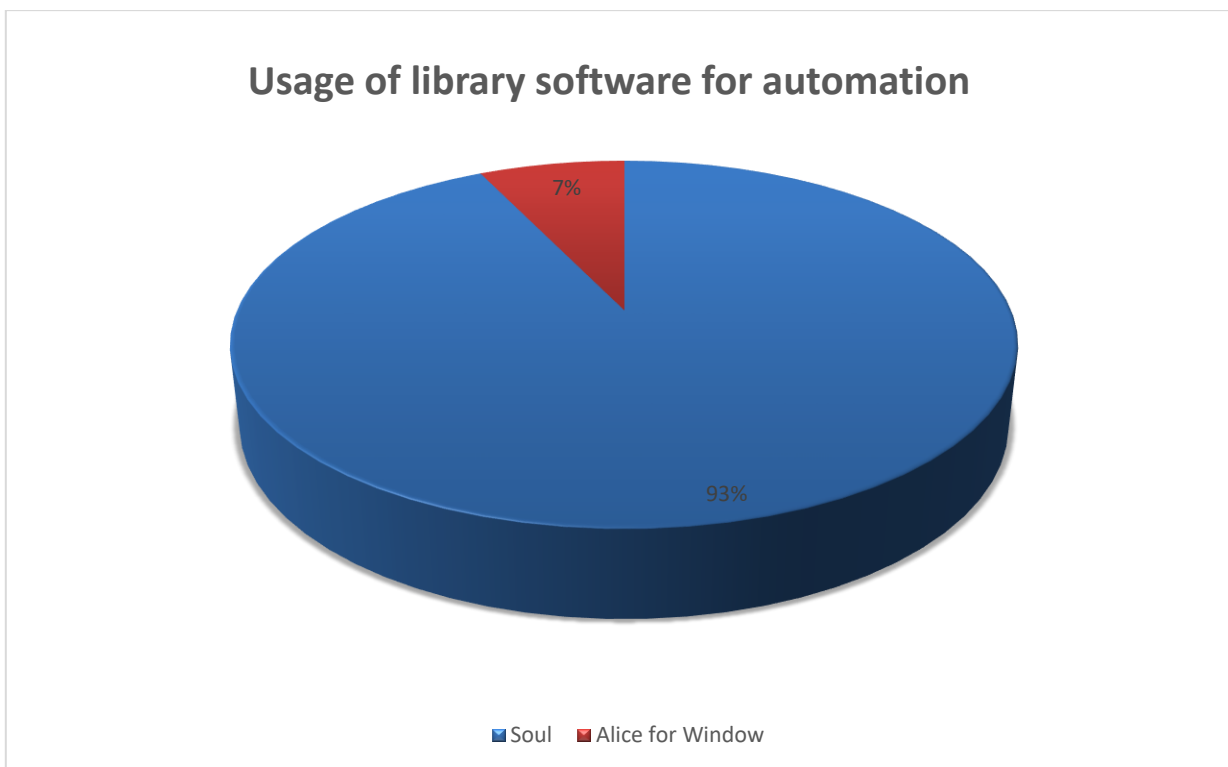
Figure: 4.1.23 Usage of library software for automation

Table 4.1.26 and Figure 4.1.23 interpret those 13 (92.9%) libraries used Soul software for automation, whereas 01(7.1%) library used Alice for window library automation software. It is good to see that all 14 college libraries were using library automation software.

4.1.25: Problems in automating library resources

Table: 4.1.27 Problems in Automating Library Resources

Problems	Yes		No	
	Frequency	Per cent	Frequency	Per cent
Limited Budget Allocation	6	42.9%	8	57.1%
Unskilled Staff	7	50.0%	7	50.0%
Insufficient ICT Infrastructure	9	64.3%	5	35.7%
Improper Vendor support	4	28.6%	10	71.4%
Retro-conversion of data	3	21.4%	11	78.6%
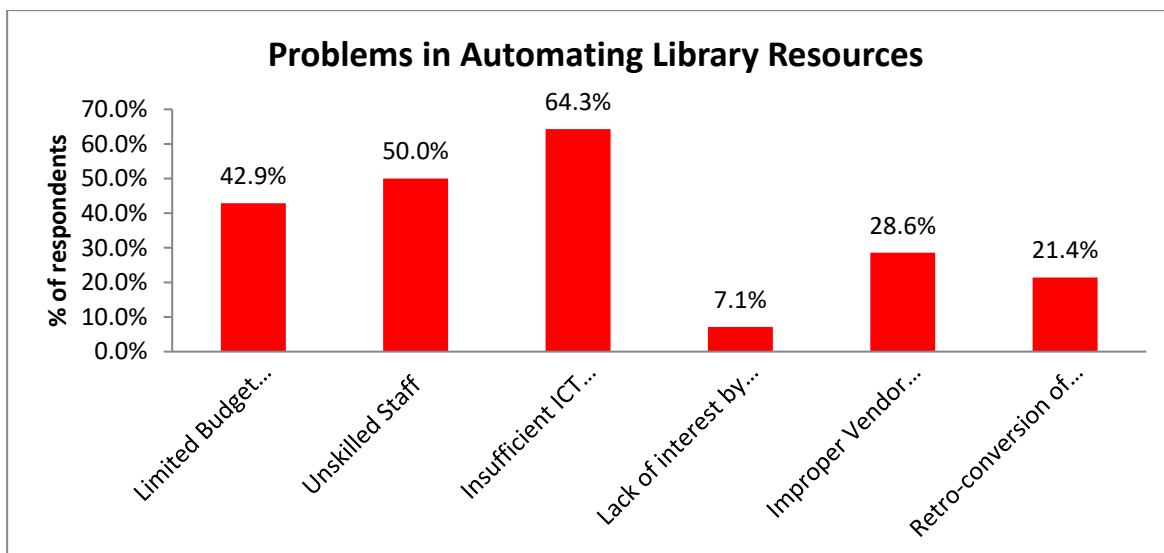
Figure: 4.1.24 Issues in Automating Library Resources

Table 4.1.27 and Figure 4.1.24 show the responses related to issues in automating library resources. As shown in the table, 06 (42.9%) libraries faced budget allocation problems, whereas 07 (50.0%) libraries problem of unskilled staff, 09 (64.3%) libraries faced the problem of insufficient ICT infrastructure, 04 (28.6%) libraries faced the problem of improper vendor support, while 03 (21.4%) libraries faced the problem in the retro conversion of data. Almost all the college libraries were facing problems. Their library resources automation-related issues need to be addressed for smoothly providing automation services.

4.1.26: Network-based services

Table: 4.1.28 Network-based services

Network Based Services		Frequency (No of libraries)	Percent
Usage of Intranet	Yes	12	85.7%
	No	2	14.3%
Internet Facility in Library	Yes	14	100.0%
	No	0	0.0%
Mode of Connectivity	Broad Band	11	78.6%
	Wi-Fi	2	14.3%
	Leased Line	1	7.1%
	Total	14	100.0%
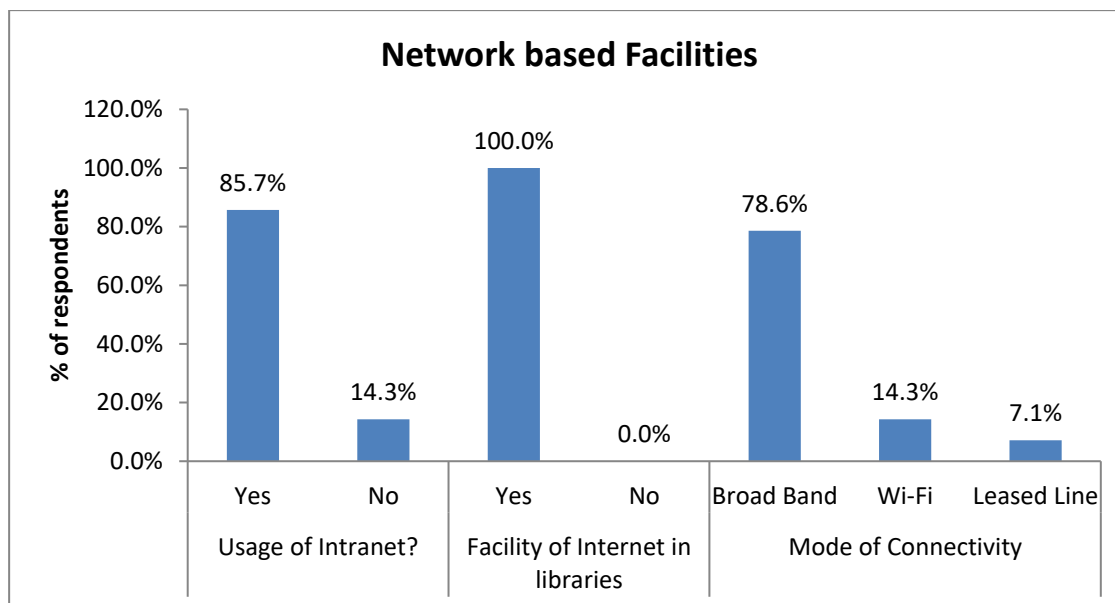
Figure: 4.1.25 Network-based Services

Table 4.1.28 and figure 4.1.25 exhibit that most 12(85.7%) libraries used intranet and all of the 14 (100.0%) libraries had internet facility in library. 11 (78.6%) libraries used broadband for the internet, whereas 02 (14.3%) libraries used Wi-Fi, and 01 (7.1%) libraries used leased line mode of connectivity. To provide network-based services properly, each library needs to be provided with Intranet, internet, and connectivity facilities.

4.1.27: Membership of library networks

Table: 4.1.29 Membership of Library Networks

		Frequency	**Percent**
Member of Library Network of India	Yes	13	92.9%
	No	1	7.1%
Name of Library Network	INFLIBNET	12	85.7%
	N-LIST	12	85.7%
	UGC Infonet	1	7.1%
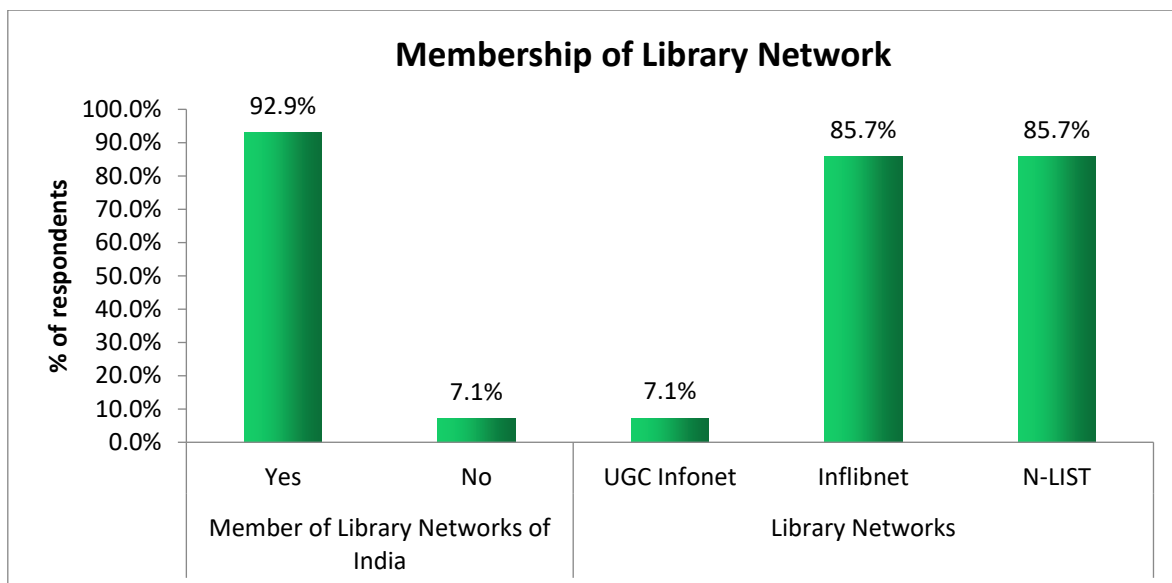
Figure: 4.1.26 Membership of Library Networks

Table 4.1.29 and Figure 4.1.26 show the response related to Library network membership. From the above table, it can be concluded that 12(85.7%) libraries were members of the library network of India. 12 (85.7%) libraries were members of INFLIBNET and N-LIST, and the 01 (7.1%) library was a member of the UGC info NET network, in addition to INFLIBNET and N-LIST. Only one library had not got a library network membership, how does it assist users in providing access to network-based library services?

4.1.28: Network-based Services and products offered by libraries

Table: 4.1.30 Network-based Services and products offered by libraries

Services	Yes		No	
	Frequency	Percent	Frequency	Percent
E-Books	12	85.7%	2	13.3%
E-Journals	12	85.7%	2	13.3%
Subject Guide	1	7.1%	13	92.9%
Access to digital repository	2	14.3%	12	85.7%
Digital Reference services	1	7.1%	13	92.9%
Content Alert	0	0.0%	14	100.0%
Library News/Notice	5	35.7%	9	64.3%
Inter Library Loan	1	7.1%	13	92.9%
Ask- A-Librarian	2	14.3%	12	85.7%
FAQ Services	0	0.0%	14	100.0%
Real Time Services	1	7.1%	13	92.9%
Instant Message Services	0	0.0%	14	100.0%
Any other	1	7.1%	13	92.9%
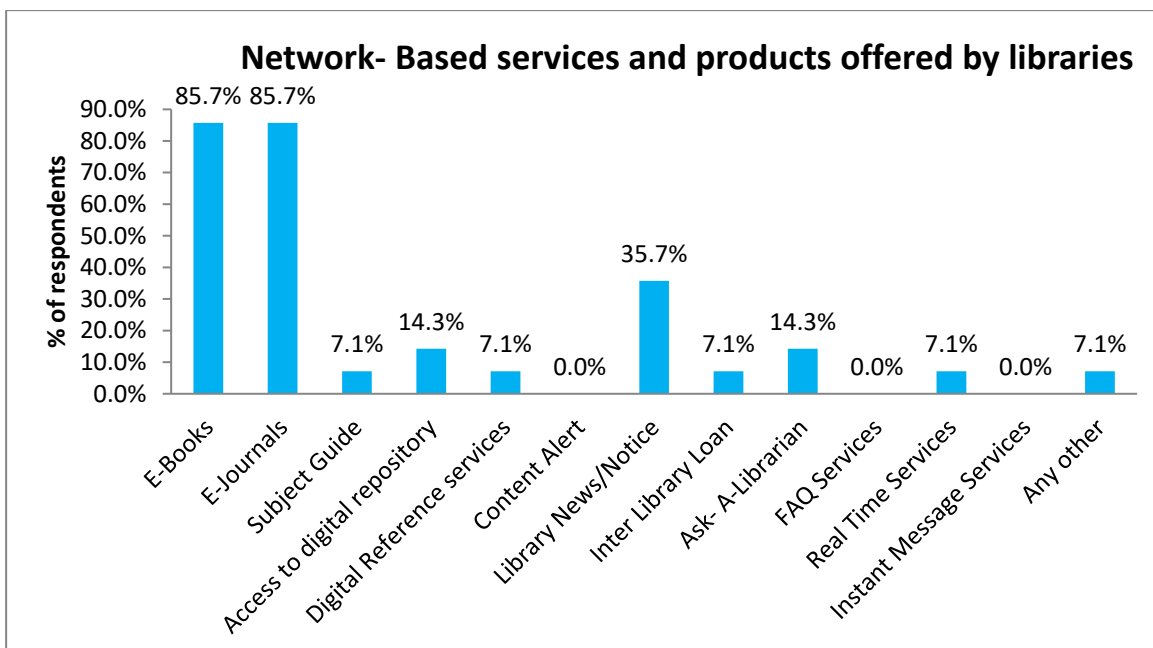
Figure: 4.1.27 Networked Services and products offered by Libraries

As shown in table 4.1.30 and figure 4.1.27 that 12 (85.7%) libraries offered E-books and E-journals; 05(35.7%) libraries offered library news/Notice services. It is not a pleasant condition for providing network-based services that only 02(14.3%) libraries offered access to digital repositories and ask-A-Librarian services and 01 (7.1%) library offered subject guide, digital reference, inter-library loans and real-time and any other services. None of the libraries offered content alerts, FAQ, and instant message services

4.1.29: Membership of library consortium

Table: 4.1.31 Membership of Library Consortium

		Frequency	Percent
Membership of the Library Consortium	Yes	13	92.9%
	No	1	7.1%
Name of the Consortia	N-List	12	85.7%
	UGC Info NET	1	7.1%
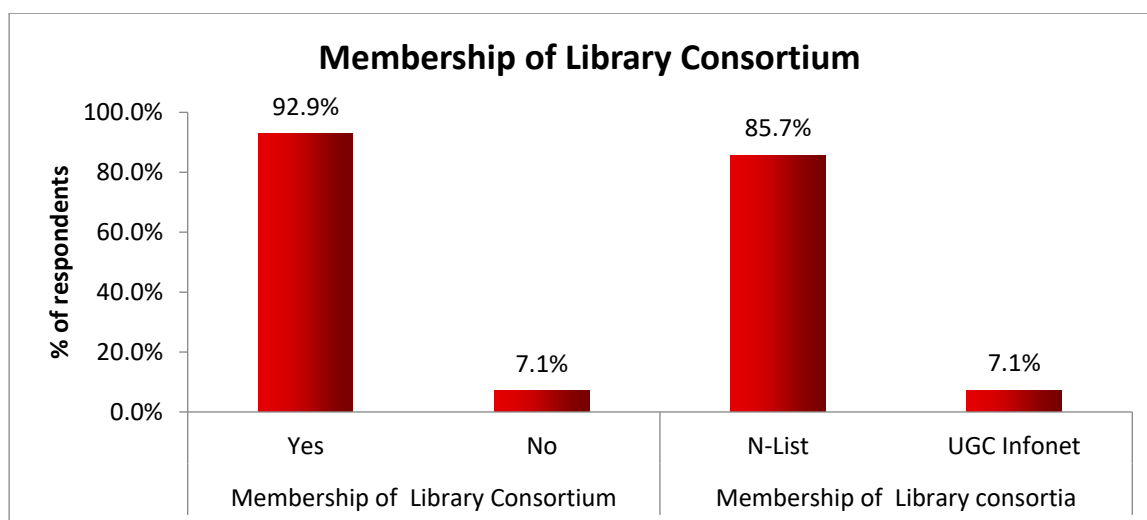
Figure: 4.1.28 Membership of Library Consortium

Table 4.1.31 and Figure 4.1.28 reveal that 13 (92.9%) libraries had a membership of the library consortium. While 13 (92.9%) libraries had a membership of N-LIST and 01 (7.1%) libraries had membership of UGC-Infonet besides N-LIST. One library had not got the membership of any library consortia; how does the library provide network-based services?

4.1.30: Problems faced in providing network-based services

Table: 4.1.32 Problems faced in providing network-based services

Problems	Yes		No	
	Frequency	Percent	Frequency	Percent
Limited funds for subscription	9	64.3%	5	35.7%
Problem of Internet connectivity	8	57.1%	6	42.9%
Improper ICT Infrastructure	5	35.7%	9	64.3%
Unskilled staff members	2	14.3%	12	85.7%
Unfriendly user Interface	1	7.1%	13	92.9%

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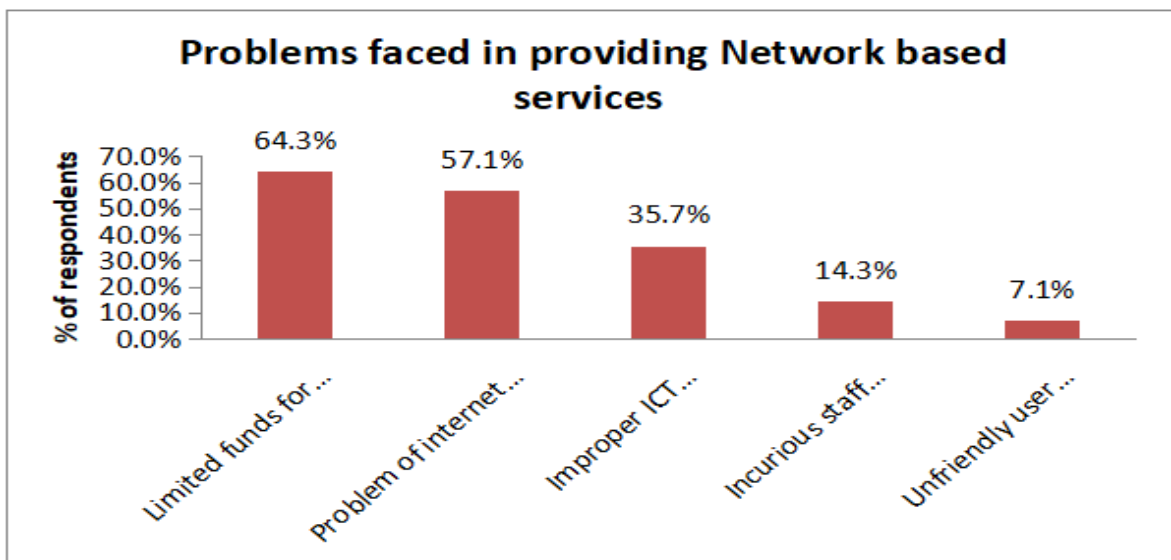
Figure: 4.1.29 Problems Faced in Providing Network-based Services

Table 4.1.32 and figure 4.1.29 show the response related to problems faced in providing network-based services that 09 (64.3%) libraries faced problem of adequate funds for subscription of library network-based services, whereas 08 (57.1%) libraries faced the problem of internet connectivity, 05 (35.7%) libraries faced problem of improper ICT Infrastructure, 02 (14.3%) libraries faced problem of unskilled staff members and 01 (7.1%) library faced problem of unfriendly user interface. It is not good for providing network-based services if more than 50 % of libraries are facing the problem of funds and internet connectivity.

