Chapter-3

Research Methodology

3.1 Introduction:

Research Methodology is a way to systematically solve the research problems. It is a science of various tools and techniques to be followed for collecting and analysing the data, information and material for the solution of problems identified for investigation. It is necessary to plan a study and know the research methods and techniques. Depending upon the research problem, different research methods, tools and techniques can be used. One can define research as a scientific and systematic search for pertinent information on a specific topic.

According to Busha a research is systematic quest for knowledge that is characterized by discipline inquiry. Efficient and effective approach to expand knowledge is the conduct of special planned and structured investigations a process known as research. (Chandra 2002)

The researcher has used descriptive method of research for the present study. The descriptive method of research is concerned with the description of data and characteristics of the selected population for the study. The aim is to acquire a factual, accurate and systematic data that can be used in many ways for interpretations like average, frequencies and similar statistical calculation. The descriptive method is more concerned with naturally occurring phenomena or current status. The descriptive method includes survey and case study as major techniques.
3.2 Population of Study

There are 166 self finance and Grant in aid and Government science and engineering college libraries in Gujarat state. 90 Grant in aid and government science and engineering college libraries were considered for the study.

Prior to the data analysis, it is necessary to explain the population, under study. The table contains detail description of population of study and response rate. The total numbers of 90 questionnaires were distributed. The responses receive 73.33 % (66) and the 26.67% (24) questionnaires were not received. The analysis is based on 73.33 %( 66) responses.

3.3 Data Collection:

The researcher has used survey technique. A survey is a comprehensive study of situations or selected population. A survey was conducted as the information required studying cost effective network model for optimum utilization of resources in science and engineering college libraries. The
researcher was dependent on both primary data and secondary data as mentioned under.

3.3.1 Primary Data

The researcher adopted two tools to collect primary data for the study which were as follows.

1. Questionnaire
2. Interview

Before the survey, a pilot study was conducted covering three science and two engineering college libraries. The questionnaires were distributed to these five libraries and data was received. The questions were critical examined the change made wherever it was felt necessary. As per the suggestions made by the librarians the questionnaire was modified and distributed to 90 Grant in aid and government science and engineering college libraries in Gujarat. The data was collected to know the awareness and need of cost effective network model within those professional and science and engineering college libraries.

3.3.1.1 The questionnaire Designed:

The questionnaire consisted of eleven sections and was designed to fetch information regarding general information, library budget, library collection, periodicals/journals subscribe library services, IT infrastructure, network environment, internet connectivity, database creation, IT based services and model for cost effective network of college libraries.

Section-1

Section one of the questionnaire was designed to fetch general information of the college, such as name, establishment year of college and library administration and timing. Then there were questions about academic and professional qualification of librarian, date of joining and pay scale. The
later part deals with the library in particular about the total number of library professional staff and number of users.

**Section-2**

Section two was about library budget. It covered information about the type of grant available for the library, budget of the library allotted to subject, last three years library budget and expenditure resources wise like books, journals/periodical/magazines, e-product and others etc.

**Section-3**

Section three covered information about library collection like books, reference books, periodicals/journals bound volume, theses, dissertation, project reports, manuscripts, patents, standard, rare collection. The section also dealt with non-print materials like e-books, audio-visual aids and cassettes, film, video-cassettes, gramophone records, microfilms, microfiches, computer disk and multimedia. Then there were questions about subject and language wise books added during the year 2006-07 and subject and language wise total collection.

**Section-4**

Section four was designed to gather information about the periodical/journals subscribed in the library during three years. The sub sections dealt with the expenditure of Indian and foreign journals and periodicals in last three years, details regarding the subject and the language wise periodicals, subscription of e-journals and name of e-journals.

**Section-5**

Section five covered library services offered by the science and engineering college libraries. Question about lending of books and periodicals, reference service, referral service, bibliographical service, CAS, SDI, Abstracting, Indexing, photocopy, Translation, News Clipping, Inter-library
loan, access to local, subject and national database, access to international database and other.

**Section-6**

Section six dealt with IT infrastructure facility available in the library. Such as computer system and its configuration, Printer, barcode scanner, GIST card, Gist terminal, ISM package for language data entry, scanner (OCR), UPS and CVT Stabilizers. The researcher also asked about operating system, database management system, library management software and word processing/ text processing package.

**Section-7**

Section seven designed to collect information about computer network environment in library. The sub section dealt with the cabling like CAT-5, Enhanced CAT-5 and Fiber Optic Cable, manageable and unmanageable HUB, Router like Motorola, CISCO or any others, Bridge like LAN Bridge Network, Interface Card, 32 Bit/ 16 Bit and PCI and switches like 10/100 mbps.