ANALYSIS, ITERPRETATION AND PRESENTATION OF THE DATA COLLECTED THROUGH QUESTIONNAIRE FOR USERS

In the present study, necessary primary data for evaluation & assessment were collected through a structured questionnaire prepared for users. Total 500 questionnaires were distributed among users, consisting students and teachers, out of which 396 filled questionnaires received. The questionnaire was divided in demographic profile, automated and network-based services libraries provided, users' awareness regarding library services, satisfaction level of users with automated and network-based services, expectations and problem faced in acquiring automated and network-based services. The main focus was to collect data to know the satisfaction level of users with automation and network-based services and the problems faced by users in accessing computer and network-based services. The percentage of the responses received is 79.2%.

The data analysis is followed here based on responses received from the 396 users of 14 select state college libraries. Data Analysis has been done by the Simple Percentage Method and in some cases, the Cumulative Percentage Method. Several tab cross-tabulations, bar charts, pie charts, column charts, line graphs, area graphs, etc. have been created in this chapter with the help of MS Excel to shape the data in intelligible & interpretable forms so that the relations of the research problems can be studied & tested.

4.2 SATISFACTION LEVEL OF USERS WITH AUTOMATED AND NETWORK-BASED LIBRARY SERVICES AND PROBLEMS FACED IN ACCESSING COMPUTER AND NETWORK-BASED SERVICES

Demographic profile and other aspects

The characteristics of the samples were analyzed concerning demographic variables such as gender, educational qualification, age, and discipline of users

4.2.1: Gender-wise distribution of users (N=396)

Table 4.2.1 Gender (Users) (N=396)

Gender	Frequency	Percent
Male	166	41.9%
Female	230	58.1%
Total	396	100.0%
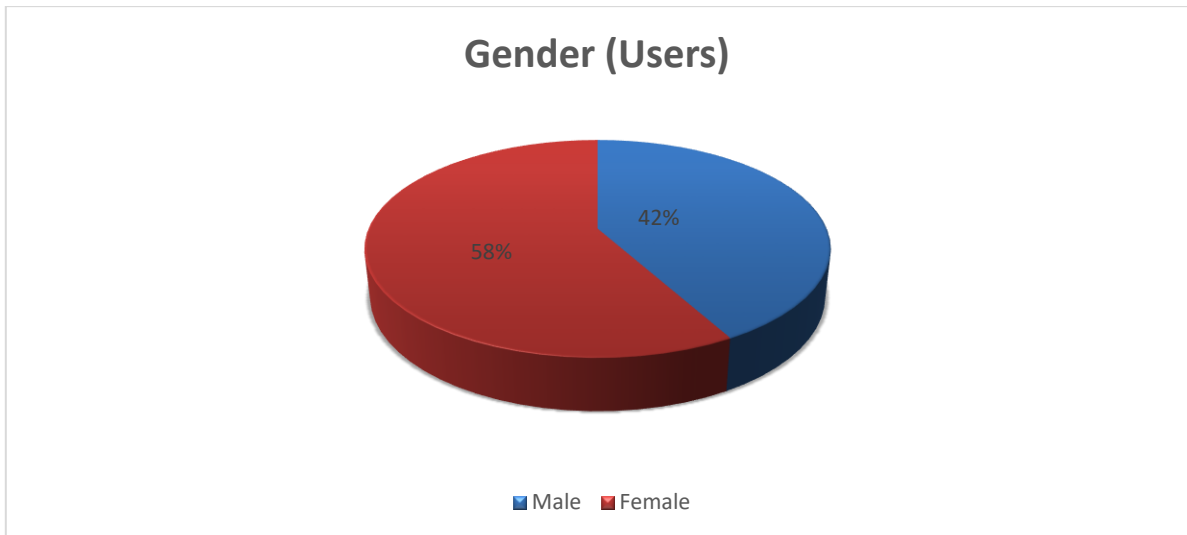
Figure: 4.2.1 Gender-wise distribution of users (N=396)

Table and Figure 4.2.1 show that the majority of users 230 (58.1%) were female and the remaining 166 (41.9%) were male. The majority of the Female users responded.

4.2.2: Educational qualification-wise distribution of users

Table: 4.2.2 Educational qualification-wise Distribution of Users

Education	Frequency	Percent
Up to graduation	231	58.3%
Postgraduate	136	34.3%
Other	29	7.3%
Total	396	100.0%
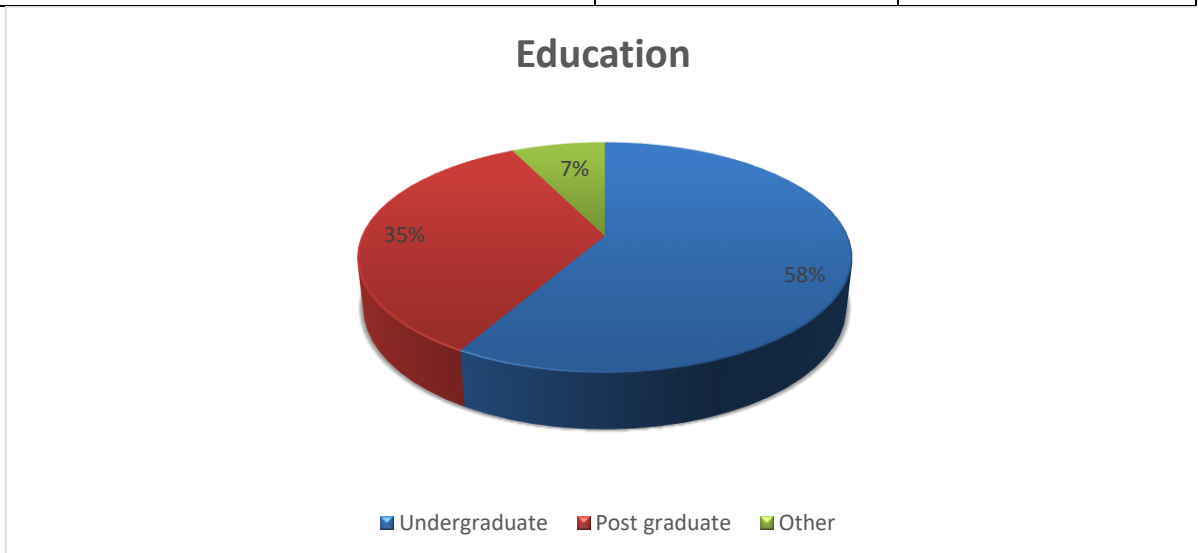
Figure: 4.2.2 Educational qualification wise distribution of users

It is shown in table and figure 4.2.2 that 231 (58.3%) users were undergraduate, whereas 136 (34.3%) were post-graduate and 29 (7.3%) users did other courses. A significant no of undergraduate students participated in responding questionnaire.

4.2.3: Age-wise distribution of users

Table: 4.2.3 Age-wise distribution of users

Age	Frequency	Per cent
17-22 years	246	62.1%
23-28 years	143	36.1%
29-34 years & above	7	1.8%
Total	396	100.0%
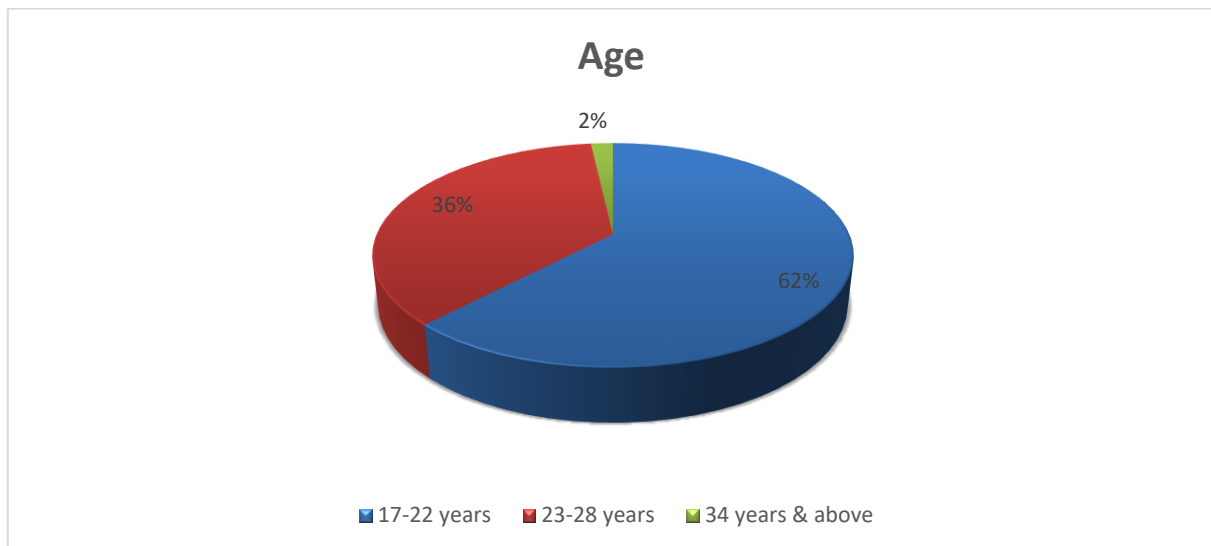
Figure: 4.2.3 Age-wise distribution of users

Table and Figure 4.2.3 depict the age-wise distribution of users. The majority of (62.1%) users belonged to the age group 17-22 years and 36.1% belonged to the age group 23-28 years. Only 1.8% of users belonged to the age group 34 years and above. The majority of the users who responded were between the age group of 17-22 years.

4.2.4: Academic Discipline wise distribution of users

Table:4.2.4 Academic Discipline of users

Academic Discipline	Frequency	Percent
B.Ed.	21	5.3%
B.Voc	6	1.5%
Commerce	30	7.6%
Computer Application	55	13.9%
Management Studies	29	7.3%
Science	120	30.3%
Social Sciences/Humanities	130	32.8%
Other	5	1.3%
Total	396	100.0%
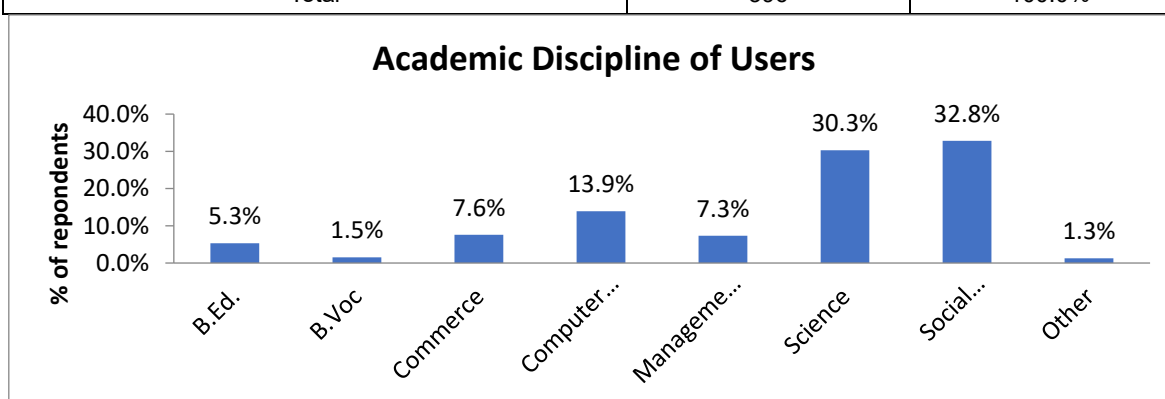
Figure: 4.2.4 Academic Discipline Distribution of Users

As shown in Table and Figure 4.2.4 those 130 (32.8%) users belonged to the social sciences discipline, followed by 120 (30.3%) belonged to science, 55 (13.9%) belonged to computer application, 30 (7.6%) belonged to commerce and 29 (7.3%) belonged to management studies. 21 (5.3%) users belonged to B.Ed. 06 (1.5%) belonged to B.Voc. Only 05 (1.3%) users belonged to other types of discipline. Thus, the students of the humanities and science stream responded on a large scale.

4.2.5: Frequency of visiting the library

Table: 4.2.5 Frequency of visiting the library

Frequency of Visit	Frequency	Percent
Daily	382	96.5%
Once a week	1	.3%
Twice a week	6	1.5%
Occasionally	7	1.8%
Total	396	100.0%
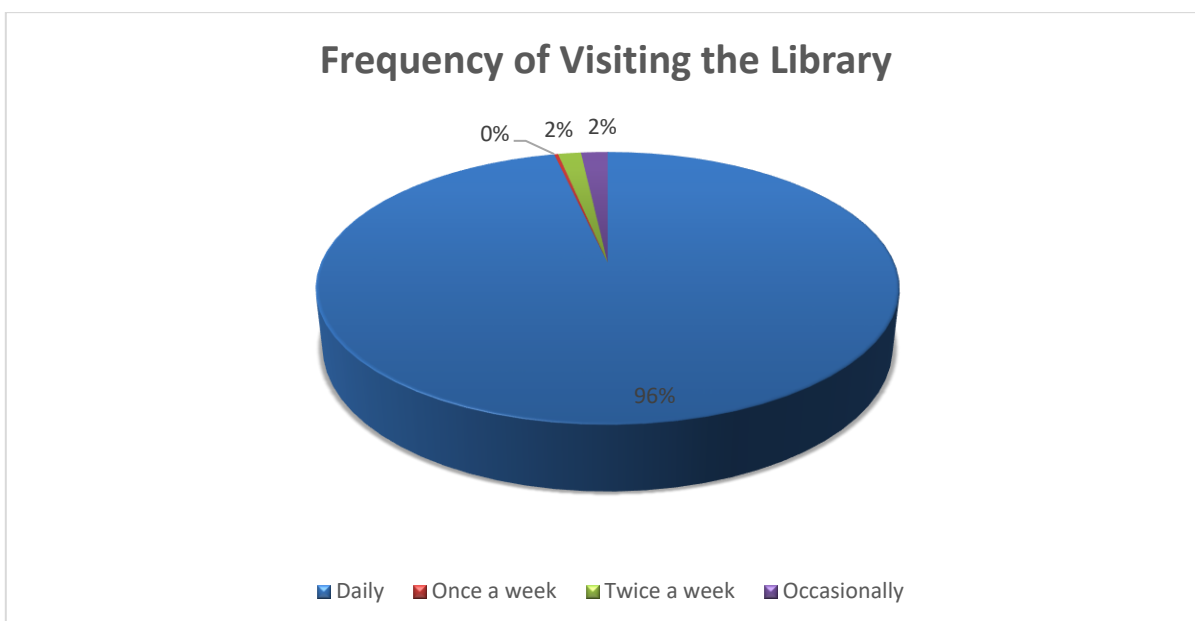
Figure:4.2.5 Frequency of Visiting the Library

From the table and figure 4.2.5, it is quite clear that out of 396 respondents, 382 (96.5%) users visited the library daily, whereas 07 (1.8%) users visited occasionally and 06 (1.5%) users visited twice a week. Only 01 (0.3%) users visited the library once in a week. A significant no of users visit the library daily, which shows the users' interest in library resources.

4.2.6: Purposes of visiting the library

Table: 4.2.6 Purposes of visiting the library

Visiting Purpose	Yes		No	
	Frequency (No of users)	Percent	Frequency (No of users)	Percent
Issue/Return	390	98.5%	6	1.5%
To read the Magazines/Journals/Newspapers	389	98.2%	7	1.8%
To read and consult the reference books	390	98.5%	6	1.5%
To use and download e-journals/e-books/notes	359	90.7%	37	9.3%
To prepare class notes and self-study	394	99.5%	2	0.5%
To make use of library environment	391	98.7%	5	1.3%
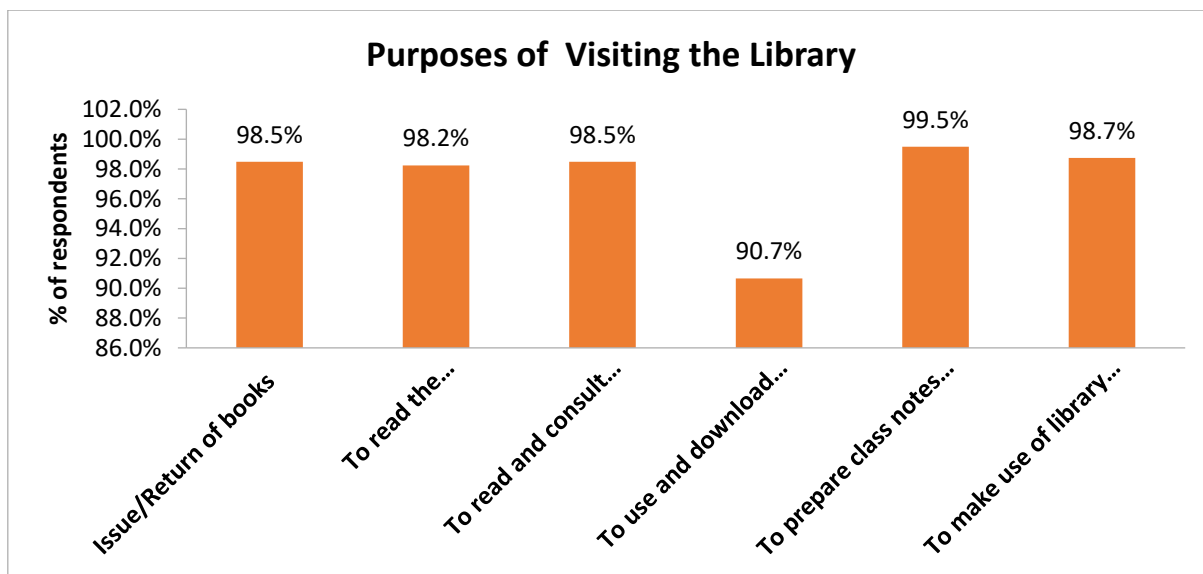
Figure: 4.2.6 Purposes of visiting the library

Table and figure 4.2.6 depict that 390 (98.5%) of users visited the library to issue or return books, while 389 (98.2%) users visited to read Magazines/Journals/Newspapers. 390 (98.5%) users visited the library to read and consult the reference books and 359 (90.7%) users visited to use and download e-journals/e-books/notes. However, 394 (99.5%) users visited the library to prepare class notes and self-study, and 391 (98.7%) users visited to make use of the library environment.

4.2.7: Awareness of users with library services

Table: 4.2.7 Awareness of users with library services

Awareness of Library Services	Yes		No	
	Frequency (No of users)	Percent	Frequency (No of users)	Percent
Issue/Return of books	396	100.0%	0	0.0%
Reference Services	393	99.2%	3	.8%
Library awareness programme	376	94.9%	20	5.1%
Newspaper clipping services	362	91.4%	34	8.6%
Digital library services	356	89.9%	40	10.1%
Referral services	86	21.7%	310	78.3%
Documentation (Printing/scanning/photocopying) services	296	74.7%	100	25.3%
Online Catalogue	250	96.7%	146	3.3%
Inter library loan services	12	19.4%	384	80.6%
Indexing and Abstracting services	182	46.0%	214	54.0%

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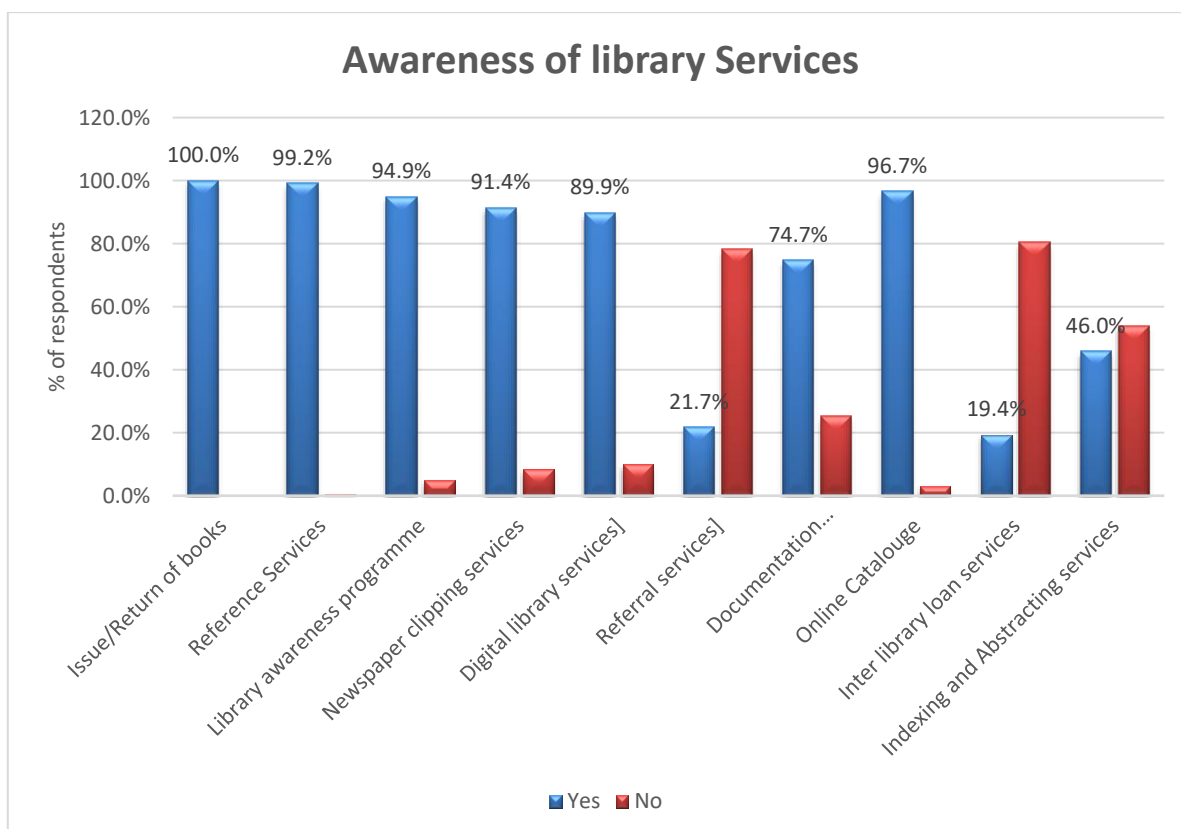
Figure: 4.2.7 Awareness of users with library services

Table and Figure 4.2.7 show the response related to awareness of library services. As shown in the table, 393 (99.2%) users were aware of references services, 396 (100%) users were aware of books issuing services, 376 (94.9%) users were aware of library programme, 356 (89.9%) users were aware of digital library services, 362 (91.4%) users were aware of newspaper clipping services, 296 (74.7%) users were aware of documentation services and 383 (96.7%) users were aware of online catalogue services. But 310 (78.3%) of users hadn't awareness of referral services, 319 (80.6%) users hadn't awareness of inter-library loan services and 214 (54%) users hadn't awareness of indexing and abstracting services. It is quite clear that a significant no of users were aware of library programme, circulation services, reference services, digital library services, newspaper clippings and online catalogue services.

4.2.8 Awareness of Automated and network-based library services

Table: 4.2.8 Awareness of Automated and network-based library services

Awareness of Automated and network-based library services	Frequency	Percent
Yes	340	86%
No	56	14%
Total	396	100.0%
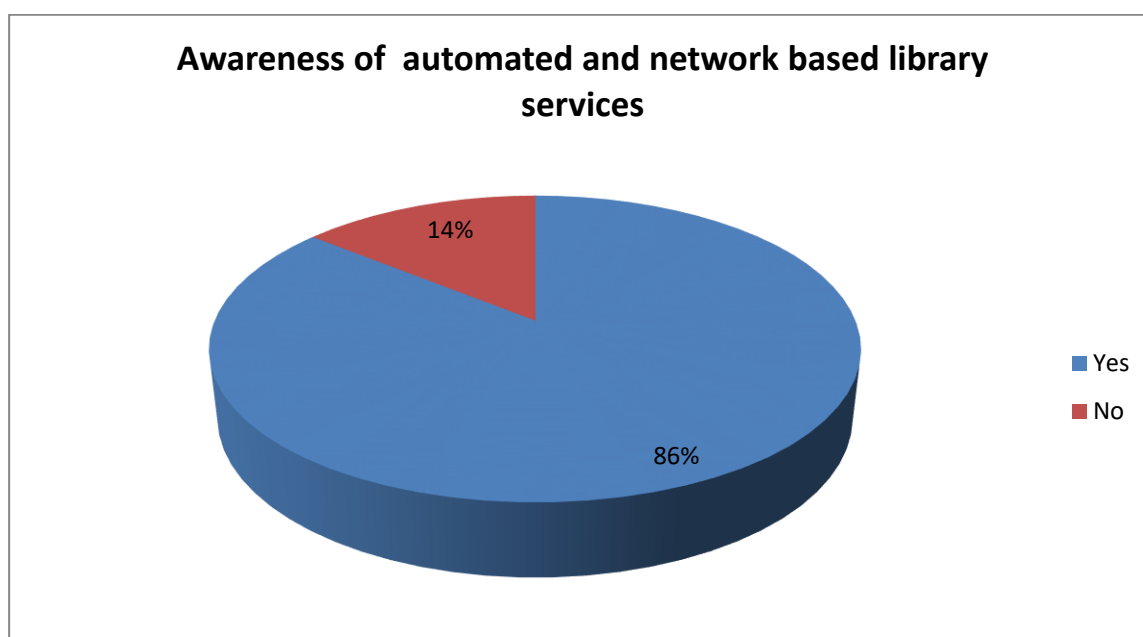
Figure: 4.2.8 Awareness of automated and network-based library services

Table and Figure 4.2.8 revealed the response related to users' awareness of automated and network-based library services. It interprets that 340 (86%) users were aware of automated and network-based library services, whereas 56 (14%) users responded that they were not aware of automated and network-based services. It is a pleasant information that a significant no of users were aware of automated and network-based services.

4.2.9: Usage of Automated Library Services

Table: 4.2.9 Usage of Automated Library Services

Usage of Automated Library services	Yes		No	
	Frequency	Percent	Frequency	Percent
Online catalogue services	250	63.1%	146	36.9%
Issue/Return	168	42.4%	228	57.6%
Digital Reference services	30	7.5%	366	92.5%
Bibliographic services	248	62.4%	148	37.6%
New arrivals	240	60.6%	156	39.4%
Online Reservation of books	60	15.1%	336	84.9%
Total	396	100.0%	0	0%
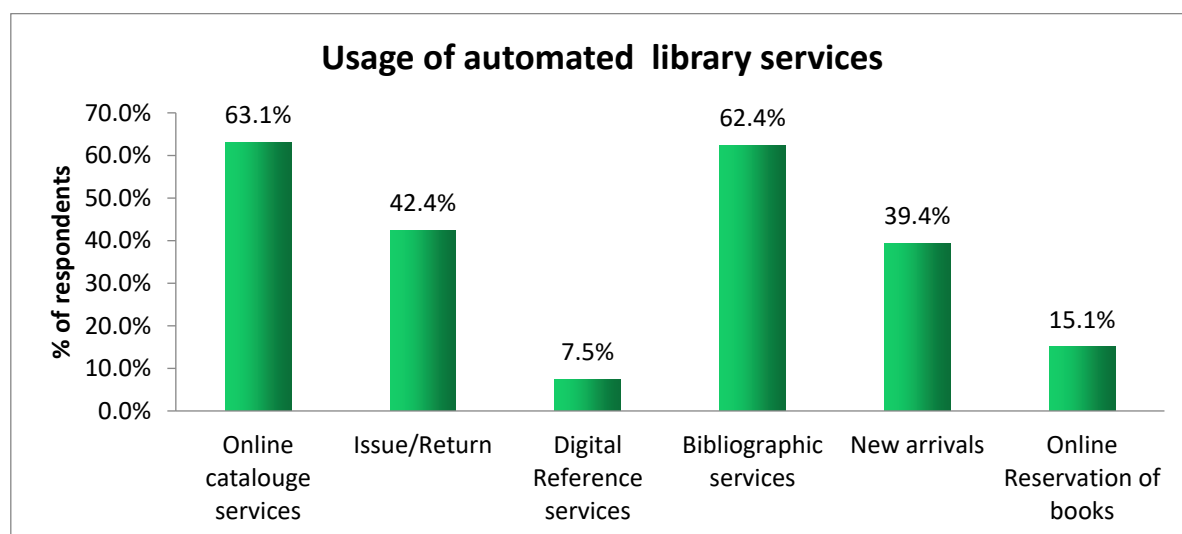
Figure: 4.2.9 usage of automated library services

As shown in Table and Figure 4.2.9, 250 (63.1%) users were availing of online catalog services, 168 (42.4%) users were availing of issue/return books, 30 (7.5%) users were availing of digital reference services, 248 (62.2%) users were availing of bibliographic services, 240 (60.6%) users were availing of new arrivals and 60 (15.1%) users were availing of online reservation of books. So far as it is concerning about availing of

automated library services 36% of users were not availing of automated library services. It is not a good sign for users.

4.2.10 Usage of the network-based services

Table: 4.2.10 Usage of the Network-based Services

Usage of the network-based services	Yes		No	
	Frequency	Percent	Frequency	Percent
INFLIBNET Database	340	85.8%	56	14.2%
N-List	338	85.3%	58	14.7%
UGC INFONET	30	7.5%	366	92.5%
Bibliographic Databases	250	63.1%	146	36.9%
Full Text Databases	338	85.3%	58	14.7%
News Clipping	142	35.8%	254	64.2%
Web Services	332	83.8%	64	16.2%
Inter Library Loan	12	3.0%	384	97.0%
Access to the Institutional Repository	59	14.8%	337	85.2%
Total	396	100.0%	0	0%
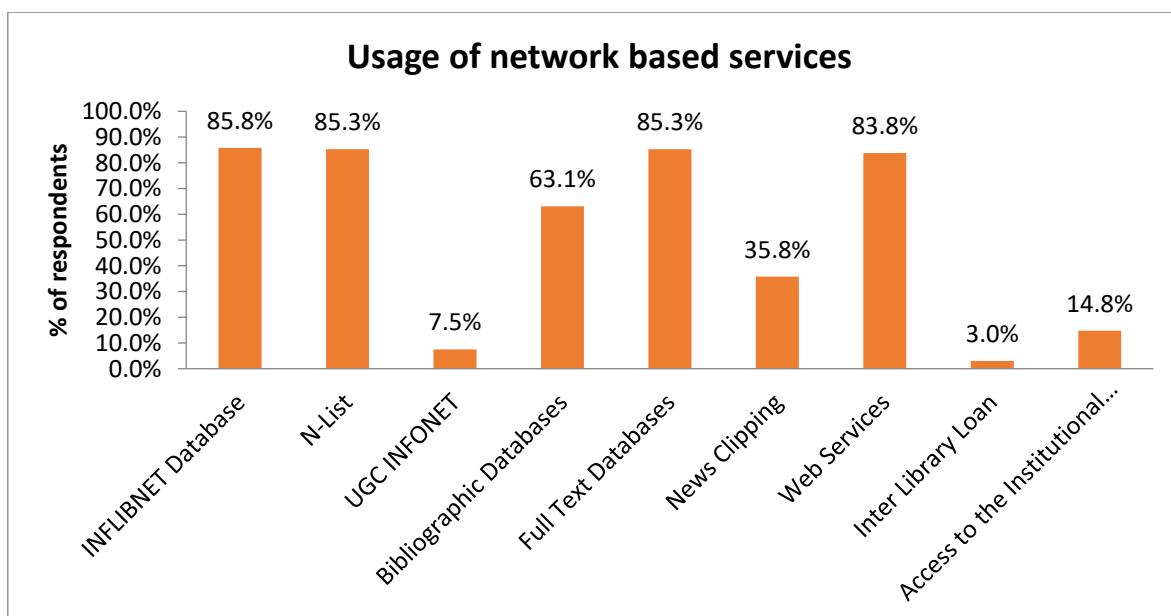
Figure: 4.2.10 Usage of Network-based Service

From table and figure 4.2.10, it is quite clear that out of 396 respondents, the majority of 340 (85.8%) users had availed of INFLIBNET database, 338 (85.3%) users had availed of N-List, 30 (7.5%) users had availed of UGC INFONET, 250 (63.1%) users had availed of

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bibliographic databases, 338 (85.3%) users had availed of full-text databases, 142 (35.8%) users had availed of news clipping, 332 (83.8%) users had availed of web services and 59 (14.8%) users had availed of institutional repository services. While 12 (0.3%) users availed of the facility of interlibrary loan. It is interpreted that a significant no of users availed of the INFLIBNET database, N-LIST, bibliographic, full text, and web services.

4.2.11: Problems faced while availing of network-based services

Table: 4.2.11 Problems faced while availing of network-based services

Problems	Yes		No		Total	
	Frequency (No of users)	Percent	Frequency (No of users)	Percent	Frequency (No of users)	Percent
Non-availability to get the desired e-resources	393	99.2%	3	0.8%	396	100.0%
Lack of awareness	56	14.1%	340	85.9%	396	100.0%
Limited number of computers	394	99.5%	2	0.5%	396	100.0%
Outdated Hardware Systems	364	91.9%	32	8.1%	396	100.0%
Slow Internet speed	392	99.0%	4	1.0%	396	100.0%
Limited Orientation programs	101	25.5%	295	74.5%	396	100.0%
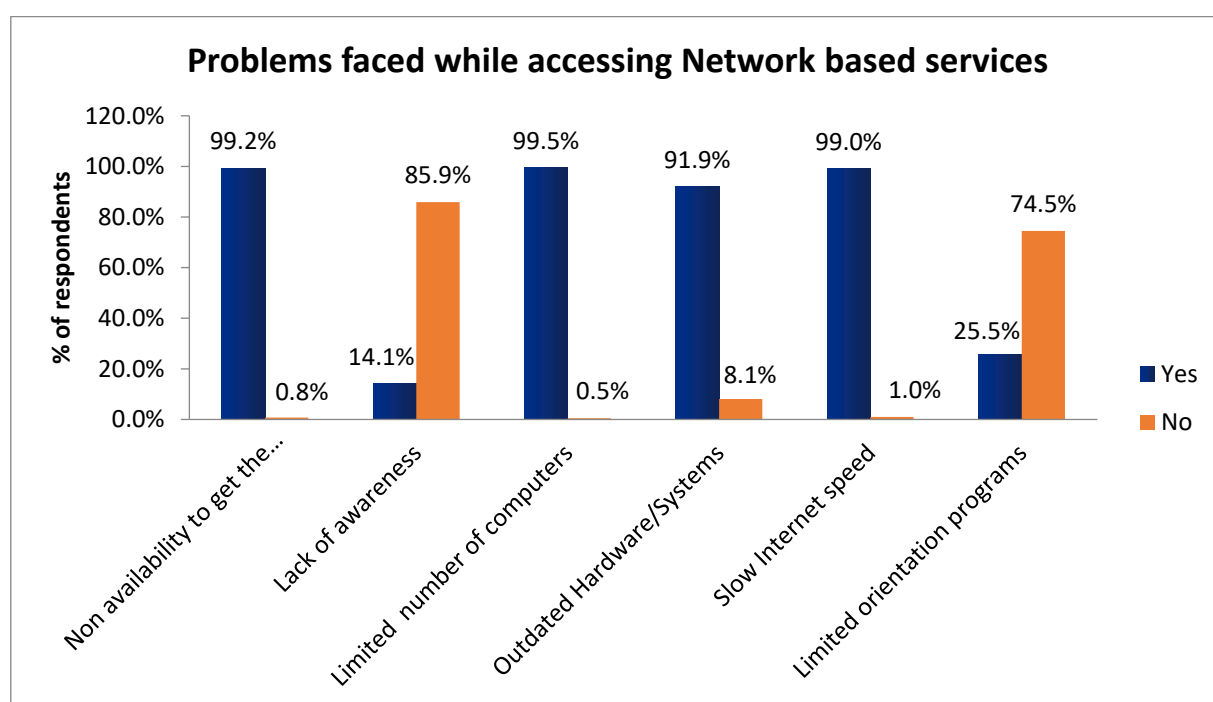
Figure: 4.2.11 Problems faced while accessing network-based services

Table and figure 4.2.11 depict that 393 (99.2%) users faced the problem of non-availability to get the desired e-resources, 56 (14.1%) users were not aware of network-based services, 394 (99.5%) users faced the problem of a limited number of computers, 364 (91.9%) users faced the problem of outdated hardware systems and 392 (99%) users faced the problem of slow internet speed. However, 101 (25.5%) users faced the problem of limited orientation programs. It is disappointing that a large number of users were facing problems while availing of network-based library services, like nonavailability of desired resources, limited number of computers, outdated hardware system, and slow internet speed.

4.2.12: Expectations from the library relating to automation and network-based service

Table: 4.2.12 Expectations from the library relating to automation and network-based service

Expectations of users regarding Automation and Network-based service	Yes		No		Total	
	Frequency (No of users)	Percent	Frequency (No of users)	Percent	Frequency (No of users)	Percent
IT-based new services in the college library for the users	395	99.7%	1	0.3%	396	100.0%
Website/Blog of the college library	395	99.7%	1	.3%	396	100.0%
More Books, and journals in electronic format	395	99.7%	1	0.3%	396	100.0%
By adding more latest versions Computers	395	99.7%	1	0.3%	396	100.0%
Creating campus-wide online network facility	396	100.0%	0	0.0%	396	100.0%
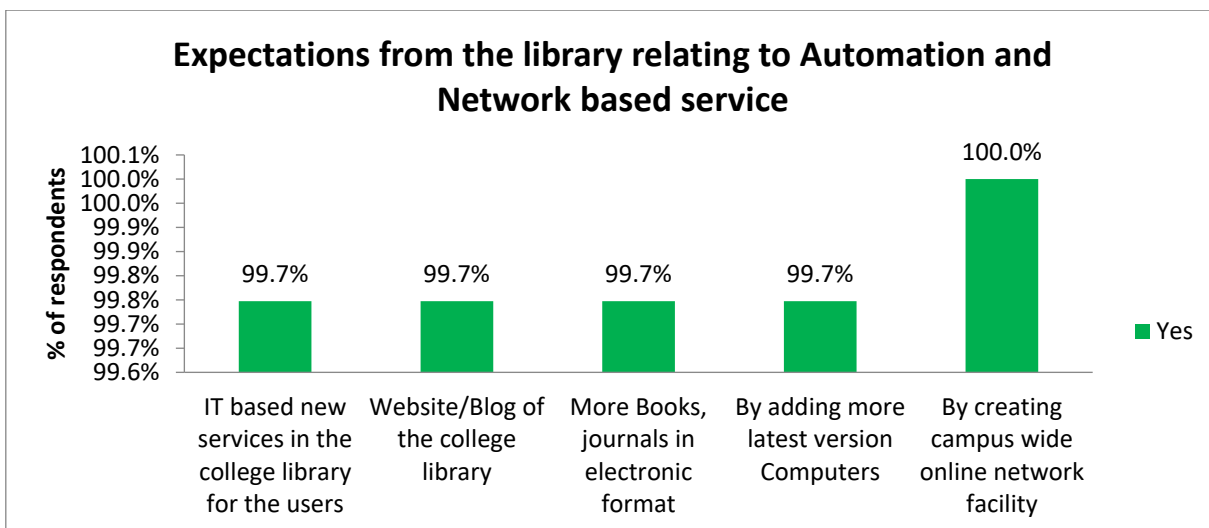
Figure: 4.2.12 Expectations from the library relating to automation and network-based service

Table and figure 4.2.12 show the response related to expectations from the library relating to Automation and Network-based service. As shown in the table 395 (99.7%) users expected IT-based new services, Website/Blog, more books, and journals in electronic format, by adding more latest version computers, and 396 (100.0%) users expected campus-wide online network facilities. So far concerning users' expectations from the library related to automation and network-based services, they are in more demand; almost all the respondents expected IT-based new services, Websites/blogs, e-books, e-journals, the addition of more latest version computers and campus-wide online network facilities.

4.2.13: Satisfaction with Automated Library Services

Table: 4.2.13 Satisfaction with Automated Library Services

Library Services		Very Highly Satisfied	Highly Satisfied	Satisfied	Least Satisfied	Not Satisfied	Total
Online catalogue services	Frequency	0	41	148	52	155	396
	Percent	0.0%	10.3%	37.3%	13.2%	39.2%	100.0%
Issue/Return	Frequency	2	87	78	90	139	396
	Percent	0.5%	21.9%	19.7%	22.8%	35.1%	100.0%
Digital Reference services	Frequency	1	3	9	8	375	396
	Percent	0.2%	0.7%	2.3%	2.1%	94.7%	100.0%
Bibliographic services	Frequency	1	7	145	63	180	396
	Percent	0.2%	1.8%	36.6%	15.9%	45.5%	100.0%
New arrivals	Frequency	1	5	110	124	156	396
	Percent	0.2%	1.3%	27.8%	31.3%	39.4%	100.0%
Online Reservation of books	Frequency	0	1	26	29	340	396
	Percent	0.0%	.2%	6.6%	7.4%	85.8%	100.0%
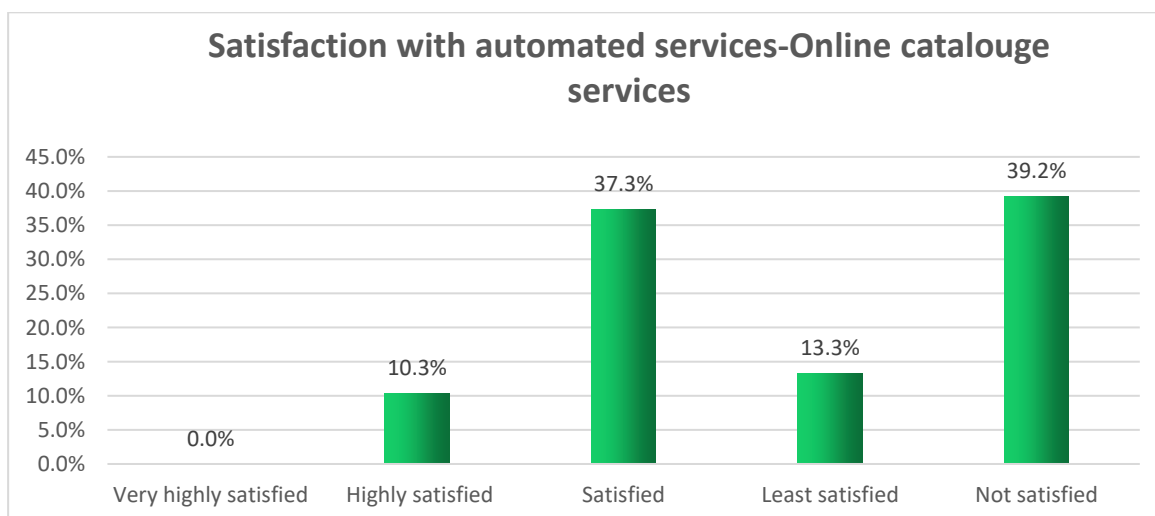
Figure: 4.2.13.1 Satisfaction with automated services -online catalogue services

Table 4.2.13 and Figure 4.2.13.1 reveal the response related to the satisfaction of users with online catalog services. It is observed that 155 (39.2%) users were not satisfied with online catalog services; 148 (37.3%) users were satisfied; 52 (13.3%) users were least satisfied; 41 (10.3%) users were highly satisfied with online catalog services; whereas none of the users were very highly satisfied with the same. It is a matter of great regret that no user was very highly satisfied and 39.2% of users were not satisfied with automated online catalog services.

Satisfaction with automated services- Issue/Return
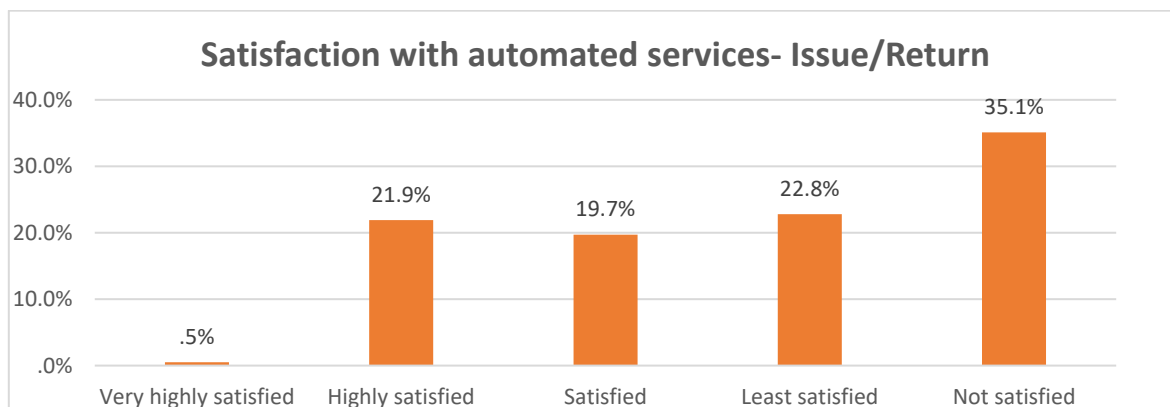
Figure: 4.2.13.2 Satisfaction with automated services -issue/return

Table 4.2.13 and Figure 4.2.13.2 reveal the response related to satisfaction of users with Issue and return services. It is observed that 139 (35.1%) users were not satisfied with the issue/return; 90 (22.8%) users were least satisfied; 87 (21.9%) users were highly satisfied with the issue/return, 78 (19.7%) users were satisfied; whereas 2 (0.5%) users were very highly satisfied with the same. Again, it is not a good sign that more than 64% of users were not satisfied with automated circulation services

Satisfaction with automated services-Digital Reference
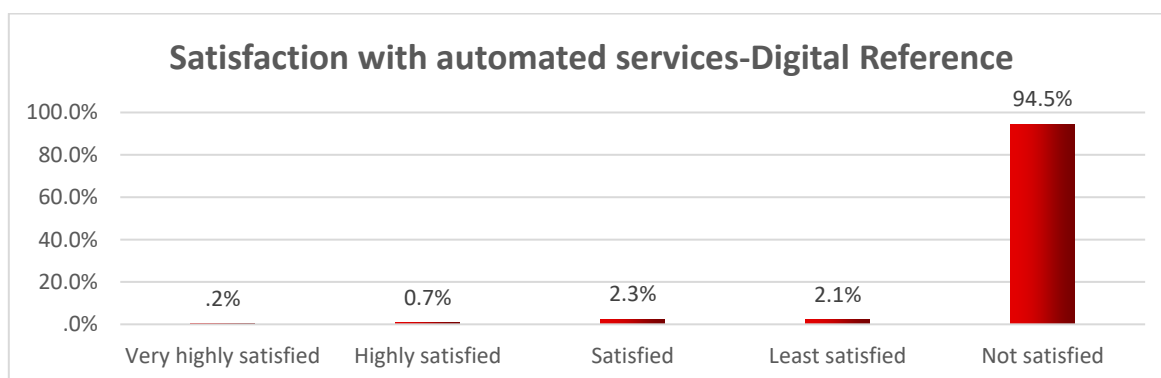
Figure: 4.2.13.3 Satisfaction with automated services -digital reference services

Table 4.2.13 and Figure 4.2.13.3 reveal the response related to satisfaction of users with digital reference services. It is observed that 375 (94.5%) users were not satisfied with digital reference services 9 (2.3%) users were satisfied 8 (2.1%) users were least satisfied 3

159

(0.7%) users were highly satisfied with digital reference services, whereas 1 (0.2%) user was very highly satisfied with the same. Thus, a significant number of users were not satisfied with automated digital reference services.
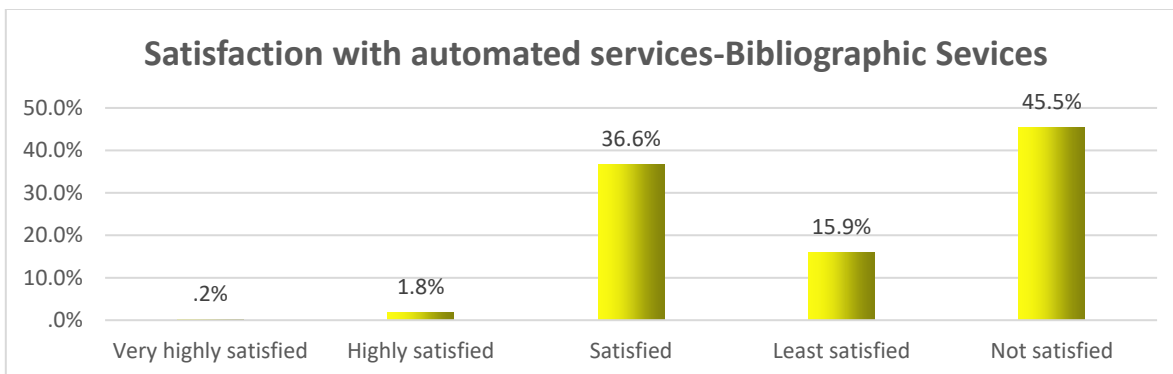
Figure: 4.2.13.4 Satisfaction with automated services- bibliographic services

Table 4.2.13 and Figure 4.2.13.4 reveal the response related to the satisfaction of users with bibliographic services. It is observed that 180 (45.5%) users were not satisfied with bibliographic services; 145 (36.6%) users were satisfied; 63 (15.9%) users were least satisfied; 7(1.8%) users were highly satisfied with bibliographic services; whereas 1 (0.2%) user was very highly satisfied with the same. It is a serious matter that almost 54 % of users were not satisfied with automated bibliographic services.
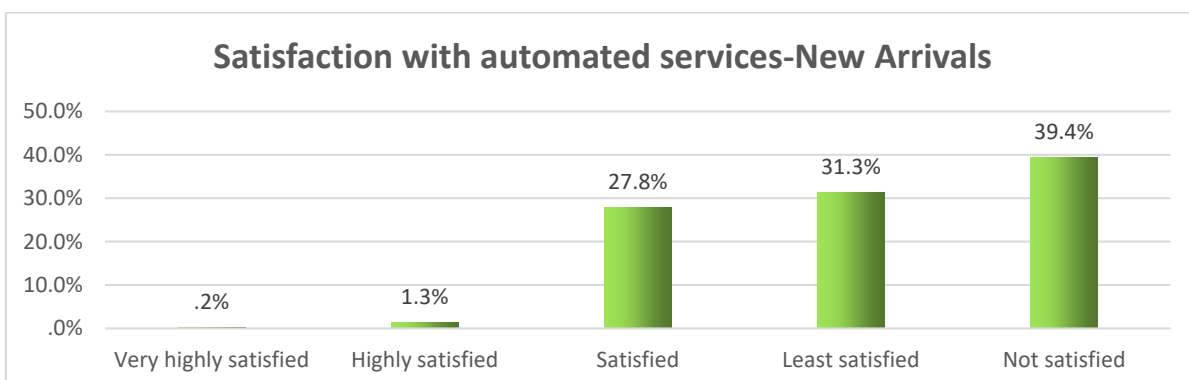
Figure: 4.2.13.5 Satisfaction with automated services -new arrivals

Table 4.2.13 and Figure 4.2.13.5 reveal the response related to satisfaction of users with new arrivals. It is observed that 156 (39.4%) users were not satisfied with new arrivals; 124 (31.3%) users were least satisfied; 110 (27.8%) users were satisfied; 15 (1.3%) users were highly satisfied with new arrivals and (0.2%) user was very highly satisfied with the same. Again, it is a matter with great concern that more than 72% users were not satisfied with automated new arrival services.
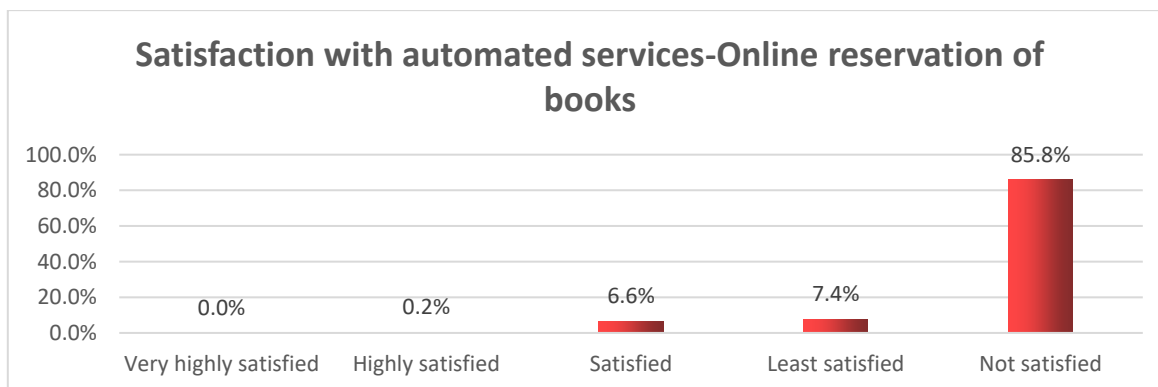
Figure: 4.2.13.6 Satisfaction with automated services-online reservation of books

Table 4.2.13 and Figure 4.2.13.6 reveal the response related to the satisfaction of users with online reservation of books. It is observed that 340 (85.8%) users were not satisfied with online reservation of books; none of the users was very highly satisfied with the same; 29 (7.4%) users were least satisfied;26 (6.6%) users were satisfied and 1 (0.2%) user was highly satisfied with online reservation of books. Thus, a significant number of users were not satisfied with automated online reservation of books.

4.2.14: Satisfaction with network-based services offered by college libraries

Table: 4.2.14 Satisfaction with network-based services offered by college libraries

		Very highly Satisfied	Highly Satisfied	Satisfied	Least Satisfied	Not Satisfied	Total
INFLIBNET Database	**Frequency**	2	52	235	49	58	396
	Percent	0.5%	13.1%	59.4%	12.4%	14.6%	100.0%
N-LIST	**Frequency**	0	220	110	6	60	396
	Percent	0.0%	55.6%	27.7%	1.6%	15.1%	100.0%
UGC INFONET	**Frequency**	0	2	15	8	371	396
	Percent	0.0%	0.5%	3.8%	2.1%	93.6%	100%
Bibliographic Databases	**Frequency**	0	2	65	170	159	396
	Percent	0.0%	0.5%	16.5%	42.9%	40.1%	100.0%
Full Text Databases	**Frequency**	1	1	22	266	106	396
	Percent	0.3%	0.3%	5.5%	67.1%	26.8%	100.0%
News Clipping	**Frequency**	1	1	12	93	289	396
	Percent	0.3%	0.3%	3.0%	23.5%	72.9%	100.0%

Web Services	Frequency	2	2	103	224	65	396
	Percent	0.5%	0.5%	26.1%	56.5%	16.4%	100.0%
Inter Library Loan	Frequency	0	0	1	1	394	396
	Percent	0.0%	0.0%	0.3%	0.3%	99.4%	100.0%
Access to the Institutional Repository	Frequency	1	2	6	37	350	396
	Percent	0.3%	0.5%	1.5%	9.4%	88.3%	100.0%
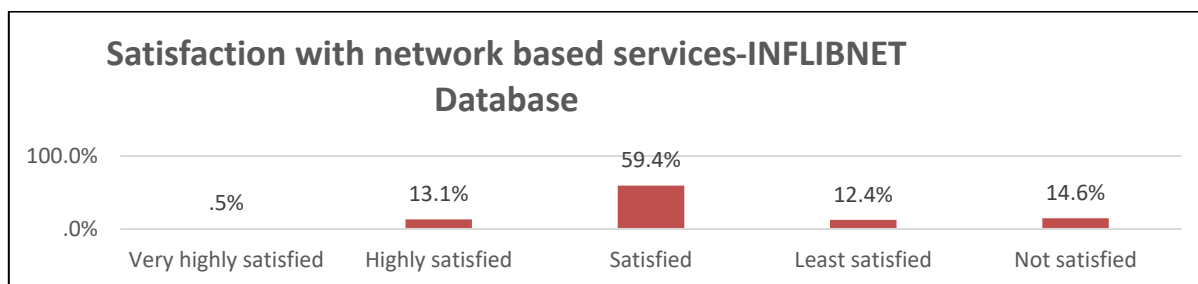
Figure: 4.2.14.1 Satisfaction with network-based services-INFLIBNET database

As shown in Table 4.2.14 and figure 4.2.14.1 that 235 (59.4%) were satisfied 58 (14.6%) were not satisfied with INFLIBNET database service; 52 (13.1%) were highly satisfied; 49 (12.4%) were least satisfied and 2 (0.5%) users were very highly satisfied with INFLIBNET database network service. INFLIBNET database network-based services need to be revise as 40% users were not satisfied.
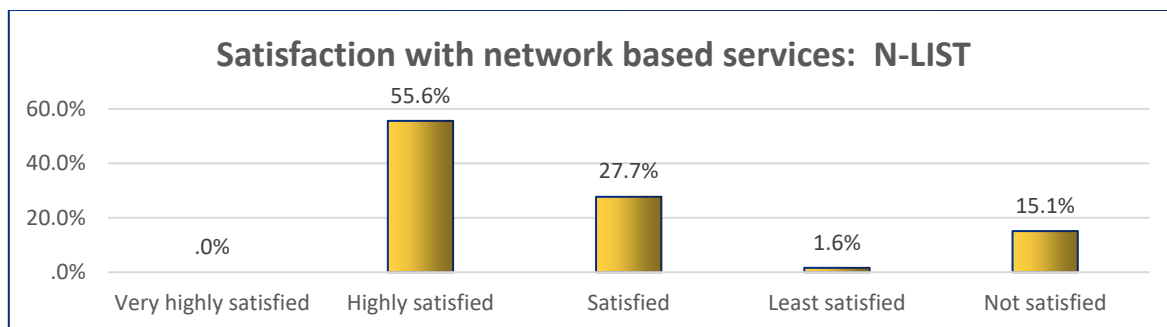
Figure: 4.2.14.2 Satisfaction with network-based services: N-LIST

As shown in Table 4.2.14 and figure 4.2.14.2 that 220 (55.6%) users were highly satisfied with N-LIST network-based service; 110 (27.7%) were satisfied; 60 (15.1%) were not satisfied; 6 (1.6%) were least satisfied, and none of the user was very highly satisfied. It is good to see that significant number of users were highly satisfied.
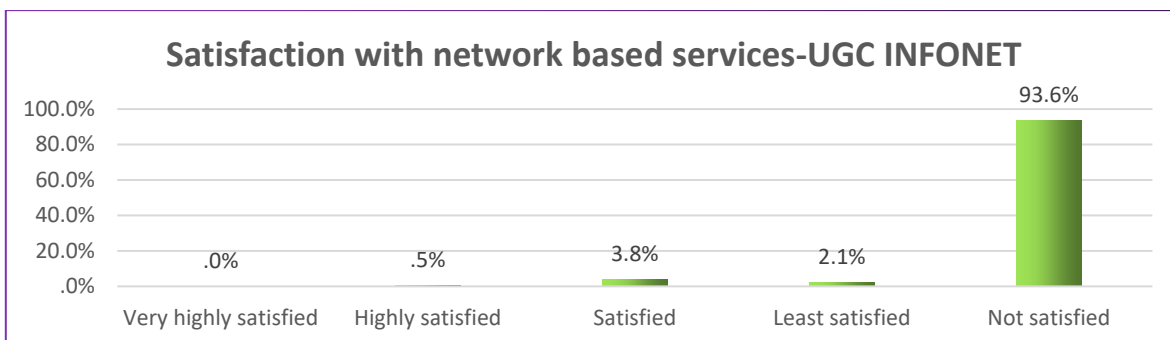
Figure: 4.2.14.3 Satisfaction with network-based services: UGC-INFONET

As shown in Table 4.2.14 and figure 4.2.14.3 that 371 (93.6%) were not satisfied; 15 (3.8%) were satisfied; 8 (2.1%) were least satisfied; 2 (0.5%) users were highly satisfied with UGC INFONET network-based service, and none of the user was very highly satisfied. There is need to pay special attention that a significant number of users were not satisfied with UGC INFONET network-based services; as UGC INFONET stopped providing network-based services because Ministry of education formed e-shodhsindhu merging three consortia, UGC INFONET, NLIST and INDSET-AICTE consortium.
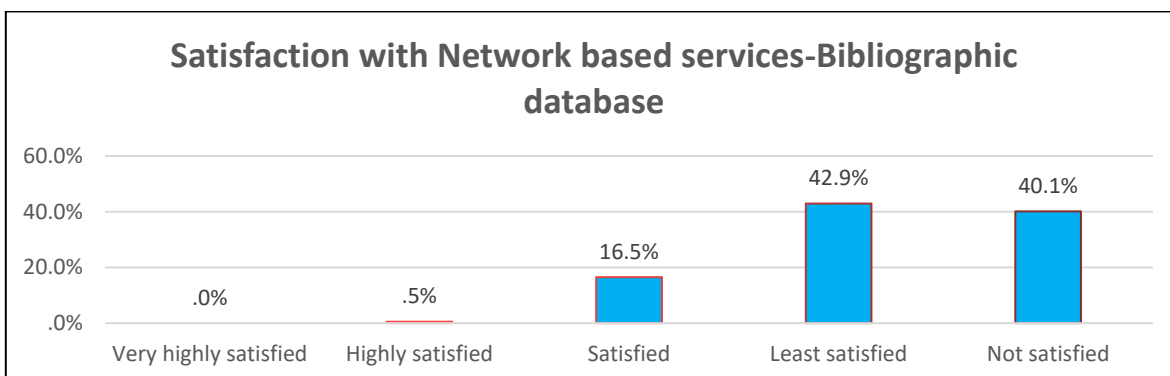
Figure: 4.2.14.4 Satisfaction with network-based services- Bibliographic database

As shown in Table 4.2.14 and figure 4.2.14.4 that 170 (42.9%) were least satisfied, 159 (40.1%) were not satisfied; 2 (0.5%) users were highly satisfied with bibliographic database network-based service and none of the user was very highly satisfied. It is need to be noted that significant number of users were not satisfied with network-based bibliographic database services.
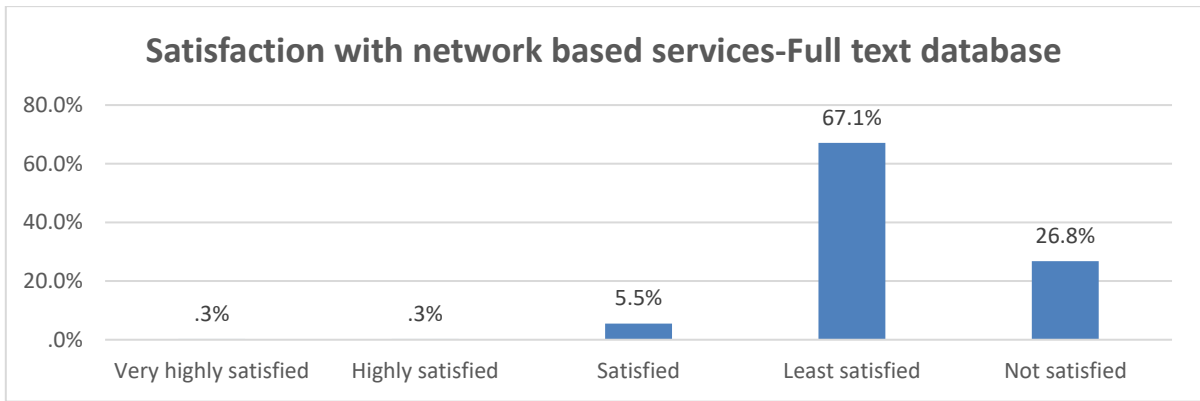
Figure: 4.2.14.5 Satisfaction with network-based services- Full text database

As shown in Table 4.2.14 and figure 4.2.14.5 that 266 (67.1%) were least satisfied; 106 (26.8%) users were not satisfied; 22 (5.5%) were satisfied; 1 (0.3%) user was very highly satisfied with Full Text Database network-based service and 1 (0.3%) user was highly satisfied. So far it is concern with full text network-based services a large number of users were least satisfied.
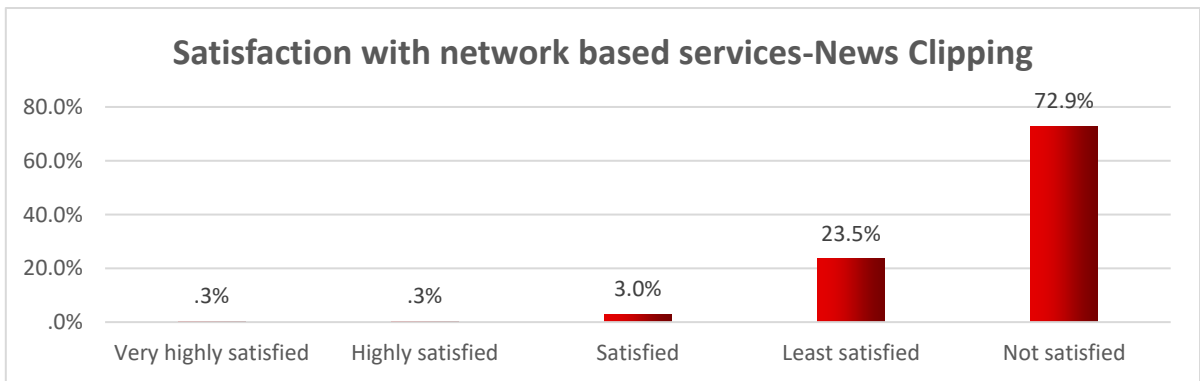
Figure: 4.2.14.6 Satisfaction with network-based services- News clipping

As shown in Table 4.2.14 and figure 4.2.14.6 that 289 (72.9%) users were not satisfied; 93 (23.5%) were least satisfied; 12 (3%) were satisfied; 1 (0.3%) user was very highly satisfied with News clipping network-based service and 1 (0.3%) user was highly satisfied. Again, it is surprised to see that a significant number of users were not satisfied with network-based news clipping services.
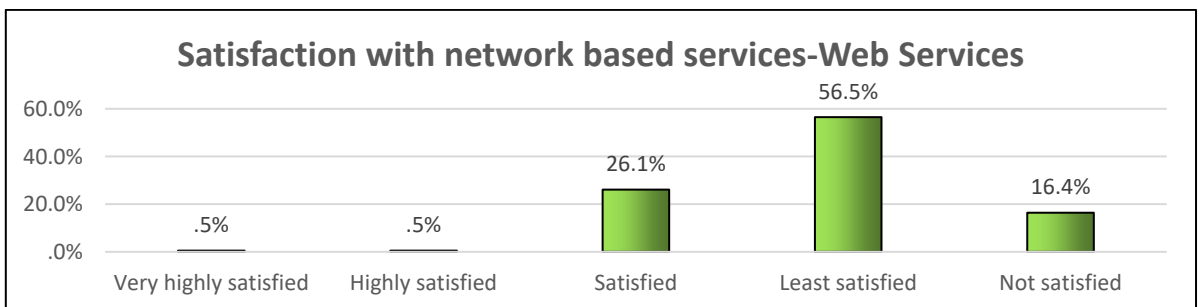
Figure: 4.2.14.7 Satisfaction with network-based services- Web services

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As shown in Table 4.2.14 and figure 4.2.14.7 that 224 (56.5%) were least satisfied; 103 (26.1%) were satisfied; 65 (16.4%) users were not satisfied; 2 (0.5%) users were very highly satisfied with Web services network-based service and 2 (0.5%) users were highly satisfied. The concerned college libraries need to address this issue that a significant number of users were least satisfied with network-based web services.

Satisfaction with network based services-Inter Library Loan
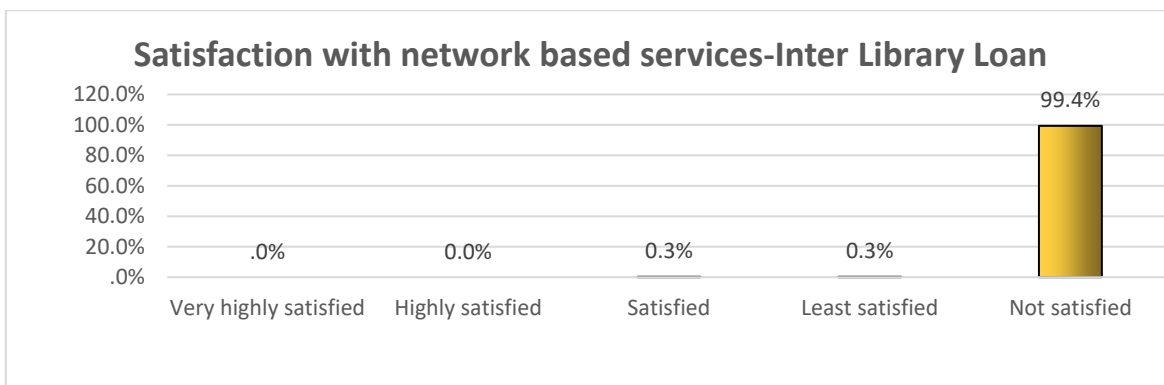
Figure: 4.2.14.8 Satisfaction with network-based services- Inter library loan

As shown in Table 4.2.14 and figure 4.2.14.8 that 394 (99.4%) were not satisfied; 1 (0.3%) user was satisfied with Inter library loan network-based service, 1 (0.3%) was least satisfied, and none of the users was very highly and highly satisfied. The participating college libraries need to note down the issue and must improve the network-based inter library loan services, as significant number of users were not satisfied with this service.

Satisfaction with network based services-Access to the Institutional Repository
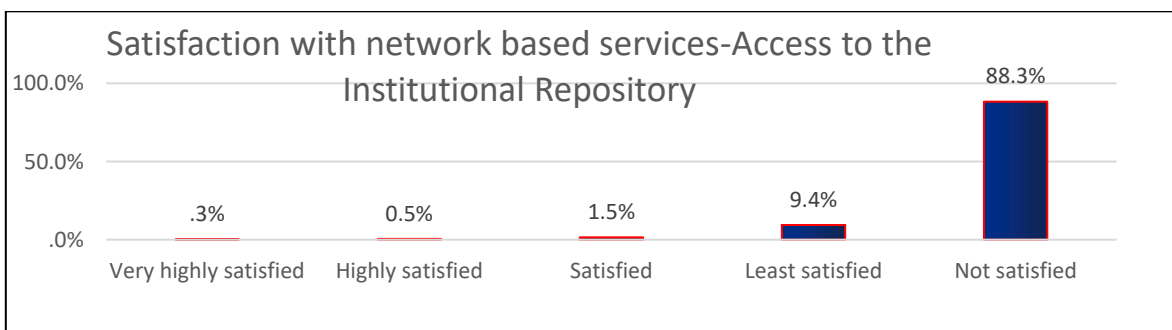
Figure: 4.2.14.9 Satisfaction with network-based services- Access to the institutional repository

As shown in Table 4.2.14 and figure 4.2.14.9 that 350 (88.35%) users were not satisfied; 37 (9.4%) users were least satisfied; 6 (1.5 %) users were satisfied; 2 (0.5%) users were highly satisfied;1 (0.3%) user was very highly satisfied with access to the institutional repository network-based service. College libraries need to address the issue of network-based access to institutional repository services; as a significant number of users were not satisfied with this service.

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4.3 CONCLUSION

Data collected with the help of questionnaire to know the satisfaction level of the users with automated and network-based services offered and the difficulties users met in acquiring computerized and network-based services; refined, codified and organized for analysis and interpretation. Data Analysis is done in a Simple Percentage and in some cases, the cumulative Percentage Method is implemented with the help of SSPS software (Statistical Package for Social Sciences). Several tables, separate tables, line graphs, bar charts, column charts, pie charts, area graphs, cone charts, cylinder charts, etc. created in this chapter with the help of MS Excel and SPSS software, used Chi-square test and P-Value detection to shape data in intelligent and translatable forms. Hence, the data presented verified the second and fourth objectives and fourth hypothesis.

CHAPTER V

FINDINGS, SUGGESTIONS AND CONCLUSION

5. 1 INTRODUCTION

In all 14 of Himachal Pradesh's select state colleges, the immediate study has been conducted. The response rate was 100%, as indicated by the 396 users and the 14 librarians/library in-charges of 14 select state colleges who were chosen for the study. The responses from the respondents of these fourteen distinct college libraries of the state were therefore be the main focus of the data analysis that was conducted. The percentage of participants who completed the entire questionnaires were ascertained, and the answers to every single question on the questionnaires were totalled and matched. To show the findings, tables, graphs, and pie diagrams have been made. In the process of automating and networking libraries in certain state colleges in Himachal Pradesh. The findings drawn from the analysis and interpretation of the data were seen to be quite important.

5.2 Major findings of the study based on responses received form the libraries presented here.

5.2.1. Year of Establishment

It is found that out of the 14 state colleges surveyed, Vallabh Govt. College, Mandi, Distt. Mandi (H.P), was first one set up in 1948 in Himachal Pradesh and the last one of fourteenth college included in study is Govt. College, Naura Distt. Kangra (H.P) set up in 2005. So, it is the cocktail of new and old established colleges.

5.2.2. NACC Accreditation

It is found that 42.9% colleges have NAAC grade B, whereas 28.6% of colleges have grade B^+. Only 7.1% of colleges scored highest grade i.e. A. While 14.3% colleges have NAAC grade B^{++}, whereas 7.1% of colleges have grade C.

5.2.3 Type of Discipline

It is found that 32.8% of the users had opted to social sciences discipline, followed by 30.3% had science, 13.9% had computer application, 7.6% had commerce and 7.3% had management studies. 5.3% users had opted to B.Ed. Only 1.3% users had chosen other type of discipline.

5.2.4 Qualification of Librarians/Library In-Charges

It is found that Significant of (92.9%) librarians/ library In-charges were post-graduate, while 7.1% done other courses. None of the Librarians/In Charges were NET qualified which is an essential qualification for being college Librarian.

5.2.5 Designation and Educational Qualification of Head of the Libraries

It is found that significant of 92.9% librarians/In-charges are postgraduates and 7.1% librarian/In-charge was undergraduate; 50% assistant librarian, were post graduate and 7.1% assistant librarian was undergraduate. Only 7.1% library assistant was undergraduate. 14.3% library attendants were undergraduate and 7.1% was postgraduate and only 7.1% peon was undergraduate. It is a serious matter, one library In-Charge was undergraduate, as per UGC guidelines, a college librarian/In charge should be post-graduate with UGC NET. However, no librarian/In Charge is UGC NET qualified. No any library can provide automation and network-based services to its users if the library staff is not fulfilling the required educational qualification. Recently, on 15 January 2024, Himachal Pradesh Government, filled 93 vacant posts of college assistant librarians by transferring school librarians with reference to letter no EDN-HE(15)B(6)-Transfer/2020-Lib, Directorate of Higher Education, Himachal Pradesh, Shimla-171001 dated 15 January, 2024. No one is UGC NET qualified and most of the assistant librarians do not fulfill the required educational qualifications and they are almost on the verge of retirement.

5.2.6 Experience of Librarians/Library In-Charges

It is found that majority of library professionals 64.3% had over 20 years of experience, 21.4% with 11–15 years, and 7.1% with 6–10 years, only 7.1% had 16–20 years of experience.

5.2.7 Availability of Library Staff in College Libraries

It is found that 57.1% of colleges had assistant librarians and 85.7% of colleges had librarians. 42.9% of colleges had library attendants, compared to just 7.1% with library assistants. A majority of colleges 64.3% had a peon in their library. However, no library has a restorer.

5.2.8 Total Registered Members of Library

It is found that 42.9% colleges registered up to 50 staff members with library, whereas 35.7% of colleges registered 51-100 and 21.4% of colleges registered more than 100 staff members. Majority of 28.6% of colleges registered up to 1000 students with library followed by 21.4% of colleges registered 4001-5000, 14.3% of colleges registered 1001-2000, 14.3% of colleges registered 2001-3000 and 14.3% of colleges registered 3001-4000 students with library. Only 7.1% of colleges registered more than 5000 students with library.

5.2.9 Nature of Library Building

It is found that 50% of the college library buildings are attached with college's building, while remaining half of them were separated.

5.2.10 Seating Capacity in Library

It is found that 71.4% colleges have only one floor, whereas 28.6% colleges have two floors in library. Majority of 50% college's library has 1-100 sitting capacity, followed by 35.7% have 101-200 and 7.1% have 201-300. Only 7.1% college's library have 301-400 sitting capacity.

5.2.11 Library Working hours

It is found that 85.7% colleges have 6-7 library working hours per day, whereas 14.3% colleges have 7-8 hours per day.

5.2.12 Collection of printed books and periodicals

It is found that 35.7% libraries have 10001-20000 books followed by 28.6% have up to 10000 books, 21.4% have 30001-40000 books and 7.1% have 20001-30000 books. Only 7.1% colleges have more than 40000 books in library. Majority of (35.7%) of libraries have more than 40 periodicals, whereas 28.6% of libraries have 21-30 and 21.4% of libraries have up to 20 periodicals. But 14.3% of libraries have 31-40 periodicals

5.2.13 Library Budget Expenditure for the year 2017-18,2018-19 and 2019-20

With descriptive statistics of library budget for three different years from 2017 to 2020, it is found that the average library budget for the year 2017-2018 was 225155.83 with standard deviation 150239.17. While the mean library budget for the year 2018-2019 was

193219.27 with standard deviation 207946.33. The average library budget for the year 2019-2020 was 243303.33 with standard deviation 231470.85.

5.2.14 Year of Library Automation initiated

It is found that out of 14 libraries, most of (4) libraries were initiated into library automation in 2009, whereas 2 libraries were initiated in 2012 and one is initiated in 2003. One of them is initiated in 2007 and one is initiated in 2009.

5.2.15 Application of Library Automation Software

It is found that 92.9% libraries used soul for automation, whereas 7.1% libraries used Alice for window.

5.2.16 Status of Automation and Networking

It is observed that only 14.3% college libraries were fully automated and rest 85.7% libraries are partially automated. It is also found out that all libraries completed cataloguing module; OPAC is completed in 64.29% libraries; administration module is completed by 57.14% libraries; report is completed in 50% libraries; Circulation module completed by 42.86% libraries; Acquisition modules completed by 35.71% libraries and Serial control module completed by 14.28% libraries.

5.2.17 Status of Automation Software Module

It is found that majority of libraries 57.1% which were automated used administration for library automation purpose. While majority of 64.3% partially automated libraries used acquisition software, 57.1% partially automated libraries used circulation module and 85.7% partially automated libraries used serial control module. 64.3% automated libraries used OPAC software for library automation purpose. All of the libraries were using cataloguing for library automation purpose.

5.2.18 Challenges occurred while automating the libraries

It is found that 42.9% of librarians/ in charges faced budget allocation problem during automation process of library. 50% of librarians/ in charge faced the problem of unskilled staff. However, 64.3% of librarians/ in charge faced the problem of insufficient ICT infrastructure. Only 7.1% librarian/ in charge faced the problem lack of incurious staff members and 28.6% faced improper vendor support during automation process of library.

21.4% librarians/ in charge faced problems in retro-conversion of data. As automation is the threshold to enter in the world of digital library system; so whatever, the challenges occurred while automating the library need to be resolved.

5.2.19 Problems faced in providing computer and network-based services

It is observed that 64.3% libraries faced problem of adequate funds for subscription of library network-based services, whereas 57.1% libraries faced the problem of internet connectivity, (35.7%) libraries faced problem of improper ICT Infrastructure, 14.3% libraries faced problem of unskilled staff members and 7.1% library faced problem of unfriendly user interface. It is not good for the health of a library system where more than 50 % of libraries were facing the problem of funds and internet connectivity, unskilled staff, insufficient ICT infrastructure and there is a stern need to address the problems of libraries related to computer and network- based services so that the informational need of state college library users could be catered.

5.2.20 Usage of automated and network-based services:

It is found that 63.1% users were availing of online catalogue services; 62.2% users were availing of bibliographic services; 60.6% users were availing of new arrivals; 42.4% users were availing of issue/return books; 15.1% users were availing of online reservation of books and 7.5% users were availing of digital reference services,
So far it is concerning with network-based library services that majority of 85.8% users availed of INFLIBNET database; 85.3% users availed of N-List; 85.3% users availed of full text databases; 83.8% users availed of web services; 63.1% users availed of bibliographic databases; 35.8% users availed of news clipping; 14.8% users availed of institutional repository services; 7.5% users availed of UGC INFONET While 0.3% users availed of the facility of interlibrary loan.

5.2.21 Satisfaction of users with automation and network-based services.

Satisfaction level of users with automated library services: it is observed that 10.3% users were highly satisfied with online catalog services, 37.3% users were satisfied and 13.3% users were least satisfied, whereas 39.2% users were not satisfied with online catalog services and none of the users were very highly satisfied with the same; 21.9% users were highly satisfied with the issue/return, 19.7% users were satisfied and 22.8% users were least satisfied, whereas 35.1% users were not satisfied with the issue/return and

0.5% users were very highly satisfied with the same; 0.7% users were highly satisfied with digital reference services, 2.3% users were satisfied and 2.1% users were least satisfied, while 94.5% users were not satisfied with digital reference services and 0.2% user was very highly satisfied with the same; 1.8% users were highly satisfied with bibliographic services, 36.6% users were satisfied and 15.9% users were least satisfied, whereas 45.5% users were not satisfied with bibliographic services and 0.2% user was very highly satisfied with the same; 1.3% users were highly satisfied with new arrivals, 27.8% users were satisfied, and 31.3% users were least satisfied, while 39.4% users were not satisfied with new arrivals and 0.2% user was very highly satisfied with the same; 0.2% user was highly satisfied with online reservation of books, 6.6% users were satisfied and 7.4% users were least satisfied, whereas 39.4% users were not satisfied with online reservation of books and none of the users was very highly satisfied with the same.

Satisfaction level of users with network-based services

It is observed that 0.5% users were very highly satisfied with INFLIBNET database network service, 13.1% were highly satisfied, 59.4% were satisfied, 12.4% were least satisfied and 14.6% were not satisfied with INFLIBNET database service; 55.6% users were highly satisfied with N-LIST network-based service, 27.7% were satisfied, 1.6% were least satisfied, 15.1% were not satisfied and none of the user was very highly satisfied; 20.5% users were highly satisfied with UGC INFONET network-based service, 3.8% were satisfied, 2.1% were least satisfied, 93.6% were not satisfied and none of the user was very highly satisfied; 0.5% users were highly satisfied with bibliographic database network-based service, 16.5% were satisfied, 42.9% were least satisfied, 40.1% were not satisfied and none of the user was very highly; 0.3% user was very highly satisfied with Full Text Database network-based service, 0.3% user was highly satisfied, 5.5% were satisfied, 67.1% were least satisfied and 26.8% users were not satisfied; 0.3% user was very highly satisfied with News clipping network-based service, 0.3% user was highly satisfied, 3% were satisfied, 23.5% were least satisfied and 72.9% users were not satisfied; 0.5% users were very highly satisfied with Web services network-based service, 0.5% users were highly satisfied, 26.1% were satisfied, 56.5% were least satisfied and 16.4% users were not satisfied; 0.3% user was satisfied with Inter library loan network-based service, 0.3% was least satisfied, 99.4% were not satisfied and none of the users was very highly and highly satisfied; 0.3% user was very highly satisfied with access to the institutional repository

network-based service, 0.5% users were highly satisfied, 1.5 % users were satisfied, 9.4% users were least satisfied and 88.35% users were not satisfied.

5.2.22 Internet and mode of connectivity facility in college libraries

It is found that 85.7% libraries used internet and all of the libraries have internet facility in library. 78.6% of libraries used broad band for internet, whereas 14.3% used Wi-Fi and 7.1% of libraries used leased line.

5.3 ACCOMPLISHMENT OF THE OBJECTIVES

5.3.1 To find out the Current Status of library Automation and Networking in Himachal Pradesh's State Colleges.

It is observed that out of 14 select state college libraries, only (14.3%) college libraries are fully automated and rest (85.7%) libraries are partially automated. It is also found out that all 14 libraries are partially or completely automated and out of 14 libraries cataloguing module completed by 14(100%); OPAC is completed in 9 (64.29%) libraries; administration module is completed by 8(57.14% libraries; report is completed in 7 (50%) libraries; Circulation module completed by 6 (42.86%) libraries; Acquisition modules completed by 5 (35.71%) libraries and Serial control module completed by 2 (14.28%) libraries.

Thus, it is a matter of great concern that this is the condition of the libraries which are NAAC accredited and are part of study on some special criteria; one can imagine the status of automation and networking in the libraries which are established in the second decade of 21st century. **Consequently, the data presented in above paragraph 5.3.1, fulfilled the first objective by finding out the Current Status of library Automation and Networking in Himachal Pradesh's State Colleges.**

5.3.2 The purpose of this research is to investigate the utilisation of library services and the satisfaction level of users with library automation and services based on networks.

Usage of automated and network-based services:

It is found that 250 (63.1%) users were availing of online catalogue services; 248 (62.2%) users were availing of bibliographic services; 240 (60.6%) users were availing of new arrivals; 168 (42.4%) users were availing of issue/return books; 60 (15.1%) users were

availing of online reservation of books and 30 (7.5%) users were availing of digital reference services,

So far it is concerning with network-based library services that majority of 340 (85.8%) users availed of INFLIBNET database; 338 (85.3%) users availed of N-List; 338 (85.3%) users availed of full text databases; 332 (83.8%) users availed of web services; 250 (63.1%) users availed of bibliographic databases; 142 (35.8%) users availed of news clipping; 59 (14.8%) users availed of institutional repository services; 30 (7.5%) users availed of UGC INFONET While 12 (0.3%) users availed of the facility of interlibrary loan.

Regarding the satisfaction of users with automation and network-based services let us see the satisfaction level of users with automated library services: it is observed that 41 (10.3%) users were highly satisfied with online catalog services, 148 (37.3%) users were satisfied and 52 (13.3%) users were least satisfied, whereas 155 (39.2%) users were not satisfied with online catalog services and none of the users were very highly satisfied with the same; 87 (21.9%) users were highly satisfied with the issue/return, 78 (19.7%) users were satisfied and 90 (22.8%) users were least satisfied, whereas 139 (35.1%) users were not satisfied with the issue/return and 2 (0.5%) users were very highly satisfied with the same; 3 (0.7%) users were highly satisfied with digital reference services, 9 (2.3%) users were satisfied and 8 (2.1%) users were least satisfied, while 375 (94.5%) users were not satisfied with digital reference services and 1 (0.2%) user was very highly satisfied with the same; 7 (1.8%) users were highly satisfied with bibliographic services, 145 (36.6%) users were satisfied and 63 (15.9%) users were least satisfied, whereas 180 (45.5%) users were not satisfied with bibliographic services and 1 (0.2%) user was very highly satisfied with the same; 5 (1.3%) users were highly satisfied with new arrivals, 110 (27.8%) users were satisfied, and 124 (31.3%) users were least satisfied, while 156 (39.4%) users were not satisfied with new arrivals and 1 (0.2%) user was very highly satisfied with the same; 1 (0.2%) user was highly satisfied with online reservation of books, 26 (6.6%) users were satisfied and 29 (7.4%) users were least satisfied, whereas 340 (39.4%) users were not satisfied with online reservation of books and none of the users was very highly satisfied with the same.

Satisfaction level of users with network-based services: It is observed that 2 (0.5%) users were very highly satisfied with INFLIBNET database network service, 52 (13.1%) were highly satisfied, 235 (59.4%) were satisfied, 49 (12.4%) were least satisfied and 58

(14.6%) were not satisfied with INFLIBNET database service; 220 (55.6%) users were highly satisfied with N-LIST network-based service, 110 (27.7%) were satisfied, 6 (1.6%) were least satisfied, 60 (15.1%) were not satisfied and none of the user was very highly satisfied; 2 (0.5%) users were highly satisfied with UGC INFONET network-based service, 15 (3.8%) were satisfied, 8 (2.1%) were least satisfied, 371 (93.6%) were not satisfied and none of the user was very highly satisfied; 2 (0.5%) users were highly satisfied with bibliographic database network-based service, 65 (16.5%) were satisfied, 170 (42.9%) were least satisfied, 159 (40.1%) were not satisfied and none of the user was very highly; 1 (0.3%) user was very highly satisfied with Full Text Database network-based service, 1 (0.3%) user was highly satisfied, 22 (5.5%) were satisfied, 266 (67.1%) were least satisfied and 106 (26.8%) users were not satisfied; 1 (0.3%) user was very highly satisfied with News clipping network-based service, 1 (0.3%) user was highly satisfied, 12 (3%) were satisfied, 93 (23.5%) were least satisfied and 289 (72.9%) users were not satisfied; 2 (0.5%) users were very highly satisfied with Web services network-based service, 2 (0.5%) users were highly satisfied, 103 (26.1%) were satisfied, 224 (56.5%) were least satisfied and 65 (16.4%) users were not satisfied; 1 (0.3%) user was satisfied with Inter library loan network-based service, 1 (0.3%) was least satisfied, (99.4%) were not satisfied and none of the users was very highly and highly satisfied; 1 (0.3%) user was very highly satisfied with access to the institutional repository network-based service, 2 (0.5%) users were highly satisfied, 6 (1.5 %) users were satisfied, 37 (9.4%) users were least satisfied and 350 (88.35%) users were not satisfied.

Therefore, from above paragraph it is quite clear and the data expressed itself that significant number of users were least and not satisfied with automated and network-based services. **Thus, data displayed in above paragraphs under heading 5.3.2 fulfilled the second objective by exploring Library services' usage and users' satisfaction level about Library Automation and Networked-based services.**

5.3.3 To find out the automation and network issues state college libraries are facing.

Problems faced in providing automated and network-based services: It is found that 42.9% of librarians/ in charges faced budget allocation problem during automation process of library. 50% of librarians/ in charge faced the problem of unskilled staff. However, 64.3% of librarians/ in charge faced the problem of insufficient ICT infrastructure. Only 7.1% librarian/ in charge faced the problem lack of incurious staff members and 28.6%

faced improper vendor support during automation process of library. 21.4% librarians/ in charge faced problems in retro-conversion of data. (64.3%) libraries faced problem of adequate funds for subscription of library network-based services, whereas (57.1%) libraries faced the problem of internet connectivity, (35.7%) libraries faced problem of improper ICT Infrastructure, (14.3%) libraries faced problem of unskilled staff members and 01 (7.1%) library faced problem of unfriendly user interface. It is not good for the health of a library system where more than 50 % of libraries were facing the problem of funds and internet connectivity, unskilled staff, insufficient ICT infrastructure.

As the results drawn on the basis of data mentioned in above paragraph that there is a need to address the problems of libraries related to automation and network- based services so that the informational need of state college library users could be catered.

Therefore, paragraph 5.3.3 supports the third objective of the study which found out the automation and network issues state college libraries are facing.

5.3.4 To identify issues users are having with accessing computer and network-based services.

Problems faced in accessing network-based services: (99.2%) users faced problems of non-availability to get the desired e-resources, (94.2%) lack of awareness, (99.5%) limited number of computers, (91.9%) outdated hardware/systems and (99%) slow internet speed. However, the majority of (74.5%) users had problem of not getting proper instructions in the library and so far, it is concerning with expectation of users from the library Automation and Network based service, it is quite clear that most of (99.7%) users expect IT based new services, Website/Blog, more books, journals in electronic format, by adding more latest version computers, leased line for the internet and Wi-Fi facility in the college library. Whereas, all of users expect campus wide network facility.

Thus, from the data related to the problems users are facing regarding accessing of network-based services and their expectation form the libraries need to be strongly addresses.

The data in paragraph 5.3.4. prove the fourth objective of the study by identifying issues users are having with accessing computer and network-based services.

5.4 TESTING OF HYPOTHESES

The status of hypotheses tested against findings is discussed here.

5.4.1. **First Hypothesis: There are a few college libraries with automation and networking facilities in Himachal Pradesh.**

Null Hypotheses

Findings

It is observed that out of 14 select state college libraries, only (14.3%) college libraries are fully automated and rest (85.7%) libraries are partially automated. It is also found out that all 14 libraries are partially or completely automated and out of 14 libraries cataloguing module completed by 14(100%); OPAC is completed in 9 (64.29%) libraries; administration module is completed by 8(57.14% libraries; report is completed in 7 (50%) libraries; Circulation module completed by 6 (42.86%) libraries; Acquisition modules completed by 5 (35.71%) libraries and Serial control module completed by 2 (14.28%) libraries.

Consequently, it is very clear from the data collected and displayed in above paragraphs 5.4.1. that there are a few college libraries providing automation and networking facilities in Himachal Pradesh. Thus, the first hypothesis is accepted.

5.4.2. Second Hypothesis: Information Technology based infrastructural facilities are not fully developed in college libraries.

Null Hypotheses

Findings

It can be concluded that 07 (50%) colleges had 2-5 desktop in library for users, 05 (35.7%) colleges had 6-10 desktop. Only 02 (14.3%) colleges had more than 10 desktop in library for users; whereas regarding the availability of information and communication technology infrastructure in libraries; 5.1.21, **majority of libraries have** (71.4%) library server, (71.4%) Xerox machine, (85.7%) UPS, (78.6%) CCTV and (92.9%) printers. **While most of libraries don't have** (64.3%) barcode reader, (85.7%) audio players, (85.7%) CD/DVD player, (85.7%) projector, (71.4%) telephone, (92.9%) fax machine and (71.4%) digital camera. Only 28.6% libraries have telephone, 35.7% have barcode reader and 14.3% of libraries have audio players.

Therefore, the data displayed in above paragraph 5.4.2. that information technology based infrastructural facilities are not fully developed in college libraries. Hence second hypothesis is accepted

5.4.3. **Third hypothesis: State college libraries are not provided with adequate funds for providing automation and networking facilities**.

Null Hypotheses

Findings

So far it is concerning with expenditure on ICT by 14 select state college libraries for the year 2017-18, 2018-19 and 2019-20 for purchase of computers, and other ICT items; 3 (21.42 %) libraries' expenditure on ICT was between Rs.1-100000, then 1 (7.14 %) library had expenditure on ICT in the range of Rs. 100001-200000 lakhs; 1 (7.14 %) library had the expenditure on ICT between Rs.200001-300000 lakhs; whereas only 1 (7.14%) college library had expenditure on ICT in three years was between 400000-500000 and 8 (57 %) of libraries spent nothing on ICT infrastructure, which is a matter of great concern.

Thus, the data displayed in above paragraph evident itself that state college libraries are not provided with adequate funds for providing automation and networking facilities which accepted the third hypothesis.

5.4.4. Users are not fully satisfied with the automation and networking facilities of the college libraries of Himachal Pradesh.

Null Hypotheses

Findings

Satisfaction level of users with automated library services: it is observed that 41 (10.3%) users were highly satisfied with online catalog services, 148 (37.3%) users were satisfied and 52 (13.3%) users were least satisfied, whereas 155 (39.2%) users were not satisfied with online catalog services and none of the users were very highly satisfied with the same; 87 (21.9%) users were highly satisfied with the issue/return, 78 (19.7%) users were satisfied and 90 (22.8%) users were least satisfied, whereas 139 (35.1%) users were not satisfied with the issue/return and 2 (0.5%) users were very highly satisfied with the same; 3 (0.7%) users were highly satisfied with digital reference services, 9 (2.3%) users were satisfied and 8 (2.1%) users were least satisfied, while 375 (94.5%) users were not

satisfied with digital reference services and 1 (0.2%) user was very highly satisfied with the same; 7 (1.8%) users were highly satisfied with bibliographic services, 145 (36.6%) users were satisfied and 63 (15.9%) users were least satisfied, whereas 180 (45.5%) users were not satisfied with bibliographic services and 1 (0.2%) user was very highly satisfied with the same; 5 (1.3%) users were highly satisfied with new arrivals, 110 (27.8%) users were satisfied, and 124 (31.3%) users were least satisfied, while 156 (39.4%) users were not satisfied with new arrivals and 1 (0.2%) user was very highly satisfied with the same; 1 (0.2%) user was highly satisfied with online reservation of books, 26 (6.6%) users were satisfied and 29 (7.4%) users were least satisfied, whereas 340 (39.4%) users were not satisfied with online reservation of books and none of the users was very highly satisfied with the same.

Satisfaction level of users with network-based services: It is observed that 2 (0.5%) users were very highly satisfied with INFLIBNET database network service, 52 (13.1%) were highly satisfied, 235 (59.4%) were satisfied, 49 (12.4%) were least satisfied and 58 (14.6%) were not satisfied with INFLIBNET database service; 220 (55.6%) users were highly satisfied with N-LIST network-based service, 110 (27.7%) were satisfied, 6 (1.6%) were least satisfied, 60 (15.1%) were not satisfied and none of the user was very highly satisfied; 2 (0.5%) users were highly satisfied with UGC INFONET network-based service, 15 (3.8%) were satisfied, 8 (2.1%) were least satisfied, 371 (93.6%) were not satisfied and none of the user was very highly satisfied; 2 (0.5%) users were highly satisfied with bibliographic database network-based service, 65 (16.5%) were satisfied, 170 (42.9%) were least satisfied, 159 (40.1%) were not satisfied and none of the user was very highly; 1 (0.3%) user was very highly satisfied with Full Text Database network-based service, 1 (0.3%) user was highly satisfied, 22 (5.5%) were satisfied, 266 (67.1%) were least satisfied and 106 (26.8%) users were not satisfied; 1 (0.3%) user was very highly satisfied with News clipping network-based service, 1 (0.3%) user was highly satisfied, 12 (3%) were satisfied, 93 (23.5%) were least satisfied and 289 (72.9%) users were not satisfied; 2 (0.5%) users were very highly satisfied with Web services network-based service, 2 (0.5%) users were highly satisfied, 103 (26.1%) were satisfied, 224 (56.5%) were least satisfied and 65 (16.4%) users were not satisfied; 1 (0.3%) user was satisfied with Inter library loan network-based service, 1 (0.3%) was least satisfied, (99.4%) were not satisfied and none of the users was very highly and highly satisfied; 1 (0.3%) user was very highly satisfied with access to the institutional repository network-based service, 2 (0.5%) users were highly

satisfied, 6 (1.5 %) users were satisfied, 37 (9.4%) users were least satisfied and 350 (88.35%) users were not satisfied.

Therefore, from above paragraph it is quite clear and the data expressed itself that significant number of users were least and not satisfied with automated and network-based services.

Finally, as the data presented in above paragraph 5.4.4. testified the fourth hypothesis that users are not fully satisfied with the automation and networking facilities of the college libraries of Himachal Pradesh. Hence the fourth hypothesis is accepted.

5.5 RECOMMENDATIONS

1. Vacant position of library staff is a big concern which should be filled up as soon as possible. Scarcity of staff members lead to hamper the automated and network-based services.

2. College librarians/ library in-charges need to create library blog/ web page for digital content management, which enhance the service quality of library by sharing of e-resources, services, databases etc.

3. More e-books and journals need to be subscribed so that users can be served through online mode to enable the users to access these e-resources at their time and pace.

4. Proper ICT infrastructure should be maintained and latest version of computers with latest hardware configuration need to be include the college libraries of Himachal Pradesh. Outdated hardware/systems should replace with the current version.

5 Wide network facility in the Campus should be ensured with local server and LAN/WAN networking system.

6. As no library can afford all the resources; consequently, leased line facility for each user should be provided to strengthen the networked and e-content sharing system of the libraries around the world.

7. Wi-Fi facility in the college campus should be provide to all library users to take advantage of e-resources.

8. Desired e-resources should be made available to the users, for that interest and demand of the users should be considered in priority basis.

9. There is a need to run the library orientation and know your library programme on regular intervals so that users can be well aware about the library resources. Proper instructions to the users should be passed to let them gain the profit of automation and network-based services.

10 Speed of internet and connectivity are also the big issue and that need to be addressed to facilitate the users in better way in an automation and networking atmosphere.

11 Clear budget allocation and sufficient funds to be allocated for smooth functioning of library's physical resources and automation and network-based services.

12 Unskilled staff is also a great issue which should be resolved by providing enough opportunity for staff members to enhance their professional capacities and capabilities to serve the users with pretty pleasant way in an automation and networking environment. They should provide facilities to attend seminars, conferences, webinar and workshops. Lack of interest need to be converted in positive waves.

13 New information technology-based services need to be introduced in college libraries for the users. e.g., easy Access to e-journals facility provided through other user friendly network platforms.

14 User interface should be user-friendly which assist the users to access the automated and network-based services in a better way.

15 while purchasing the automation software and subscribing networking membership, the service provider/ vendor support should be ensured.

16 Retro conversion of data, while automating the library is a big and main task. Each and every field should be filled up with full information otherwise the users can't be served properly.

5.6 CONCLUSIONS

Data collected through the questionnaire from 396 users, including students and teacher of Himachal Pradesh's 14 select state colleges. Librarians/library in-charges of all the select state colleges and 396 users of the libraries included in the study responded to the questionnaires positively. Response rate is 100%, thus, the analysis and data interpretation based on the responses of 14 select state college libraries.

The professional qualification of Library staff plays a vital role in organizing automation and networking-based library services and impart information seeking skill in users. 09 Librarians and 05 Assistant Librarians were the part of this study. No Librarian is found Ph.D and M.Phil holder; nine (09) Librarians, five (05) Assistant Librarians are qualified as M.LISc. and 01 Assistant Librarian has B.LISc., a professional qualification. No, any librarian is UGC NET qualified, which is the current criterion of recruitment. Most of the librarians/library in-charges have more than 20 years professional experience, which is a good thing, but length of service and professional experience of librarian has no concern with library automation and networking system, consequently, the longer period of service is not a mark that the same person is technologically sound, it is felt that such librarians/library in-charges are having conventional ideas. Library automation is the threshold and demand of the current time to enter into the electronic, digital and virtual library system and to cope up with the sophisticated and demanding users need of an hour. Thus, librarian/library in-charges should be technologically sound and trained along with professional qualifications so that they can provide healthier services to the users in an automation and network-based culture.

It is found that out of 14 select state college libraries, five (5) post of Librarian lying vacant, followed by six (6) post of Assistant Librarian lying vacant whereas twelve (12) post of Library assistant is not filled up, followed by twelve (12) post of Restorer is also lying vacant. Seven (7) post of Library Attendant and five (5) post of Peon lying vacant in the 14 state colleges included in the study. Most of the libraries are struggling with the scarcity of library staff, which is not a good sign of healthy library system.

ICT infrastructure plays a vital role in providing library automation and network-based services to its users. It is revealed that significant of the libraries part of this study were facing the problem of ICT infrastructure. Out of 14 Libraries seven (7) libraries had less than five computers, three (3) libraries had not library server, one (1) library had not library printer, nine (9) libraries had not bar code printer, four (4) libraries had not xerox machine, four (4) libraries had not UPS, twelve (12) libraries had not audio player, twelve (12) libraries had not CD/DVD player, twelve (12) libraries had not Projector (Multimedia/over-head/LCD), ten(10) libraries had not telephone, thirteen(13) libraries had not Fax Machine, three (3) libraries had not CCTV camera, ten (10) libraries had not Digital/Web camera. It is a serious concern and library administration need to look into the matter itself. Provision for ICT budget expenditure is not sufficient.

The distribution of 14 college libraries based on three years budget expenditure during 2017-18, 2018-19 and 2019-20 indicates that 8 (57 %) libraries the expenditure on ICT was 0 (Zero), which is a matter of great concern. While 3 (21.42 %) libraries' expenditure on ICT was between Rs.1-100000, then 1 (7.14 %) library has expenditure on ICT in the range of Rs. 100001-200000 lakhs, 1 (7.14 %) library are getting the expenditure on ICT between Rs.200001-300000 lakhs, whereas only 1 (7.14%) college library has expenditure on ICT in three years is between 400000-500000. ICT plays an important part in library automation and network-based environment. Head of the college, library committee and administration should interfere in the matter and resolve the issue.

It is also observed that from all 14 libraries of select state, only 2 (14.28%) libraries of colleges are fully automated and rest 12(85.72%) libraries are partially automated.

It is found that out of 14 libraries, cataloguing module completed by 14(100%); OPAC is completed in 9 (64.29%) libraries; administration module is completed by 8 (57.14% libraries; report is completed in 7 (50%) libraries; Circulation module completed by 6 (42.86%) libraries; Acquisition modules completed by 5 (35.71%) libraries, and Serial control completed by 2 (14.28%), Thus, it is very clear that the status of library automation is not healthy. While the rest of library world is entered and about to enter in the digital/virtual library system; but the state college libraries are too behind in automating its resources, which presents the bad picture of library automation.

The librarian/library in-charges were told to write about the library software they are using in their respective library. It is observed that from all 14 select state libraries of colleges, 13 libraries use SOUL software and 01library use Alice for Window library software. The status of the resources/services are being offered by select state college libraries with the support of library networks/consortia is also not so good. It is observed that from all 14 select state libraries of colleges 12(85.72%) libraries offered e-books to its users; 12(85.72%) libraries offered e-journals; 5 (35.72%) libraries provide Library News/Notice services; 1(7.14%) offered subject guide; 2(14.28%) libraries provide access to digital repositories; 2 (14.28%) offered Ask-a Librarian service; 1(7.14%) provide digital reference service; 1(7.14%) provide inter library loan service; 1(7.14%) library provide real time service; 1(7.14%) another service not mentioned in the table and graph and content service, FAQ and instant message services is not provided by any library.

Problems faced by librarians/library in-charges, out of 14 select state libraries during automation, it is found that 9 (64.28%) librarians/library in-charges say insufficient ICT infrastructure; 7 (50%) librarians/ librarian in-charges say unskilled staff; 6 (42.8%) librarians/library in-Charges say insufficient allocation of budget; 4 (28.57%) librarians/library in-charges say improper vender support; 3 (21.42%) librarians say problem in retro-conversion of data like problems and 1 (7.14%) librarians/library in-charges faced problem of incurious staff members.

It is observed that from all 14 select state libraries of colleges 9 (64.28%) libraries faced problem of limited funds for subscription of library networked based services; 8(57.15%) libraries faced internet connectivity problems; 5 (35.72%) faced improper ICT infrastructure related problems; 2 (14.28%) libraries faced the problem of incurious library staff and 1(7.14%) faced the problem of the unfriendly user interface.

Usage of Library automated and network-based services, out of all 396 users of 14 select state college libraries included in the study, 340 (86%) admitted that they availed of library automated and network-based services and only 56 (14%) users said that they didn't avail of the same.

It is observed that 41 (10.3%) users were highly satisfied with online catalog services, 148 (37.3%) users were satisfied and 52 (13.3%) users were least satisfied, whereas 155 (39.2%) users were not satisfied with online catalog services and none of the users were very highly satisfied with the same; 87 (21.9%) users were highly satisfied with the issue/return, 78 (19.7%) users were satisfied and 90 (22.8%) users were least satisfied, whereas and 2 (0.5%) users were very highly satisfied with the same; 3 (0.7%) users were highly satisfied with digital reference services, 9 (2.3%) users were satisfied and 8 (2.1%) users were least satisfied, while 375 (94.5%) users were not satisfied with digital reference services and 1 (0.2%) user was very highly satisfied with the same; 7 (1.8%) users were highly satisfied with bibliographic services, 145 (36.6%) users were satisfied and 63 (15.9%) users were least satisfied, whereas 180 (45.5%) users were not satisfied with bibliographic services and 1 (0.2%) user was very highly satisfied with the same; 5 (1.3%) users were highly satisfied with new arrivals, 110 (27.8%) users were satisfied, and 124 (31.3%) users were least satisfied, while 156 (39.4%) users were not satisfied with new arrivals and 1 (0.2%) user was very highly satisfied with the same; 1 (0.2%) user was highly satisfied with online reservation of books, 26 (6.6%) users were satisfied and 29

(7.4%) users were least satisfied, whereas 340 (39.4%) users were not satisfied with online reservation of books and none of the users was very highly satisfied with the same.

Satisfaction level of users with network-based services: It is observed that 2 (0.5%) users were very highly satisfied with INFLIBNET database network service, 52 (13.1%) were highly satisfied, 235 (59.4%) were satisfied, 49 (12.4%) were least satisfied and 58 (14.6%) were not satisfied with INFLIBNET database service; 220 (55.6%) users were highly satisfied with N-LIST network-based service, 110 (27.7%) were satisfied, 6 (1.6%) were least satisfied, 60 (15.1%) were not satisfied and none of the user was very highly satisfied; 2 (0.5%) users were highly satisfied with UGC INFONET network-based service, 15 (3.8%) were satisfied, 8 (2.1%) were least satisfied, 371 (93.6%) were not satisfied and none of the user was very highly satisfied; 2 (0.5%) users were highly satisfied with bibliographic database network-based service, 65 (16.5%) were satisfied, 170 (42.9%) were least satisfied, 159 (40.1%) were not satisfied and none of the user was very highly; 1 (0.3%) user was very highly satisfied with Full Text Database network-based service, 1 (0.3%) user was highly satisfied, 22 (5.5%) were satisfied, 266 (67.1%) were least satisfied and 106 (26.8%) users were not satisfied; 1 (0.3%) user was very highly satisfied with News clipping network-based service, 1 (0.3%) user was highly satisfied, 12 (3%) were satisfied, 93 (23.5%) were least satisfied and 289 (72.9%) users were not satisfied; 2 (0.5%) users were very highly satisfied with Web services network-based service, 2 (0.5%) users were highly satisfied, 103 (26.1%) were satisfied, 224 (56.5%) were least satisfied and 65 (16.4%) users were not satisfied; 1 (0.3%) user was satisfied with Inter library loan network-based service, 1 (0.3%) was least satisfied, (99.4%) were not satisfied and none of the users was very highly and highly satisfied; 1 (0.3%) user was very highly satisfied with access to the institutional repository network-based service, 2 (0.5%) users were highly satisfied, 6 (1.5 %) users were satisfied, 37 (9.4%) users were least satisfied and 350 (88.35%) users were not satisfied.

Therefore, from above paragraph it is quite clear and the data expressed itself that significant number of users were least and not satisfied with automated and network-based services.

Out of 396 users from 14 select state colleges included in the study, 394(99.5%) said that library had limited number of computers; 393(99.2%) users admitted that they were facing the problem of non-availability to get the desired e-resources; 392(99.0%) responded that speed of internet is very slow; 364(91.9%) admitted that their library had outdated

hardware/systems; 101(25.5%) admitted that they faced problem while availing of network-based service due to lack library orientation and only 56 (14.1%) said lack of awareness about network-based services.

Expectations from library relating to automation and network-based services, out of 396 users from 14 select state colleges included in the study, 396(100%) expected campus wide online network facilities; 395(99.5%) admitted that there is a need of IT based new services in the college library for the users; 395 (99.7%) expected Website/blog of the college library; 395 (99.7%) expected more books and journals in electronic format and 395(99.7%) expected to add more latest version computers.

To conclude it is found that status of automation and network-based services are not up to the satisfaction level of librarian and users. It should be the responsibility of directorate of higher education Govt. of Himachal Pradesh to address this alarming and unhealthy situation regarding automation and network- based resources and services in the state college library on priority basis, so that the informational needs of users comprising students and teachers of far-flung mountain remote areas of the state may be catered.

5.7 SUGGESTIONS FOR FURTHER RESEARCH

The following topics are recommended for further research.

1. Research on library automation and networking in higher educational institutes of Himachal Pradesh.
2. Study related to automation and networking in all non-Governmental private College libraries affiliated to Himachal Pradesh University.
3. A Comparative study of library automation and networking in Himachal Pradesh's medical college libraries.
4. A study on the status of Automation and networking in public libraries of Himachal Pradesh
5. Status of automation and Networking in polytechnical college libraries of Himachal Pradesh: A comparative study.

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Appendices

APPENDIX-I
STATE COLLEGES OF HIMACHAL PRADESH INCLUDED IN THE STUDY

S. NO	College	Establishment Year	Grade by NAAC	Students	Faculties	Total
1	Vallabh Government College Mandi, Distt. Mandi	1948	A	6300	150	6450
2	Government College of Teacher Education (GCTE) Dharamshala, Distt. Kangra	1956	B	136	12	148
3	Government College Chamba, Distt. Chamba	1958	B+	3000	114	3114
4	NSCBM Government College Hamirpur, Distt. Hamirpur	1964	B++	4500	70	4570
5	Government College Una, Distt. Una	1968	B	5000	96	5096
6	Government College Sanjauli, Distt. Shimla	1969	B+	3200	102	3302
7	Rajkiya Kanya Mahavidyalaya Shimla, Distt. Shimla	1971	B+	3500	100	3600
8	Government College Nalagarh, Distt. Solan	1973	B++	750	35	785
9	Goverment College Arki, Distt. Solan	1994	B	1100	50	1150
10	Government College, Ghumarwin, Distt.	1994	B	2932	75	3007

	Bilaspur					
11	Government College Joginder Nagar, Distt. Mandi	1994	B	2500	50	2550
12	Government College Palampur, Distt. Kangra	1994	B+	4100	55	4155
13	Government College Dharampur, Distt. Mandi	2005	B	505	30	535
14	Goverment College Naura, Distt. Kangra	2005	C	485	29	514
	Total			**38008**	**968**	**38976**

APPENDIX-II

ADDRESS OF COLLEGES INCLUDED IN THE STUDY

Sr. No	College	Year of Establishme nt	Address
1	Vallabh Goverment College Mandi,	1948	Vallabh Government College Mandi, District-Mandi (H.P) 175001, Phone: 01905-235505, Email: vgcmandi@yahoo.com Website https://www.vgcmandi.in/
2	Government Teachers College Education Dharamshala	1956	Government Teachers College Education Dharamshala, Distt - Kangra (H.P) 176215 Phone: 01892-223140, Email: gcdharamshala-hp@nic.in Website https://www.gcte.in/
3	Government Degree College Chamba	1958	Govt. Degree College Chamba 176314 Phone: 01899-222207 email: principalgcchamba@gmail.com Website https://gcchamba.edu.in/
4	N.S.C.B.M Government College Hamirpur	1965	N.S.C.B.M Government College Hamirpur 177005 Phone: 01972-222227 email: gdc_hamirpur@rediffmail.com Website http://www.gchamirpur.org/

5	Government College Una	1968	Government. PG College Una, Distt. Una-174303 Himachal Pradesh Phone-01975-226035 Email-Gcuna-hp@nic.in Website http://www.govtpgcollegeuna.in/
6	Government. College Sanjauli, Shimla	1969	Government. College Sanjauli, Shimla-171006, Himachal Pradesh Phone-FAX0177-2640332 Email ID: principalsanjauli [at] gmail [dot] com Website: www [dot] gcsanjauli [dot] com
7	RKMV, Shimla - Himachal Pradesh	1971	RKMV Shimla, Himachal Pradesh, India Phone: 0177 - 2807959, FAX: 0177 - 2808464 Email ID: shimlarkmv@gmail.com Website http://rkmvshimla.edu.in/
8	Government College, Nalagarh	1973	Government College, Nalagarh, The. Nalagarh, Distt - Solan, HP (174101) Phone: 01795-22306 Fax: 01795-22306 Website: www.gdcnalagarh.com Email: gcnalagarh@gmail.com
9	Government. Degree College Arki	1994	Government. Degree College Arki, Distt. Solan, Himachal Pradesh-173208, India Phone: 01796-220690 email: gcarki-hp@nic.in Website: www.gcarki.com
10	Swami Vivekanand Govt. Degree College Ghumarwin	1994	Swami Vivekanand Govt. Degree College Ghumarwin, Distt. Bilaspour (H.P) 174021 Phone: 01978-255551 Email: gcghumarwin-hp@nic.in Website https://gcghumarwin.org.in/
11	Rajiv Gandhi Memorial, Government College, Joginder Nagar	1994	Rajiv Gandhi Memorial, Govt. College, Joginder Nagar, Distt. Mandi (H.P.) - 65501 Phone: 01908-222426 email: gcjogindernagar-hp@nic.in Website http://www.gcjogindernagar.in/
12	Shaheed Capt. Vikram Batra Government College - Palampur	1995	Shaheed Capt. Vikram Batra Government College - Palampur, Tehsil- Palampur, District - Kangra, Himachal Pradesh - 176061 Phone: 01894-235973 Email: gcpalampur-hp@nic.in Website https://www.gcpalampur.ac.in/
13	Dr. Sarvepalli	2005	Dr. Sarvepalli Radhakrishanan Govt.

	Radhakrishanan Government Degree College Dharampur		Degree College Dharampur VPO & Tehsil Dharampur, Distt. Mandi, H.P. 175040 Phone: 1905-272870 email: gcdharampur@gmail.com Website https://gcdharampur.com/
14	Government College Naura	2005	Government College Naura , Vill. Naura, Tehsil. Dheera, Distt. Kangra (H.P) Phone: 01894 - 222837 Web: www.gcnaura.in Email: gcnaurahp [at] gmail [dot] com

Appendix-III
QUESTIONNAIRE -1

FOR LIBRARIANS/LIBRARY IN CHARGES

FORWARDING LETTER

Department of Library and Information Science, Lovely Professional University

Jalandhar, Punjab – 700 032

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QUESTIONNAIRE

(Status of Himachal Pradesh's Library Automation and Networking in Select State Colleges of

Himachal Pradesh)

To

The Librarian/ Library-in-Charge/ Asstt. Librarian

_____

Dear Sir/ Madam,

I am conducting a study on the above topic for award of Ph.D. Degree under the supervision and guidance of Dr. Jatinder Kumar, Librarian, in the Central Library, Lovely Professional University, Phagwara (Punjab).

I am collecting information on various aspects of the topic through a questionnaire. The study will help to know the Status and challenges faced by the College Librarians in providing Automation and Networking based services. Your worthy responses, remarks and suggestions will further help to improve the quality of college libraries' Automation and Networking based services in Himachal Pradesh

You are hereby requested to kindly spare a few minutes to fill up the questionnaire. The information supplied by you will be used for my research work only and will be kept confidential.

I shall be grateful to you for your early responses.

Thanking you in anticipation,

 Yours truly

Anup Singh (41800703)

Research Scholar

DLIS, Lovely Professional University Phagwara

Mob. No. 9805666959,8474087449

Email: anupjasyal@gmail.com

QUESTIONNAIRE FOR LIBRARY PROFESSIONALS
PART-A

1.0 Personal Information

    1.1 Name _____

    1.2 Designation _____

    1.3 Qualification (Please Tick whichever is applicable)

(i) UG ☐

(ii) PG ☐

(iii) PhD ☐

(iv) Other ☐

    1.4 Experience in years (Please Tick whichever is applicable)

(i) 0-5 Years ☐

(ii) 6-10 Years ☐

(iii) 11-15 Years ☐

(iv) 16-20 Years ☐

(v) Above 20 Years ☐

    1.5 Contact No. _____

    1.6 E-mail _____

ABOUT COLLEGE AND LIBRARY

PART-B

1.0 About College

1.1 Name of the College: _____

1.2 Year of Establishment: _____

1.3 Total Number of Staff Members (Mention Numbers only): _____

1.4 Total Number of Students (Mention Numbers only): _____

1.5 NAAC Grade: _____

2.0 About Library

2.1 Name of Library: _____

2.2 Year of Establishment: _____

2.3 Nature of Library Building

(i) Separate [   ]

(ii) Attach [   ]

2.4 Total Carpet Area of Library: _____

2.5 Number of Floors: _____

2.6 Sitting Capacity (Number of Users): _____

2.7 Total Number of Registered Staff Members with Library: _____

2.8 Total Number of Registered Students with Library: _____

2.9 Availability of Library Staff

S/N	Designation	Yes	No
(i)	Librarian	[ ]	[ ]
(ii)	Assistant Librarian	[ ]	[ ]
(iii)	Library Assistant	[ ]	[ ]
(iv)	Restorer	[ ]	[ ]
(v)	Library Attendant	[ ]	[ ]
(vi)	Peon	[ ]	[ ]

2.10 Total Number of Library Staff: _____

2.11 Total Number of Staff Members having professional qualification (Tick the highest Qualification only)

	UG	PG	PhD	Vacant	No any Professional Qualification
(i) Librarian	☐	☐	☐	☐	☐
(ii) Assistant Librarian	☐	☐	☐	☐	☐
(iii) Library Assistant	☐	☐	☐	☐	☐
(iv) Restorer	☐	☐	☐	☐	☐
(v) Library Attendant	☐	☐	☐	☐	☐
(vi) Peon	☐	☐	☐	☐	☐

2.12 library working hours per day: _____

3.0 Availability of Library Resources

3.1 Total Number of books available: _____

3.2 Total number of Periodicals (Newspapers/Magazines/Journals) subscribed: _____

3.3 Library Budget

3.3.1 Year (2017-2018): _____

3.3.2 Year (2018-2019): _____

3.3.3 Year (2019-2020): _____

<div align="center">

ABOUT ICT

PART-C

</div>

1.0 Information & Communication Technology Infrastructure

1.1 Number of Desktop/Computer (Available for users): _____

1.2 Availability of Library Server (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.3 Availability of Printers (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.4 Availability of Barcode Reader/ Scanner (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.5 Availability of Xerox Machine (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.6 Availability of UPS (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.7 Availability of Audio Player (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.8 Availability of CD/DVD Player (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.9 Availability of Projector (Multimedia/Over Head/LCD) (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.10 Availability of Telephone (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.11 Availability of Fax Machine (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.12 Availability of CCTV (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.13 Availability of Digital Camera/ Web Camera (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.14 (Any other) (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

2.0 Expenditure on ICT (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

2.1 If yes, then fill year-wise total budget separately

2.1.1 Year (2017-2018): _____

2.1.2 Year (2018-2019): _____

2.1.3 Year (2019-2020): _____

<div align="center">

STATUS OF LIBRARY AUTOMATION AND NETWORKING

PART-D

</div>

1.0 Status of Library Automation

1.1 In which year, library automation was initiated in the library? _____

1.2 Whether the Library is Automated or not (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

1.3. If yes, please specify: (i) Status of Automation (Please tick whichever is applicable)

(i) Fully ☐

(ii) Partially ☐

1.4 Software Module used for Library Automation purpose

S/No	Module	Automated	Not Automated
(i)	Administration	☐	☐
(ii)	Acquisition	☐	☐
(iii)	Catalouging	☐	☐
(iv)	Circulation	☐	☐
(v)	Serial Control	☐	☐
(vi)	OPAC	☐	☐
(vii)	Report	☐	☐

1.5 Which Library software used for Automation (Commercial/Open Source)?

(i) SOUL ☐

(ii) LibSys ☐

(iii) Koha ☐

(iv) E-Granthalaya ☐

(v) CDS/ISIS ☐

(vi) WINISIS ☐

(vii) ABCD ☐

(vii) NewGenLib ☐

(viii) VTLS ☐

(ix) Alce for Window ☐

(x) Other ☐

1.6 Problems faced during the automation process of library

S/No	Problem	Yes	No
(i)	Budget Allocation	☐	☐
(ii)	Unskilled Staff	☐	☐
(iii)	Insufficient ICT Infrastructure	☐	☐
(iv)	Lack of interest by staff members	☐	☐
(v)	Improper Vendor support	☐	☐
(vi)	Retro-conversion of data	☐	☐

2.0 Network Based Services

2.1 Whether the Library using Intranet? (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

2.2 Whether the Library has Internet facility (Please tick whichever is applicable)

(i) Yes ☐

(ii) No ☐

2.2.1 If yes, please tick against the Mode of Connectivity (Please tick whichever is applicable)

(i) Dial-up ☐

(ii) Leased Line ☐

(iii) Broad Band ☐

(iv) WI-FI ☐

(v) Other ☐

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2.3 Whether the Library is a member of any Library Network of India? (Please tick whichever is applicable)

(i)   Yes [   ]

(ii)   No [   ]

    2.3.1   If yes, please mention the name(s) of Library Network(s) (Please tick whichever is applicable)

    (i)   DELNET [   ]

    (ii)   INFLIBNET [   ]

    (iii)   CALIBNET [   ]

    (iv)   ADINET [   ]

    (v)   ERNET [   ]

    (vi)   Other [   ]

2.4 What are the resources/ services offered by the Library from the Networks?

S/No	Resources	Yes	No
(i)	E-Books	[ ]	[ ]
(ii)	E-Journals	[ ]	[ ]
(iii)	Subject Guide	[ ]	[ ]
(iv)	Access to Digital Repository	[ ]	[ ]
(v)	Digital Reference Services	[ ]	[ ]
(vi)	Content Alert	[ ]	[ ]
(vii)	Library News/Notice	[ ]	[ ]
(viii)	Inter Library Loan	[ ]	[ ]
(ix)	Ask- a- Librarian	[ ]	[ ]
(x)	FAQ Services	[ ]	[ ]
(xi)	Real Time Services	[ ]	[ ]
(xii)	Instant Message Services	[ ]	[ ]
(xiii)	Any Other	[ ]	[ ]

2.4 Whether the Library has the membership of any Library Consortium? (Please tick whichever is applicable)

(i)   Yes [   ]

(ii)   No   [   ]

2.4.1   If yes, please mention the name(s) of the consortia (Please tick whichever is applicable)

(i)   UGC INFONET   [   ]

(ii)   N-LIST   [   ]

(iii)   INDEST-AICTE   [   ]

(iv)   Other   [   ]

2.6 Problems faced in providing Network based services

S/No	Problem	Yes	No
(i)	Lack of funds for subscription of library networked based services.		
(ii)	Problem of internet connectivity		
(iii)	Improper ICT Infrastructure		
(iv)	Lack of Intrest of staff members		
(v)	Unfriendly User Interface		

F. <u>Suggestions / Future Plans for Library Automation & Networked Services</u>:

_____

_____

_____

Name of the Respondent:

Designation: _____

Signature with Date & Office Seal

Thank you very much for giving your precious time to complete this questionnaire. All your responses will be kept confidential.

_____

Anup Singh

Research Scholar, Dept. of Library & Information Science

Lovely Professional University, Jalandhar -700 032

E-mail: anupjasyal@gmail.com

Phone: 9805666959

QUESTIONNAIRE-2
FOR USERS (STUDENTS AND FACULTY MEMBERS)
FORWARDING LETTER

I am conducting a study on the above topic for the award of PhD. Degree under the supervision and guidance of Dr Jatinder Kumar, Library and Information Science Department, Lovely Professional University, Phagwara (Punjab). The study will make efforts to know the difficulties faced by libraries in the area of Automation and Networking and providing quality service to their users. This Questionnaire intends to understand your attitude towards the quality parameters of your college library. Your response, remarks and suggestions will further help your library to make improvement the quality services it renders and will be valuable for the meaningful outcomes of the study. I assure you that the information provided shall be used for research purpose only.

ThankingYou

Yourstruly.

AnupSingh

(PhDResearchScholar)

E-mail:anupjasyal@gmail.com,

Contact No:9805666959

e-mail: _____

PART-A

1.0 General Information:

1.1 Name of the College

1.1.1 Vallabh Government College Mandi, Distt. Mandi ☐

1.1.2 Govt. College of Teacher Education Dharamshala, Distt. Kangra ☐

1.1.3 NSCBM Govt. College, Hamirpur, Distt. Hamirpur ☐

1.1.4 Govt. College Una, Distt. Una ☐

1.1.5 Govt. College Sanjauli, Shimla ☐

1.1.6 Rajkiya Kanya Mahavidyalaya Shimla, Distt. Shimla ☐

1.1.7 Govt. College, Nalagarh, Distt. Solan ☐

1.1.8 Govt. College Sundernagar, Distt. Mandi ☐

1.1.9 Govt. College, Arki, Distt. Solan ☐

1.1.10 Govt. College, Ghumarwin, Distt. Bilaspur ☐

1.1.11 Govt. College, Joginder Nagar, Distt. Mandi ☐

1.1.12 Govt. College, Palampur, Distt. Kangra ☐

1.1.13 Govt. College, Dharampur, Distt. Mandi ☐

1.1.14 Govt. College, Naura, Distt. Kangra ☐

1.2 Name: _____

1.3 User Category

1.3.1 Under Graduate ☐

1.3.2 Post Graduate ☐

1.3.3 Teacher ☐

1.3.4 Other ☐

1.4 Age

Below 17-22 Years ☐ 23-28 Years ☐

28-34 Years ☐ Above 35 Years ☐

1.5 Discipline

1.5.1   Social Sciences/Humanities ☐

1.5.2   Science ☐

1.5.3   Computer Application [   ]

1.5.4   Management Studies [   ]

1.5.5   Commerce [   ]

1.5.6   Others [   ]

PART-B

2.0 Information regarding library usage

2.1 How often do you visit the library?

Daily [   ]   Once a Week [   ]   Twice a week [   ]   Occasionally [   ]

2.2 Purpose of visiting the library

2.2.1   To read and consult the reference books. [   ]

2.2.2   To Issue/Return of books. [   ]

2.2.3   To read the Magazines/Journals/Newspapers [   ]

2.2.4   use and download e-journals/e-books/notes. [   ]

2.2.5   To prepare class notes and self-study. [   ]

2.2.6   To make use of library environment. [   ]

2.3 Are you aware of following library services?

2.3.1   Issue/Return of books: Yes [   ]   No [   ]

2.3.2   Reference Services: Yes [   ]   No [   ]

2.3.3   Library awareness programme: Yes [   ]   No [   ]

2.3.4   Newspaper clipping services: Yes [   ]   No [   ]

2.3.5   Digital library services: Yes [   ]   No [   ]

2.3.6   Referral services: Yes [   ]   No [   ]

2.3.7   Documentation (Printing/scanning/photocopying)

services: Yes [   ]   No [   ]

2.3.8   Online Catalouge: Yes [   ]   No [   ]

2.3.9   Inter library loan services: Yes [   ]   No [   ]

2.3.10 Indexing and Abstracting services: Yes [   ]   No [   ]

PART-C

3.0 Users' satisfaction about Automation and Network based Services.

3.1 Do you have an easy access to the automated and network based library services?

3.1.1 Yes [ ]   3.1.2 No [ ]

3.2 Do you avail of following automated college library services?

3.2.1 Online catalouge services: [ ]

3.2.2 Issue/Return: [ ]

3.2.3 Digital Reference services: [ ]

3.2.4 Bibliographic services: [ ]

3.2.5 New arrivals: [ ]

3.2.6 Online Reservation of books: [ ]

3.3 Are you satisfied with automated library services?

S.No	Items	Very Highly Satisfied	Highly Satisfied	Satisfied	Least Satisfied	Not Satisfied
3.3.1	**Online catalouge services**					
3.3.2	**Issue/Return**					
3.3.3	**Digital Reference services**					
3.3.4	**Bibliographic services**					
3.3.5	**New arrivals**					
3.3.6	**Online Reservation of books**					

3.4 Do you have an access to the following network-based services?

3.4.1 INFLIBNET Database [ ]   3.4.2 N-LIST [ ]   3.4.3 UGC INFONET [ ]

3.4.4 J-Gate [ ]   3.4.5 Electronic journals [ ]   4.6 Electronic Books [ ]

3.4.7 Bibliographic Databases [ ]   Full Text Databases

3.4.9 CD ROM Databases ☐ 3.4.10 News Clipping ☐ 3.4.11 Web Services ☐

3.4.12 Inter Library Loan ☐ 3.4.12 Access to the Institutional Repository ☐

3.5 Problems Faced while accessing Network based Services:

3.5.1 Non availability to get the desired e-resources: Yes ☐ No ☐

3.5.2 Lack of awareness: Yes ☐ No ☐

3.5.3 Limited number of computers: Yes ☐ No ☐

3.5.4 Outdated Hardware/Systems: Yes ☐ No ☐

3.5.5 Slow Internet speed: Yes ☐ No ☐

3.5.6 Improper Instructions: Yes ☐ No ☐

3.6 Are you satisfied with the Network based services provided by your college library?

S.No	Items	Very Highly Satisfied	Highly Satisfied	Satisfied	Least Satisfied	Not Satisfied
3.6.1	**INFLIBNET Database**					
3.6.2	**N-LIST**					
3.6.3	**UGC INFONET**					
3.6.4	**J-Gate**					
3.6.5	**Electronic journals**					
3.6.6	**Electronic Books**					
3.6.7	**Bibliographic Databases**					
3.6.8	**Full Text Databases**					
3.6.9	**CD ROM Databases**					

3.6.10	News Clipping					
3.6.11	Web Services					
3.6.12	Inter Library Loan					
3.6.13	Access to the Institutional Repository					

PART- D

4.0 SUGGESTIONS AND RECOMMENDATIONS TO ENHANCE QUALITY OF LIBRARY SERVICES

4.1 State your expectations from the library relating to Automation and Network based service (Multiple replies welcome):

4.1.1 IT based new services in the college library for the users: Yes ☐   No ☐

4.1.2 Website/Blog of the college library: Yes ☐ No ☐

4.1.3 More Books, journals in electronic format: Yes ☐   No ☐

4.1.4 By adding more latest version Computers: Yes ☐   No ☐

4.1.5 By creating campus wide network facility: Yes ☐   No ☐

4.1.6 Leased line for the Internet: Yes ☐   No ☐

4.1.7 Wi-Fi facility: Yes ☐   No ☐

 4.2 General comments on the use of Automation and Network based products, resources and services and problems faced other than mentioned above in your college library.

_____

_____

_____

Name of the Respondent:
Designation: _____
Signature with Date & Office Seal

Thank you very much for giving your precious time in completing this questionnaire. All your responses will be kept confidential.

_____
Anup Singh
Research Scholar, Dept. of Library & Information Science
Lovely Professional University, Jalandhar -700 032
E-mail: anupjasyal@gmail.com
Phone: 9805666959

LIST OF PUBLICATIONS

S.no.	Title of paper with author names	Name of journal / conference	Published date	Issn no/ vol no, issue no
1.	PROBLEM AND PERSPECTIVE OF HUMAN RESOURCE MANAGEMENT IN SELECTED GOVT DEGREE COLLEGE LIBRARIES OF HIMACHAL PRADESH(INDIA)-A REPORT **ANUP SINGH*** **JATINDER KUMAR****	Eruopean Chemical Bulletin(Scopus Indexed Journal)	15/06/2023	ISSN 2063-5346 *Eur. Chem. Bull. 2023,12 (7), 1203-1219*
2.	Open Access Movement and its Impact on Resources and Services of College Libraries: a study **ANUP SINGH***	ICDT Patiala, Punjab (India): Transcending Technology a cognitive learning towards artificial intelligence	09/08/2019	Satyam Books Pvt. Ltd. ISBN: 978-93-83043-28-6
3.	Status of Library Automation and Networking in State Colleges of Himachal Pradesh-an Evaluative study **ANUP SINGH*** **JATINDER KUMAR****	One Day International Seminar Organised by Ramakrishna Mission Residential College Library Narenderpur & West Bengal Library Association on the subject Changing scenario of academic library during post-pendimic times: challenges and opportunities	25-06-2022	ISBN-97881995015634
4.	Information World and Role of	International	28-29 April,	©2023

| Govt. College Libraries as a Proponent in

Himachal Pradesh (India)

ANUP SINGH*
JATINDER KUMAR** | Conference on "Emerging Media Trends & Its Impact on Society & Governance" held from 28th April to 29th April, 2023 organized by the School of Journalism, Films and Creative Arts- I, Lovely Professional University, Punjab. | 2023 | LPU Publication House, Lovely Professional University, Phagwara Punjab, India ISBN: 978-93-94068-49-0 |

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Research Article

1. PROBLEM AND PERSPECTIVE OF HUMAN RESOURCE MANAGEMENT IN SELECTED GOVT DEGREE COLLEGE LIBRARIES OF HIMACHAL PRADESH(INDIA)-A REPORT

. Singh Anup, Dr Kumar Jatinder

Submit article

Indexed by
Scopus

European Chemical Bulletin

ISSN 2063-5346

Certificate of Paper Presentation

This is certified that DR./MR./MS. _Anup Singh_ participated and presented paper on _08 September, 2019_

in *International Conference on Digital Transformation: A Cognitive Learning Towards Artificial Intelligence* organized by RGNUL, Punjab in association with NLIU, Bhopal; NLU, Delhi; MNLU, Nagpur; HPNLU, Shimla and DNLU, Jabalpur at Rajiv Gandhi National University of Law, Punjab on 06 – 08, Sep. 2019.

Prof. (Dr.) Naresh Kumar Vats
Registrar, RGNUL, Punjab

Dr. Priya Rai
Conference Director ICDT-2019

Dr. Arjun
Organizing Secretary ICDT-2019

ONE DAY INTERNATIONAL SEMINAR

ON

CHANGING SCENARIO OF ACADEMIC LIBRARY DURING POST-PANDEMIC TIMES: CHALLENGES AND OPPORTUNITIES

Organised by

Ramakrishna Mission Residential College (Autonomous) Library, Narendrapur & West Bengal College Librarians' Association

This is to certify that Prof./Dr./Mr./Ms./Mrs./ _ANUP SINGH_ of _Lovely Professional University_ has presented a paper/participated/chaired a session/ delivered an Invited Speech on _Status of Library Automation and Networking in Select State Colleges of Himachal Pradesh_ in the International Seminar on 'changing scenario of academic library during post-pandemic times: challenges and opportunities' organised by Ramakrishna Mission Residential College (Autonomous) Library, Narendrapur & West Bengal College Librarians' Association on 25th June, 2022.

Sukchand Hazra
Sri Sukchand Hazra
Convener & Libraian

Dr. Sanat Kumar Biswas
Secretary, WBCLA

Swami Ekachittananda
Principal

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Certificate of Recognition

This is to certify that **Dr./Mr./Ms. Anup Singh** of **Lovely Professional University** has participated and presented paper titled **Information World and Role of Govt. College Libraries as a Proponent in Himachal Pradesh (India)** at the International Conference on **"Emerging Media Trends & Its Impact on Society & Governance"** held from 28th April to 29th April, 2023 organized by the School of Journalism, Films and Creative Arts- I, Lovely Professional University, Punjab.

Date of Issue: 17-05-2023
Place: Phagwara (Punjab), India

Prepared by
(Administrative Officer-Records)

Dr. Mukesh Kumar
Head of School

Dr. Sanjay Modi
Pro-Vice Chancellor/LFBA

LIST OF CONFERENCES/SEMINARS ATTENDED

1 Presented a paper in ICDT (International Conference on digital transformation) held in Patiala, Punjab (India) on 09/08/2019.

2 Presented a paper in International Seminar on Changing Scenario of Academic Library during Post-Pandemic times: Challenges and opportunities held in Narendrapur, Kolkata (India) on 25/06/2022.

3 Presented a paper entitled "Library Automation an Inevitable Footstep Towards Networked Library System: Case Study of Govt Degree Colleges of Himachal Pradesh (india)" in the CODD100: International Conference on Networks, Intelligence and Computing (ICONIC) held on April 28-29, 2023, organized by School of Computer Application, Lovely Professional University, Punjab.

4 Presented paper titled Information World and Role of Govt. College Libraries as a Proponent in Himachal Pradesh (India) at the International Conference on "Emerging Media Trends & Its Impact on Society & Governance" held from 28th April to 29th April, 2023 organized by the School of Journalism, Films and Creative Arts- I, Lovely Professional University, Punjab.

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Prof. (Dr.) Naresh Kumar Vats
Registrar, RGNUL, Punjab

Dr. Priya Rai
Conference Director ICDT-2019

Dr. Arjun
Organizing Secretary ICDT-2019

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ONE DAY INTERNATIONAL SEMINAR

ON

CHANGING SCENARIO OF ACADEMIC LIBRARY DURING POST-PANDEMIC TIMES: CHALLENGES AND OPPORTUNITIES

Organised by

Ramakrishna Mission Residential College (Autonomous) Library, Narendrapur & West Bengal College Librarians' Association

This is to certify that Prof./Dr./Mr./Ms./Mrs. ANUP SINGH

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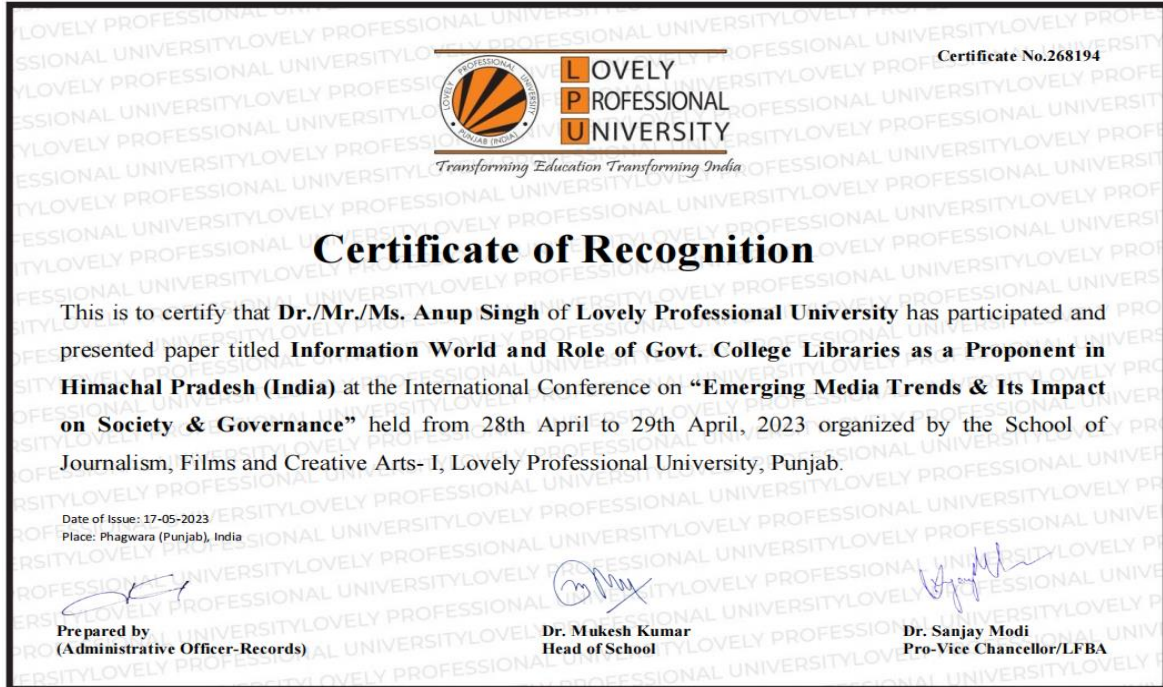in the International Seminar on 'changing scenario of academic library during post-pandemic times: challenges and opportunities' organised by Ramakrishna Mission Residential College (Autonomous) Library, Narendrapur & West Bengal College Librarians' Association on 25th June, 2022.

Sukchand Hazra
Sri Sukchand Hazra
Convener & Librarian

Dr. Sanat Kumar Biswas
Secretary, WBCLA

Swami Ekachittananda
Principal

Certificate No. 273759

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International Conference on
Networks, Intelligence and Computing

Certificate of Paper Presentation

This is to certify that Dr./Mr./Ms. **Anup Singh** of **Lovely Professional University, Phagwara, Punjab.** has **presented** a paper entitled "**LIBRARY AUTOMATION AN INEVITABLE FOOTSTEP TOWARDS NETWORKED LIBRARY SYSTEM: CASE STUDY OF GOVT DEGREE COLLEGES OF HIMACHAL PRADESH (INDIA)**" in the **CODD100: International Conference on Networks, Intelligence and Computing (ICONIC) held on April 28-29, 2023**, organized by School of Computer Application, Lovely Professional University, Punjab.

Date of Issue : 06-06-2023
Place : Phagwara (Punjab), India

Prepared by
(Administrative Officer-Records)

Program Chair
(ICONIC-2023)

General Co-Chair
(ICONIC-2023)

Session Chair
(ICONIC-2023)

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Date: 13/9/2024

Signature of Supervisor   Signature of Research Scholar