**Section-8**

Section eight dealt with internet connectivity through ERNET, NICNET, VSNL, PVT ISP or any others, speed, service provider, planning to internet connectivity, Membership of library network like INFLIBNET, Local/ Regional network or any other. Sub section was about use of INFLIBNET services.

**Section-9**

Section nine dealt with database creation. The questions asked about database creation of books, serials, theses, dissertation, reports, rare collection etc. Standards used like CCF standards, USMARC / MARC-21, UNIMARC, List of subject headings, LC name authority files, AACR2 or any others, software used for automation, taken care of software function like acquisition,
cataloguing, circulation, serial control, online catalogue (OPAC) and any others. The questions asked to know the influence of computerization on libraries, its importance as well as the problems faced by the library.

**Section-10**

Section ten dealt with IT based service. The questions asked about the service based on automation, on available databases i.e. INSPEC, INIS and on internet i.e. E-mail service, WWW service to users.

**Section-11**

Section eleven designed to develop the cost effective network model for the college libraries. The researcher also wanted to know the relative importance of activities through 5 point rating scale parameter was given. The researcher also wanted to know the requirement of the cost effective network and their willingness to participate and join with cost effective network for optimum utilization of resources of all colleges.

(Kothari 2003 & Krishana Kumar 1992)

### 3.3.1.2 Questionnaire Administred

The researcher administrated questionnaire to collect the primary data. The questionnaire were delivered to all Grant in Aid and Government science and engineering college libraries through courier or post, and short distance college libraries in personnel visits. The purpose of self administered was to ensure high response rate, in spite of researcher faced several barriers. The researcher asked them to complete the questionnaire and return as early as possible by E-mail or by post.
3.3.1.3 Personal Interview

The researcher has conducted interview with some of librarians in science and engineering college libraries to know their opinion about resource sharing and networking among their all science and engineering library in order to get the benefits before planning. The researcher also discussed and explained the importance of cost effective network model for optimum utilization of resources as well its benefits particularly to those library with limited utilization budget. The objectives of the interview in the exploratory phase were to seek out answers for the research questions to understand the questionnaire item. It was critical that these interview sessions generate quality of information and measure effectiveness of automation and networking environment and configuration in sciences and engineering college libraries.

The researcher conducted several personal meeting with librarian in Gujarat in order to know and to explain.

(1) The importance of cost effective network model for providing resource sharing, to increase access to information at least cost and also to make optimum use of national resources.

(2) The role of the universities, the principals of science and engineering college libraries for providing basic infrastructure facilities for library automation and networking

(3) The specific benefits of the cost effective network model development for science and engineering college libraries.

The researcher aimed to explore science and engineering college libraries through cost effective network model for optimum utilization of resources, and to provide all type of library and information services which is demanded by its library users.

The researcher also wanted to know the difficulties faces by the science and engineering college libraries in proving information service to its users, as well
as to know about duplication of resources among science college libraries and Engineering College libraries.

The researcher has discussed with some networking experts and librarians of science and engineering college libraries to get their feedback, opinions and suggestions for Cost-Effective Network Model.

(Khanzode 2004 & Shah 2004)

3.3.2 Secondary Data

The researcher also depended on the secondary data which collected through literature survey. The researcher reviewed literature and compiled from various sources like books, researches preview studies, periodicals, journals, issued reports, thesis, publication, books, website etc.

The above table shows that, the researcher has used the 88 periodicals/journals, 46 seminar/conference sovineour, 46 report (i.e. Annual Report and
Research Report), 18 Ph.D. theses, 118 books and 54 websites for collection of secondary data.

3.4 Data Analysis

The data had been entered in MS excel before it was transferred to Statistical Package for Social Science (SPSS) for the necessary statistical data.

All the results are shown in tabular as well as in graphical format to visualize the statistically significant difference more clearly.

3.5 Conclusion:

The purpose of this study was to determine this interaction level regarding cost effective network model and its optimum utilization among in science and engineering college libraries in Gujarat. The study examined the level of library automation and networking configuration, budget, library services and how to satisfy maximum information need of library users in minimum cost through cost effective network model for science and engineering college libraries. Data collection procedure involved, survey tools designed to measure the level of cost effective network model and exploratory open ended interview and secondary sources. The data analysis employed MS-Excel and SPSS. The next chapter deals with library networking.
References: