Chapter IV

Research Design, Methods and Techniques used in the study

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RESEARCH DESIGN, METHODS AND TECHNIQUES USED INTHE STUDY

The present study is an attempt at investigating the post automation problems being faced by the libraries. The study explores different facets of post automation problems. The main aspects of the study involve the issues related to the financial, technical, technological, personnel administration and managerial sections of the automated libraries.

To develop a framework for conducting this study a review of existing research relevant to library automation was conducted. The review revealed published research that could be classified in to seven main categories, as reported in the earlier chapter, and they are:

1 Library Automation
   ➢ Scenario in India
   ➢ Scenario in other countries

2 Library Management Software

3 Electronic Resources Management

4 User Awareness

5 Financial Constraints in implementation

6 Human Resource Factors in library Management

7 Technical and Technological aspects in library automation

1. THE UNIVERSE OF THE STUDY

The ambit of the present study is the academic and research libraries of the state of Gujarat in India. Even within Gujarat, the major focus is to study only those academic or research libraries that are automated for a minimum of five years. As Gujarat can be easily divided into North, South, Central and Saurashtra regions, it was decided to take some representative cities from these regions. From North Gujarat, the cities of Ahmedabad and

Gandhinagar; from South Gujarat, the city of Surat; from Central Gujarat the cities of Vadodara, Vallabh Vidyanagar and Nadiad; and from Saurashtra, the city of Rajkot were covered.

The selection was made thus because these cities are academically more developed than other cities in the state. The academic libraries of these cities are also well maintained and have been equipped with modern information technologies. As mentioned earlier in the first introductory chapter, the prerequisite in the selection of sample was that the library should have been working with automated library management system at least for five years. The focus of the study is to make analysis of the post automation problems of libraries that are being faced by the librarians of the sample libraries under investigation.

2. SAMPLING METHOD

To find out the samples for the present study *Directory of libraries and information centres in Gujarat* by Gujarat Granthalaya-SevaSangh, which is the state library association of Gujarat was used as the tool for selecting the libraries to be studied. This tool has been used for selecting the sample as this is an authentic source available which gives detailed information regarding different libraries of the state.

Multi stage sampling method was used to decide the sample for the present study. As Gujarat can be easily divided into North, South, Central and Saurashtra regions, it was decided to take as far as possible important cities from these four regions. From North Gujarat, the cities of Ahmedabad and Gandhinagar; from South Gujarat, the city of Surat; from Central Gujarat the cities of Vadodara, VallabhVidyanagar and Nadiad; and from Saurashtra, the city of Rajkot was covered. The selection was made thus because academically these cities are comparatively better developed than other cities in the state. The libraries are also well maintained and have been equipped with modern information technologies. The prerequisite in the selection of sample was that the library should have been working with automated library management system at least for five years.

The total samples selected for the study are twenty one libraries (see Appendix A) located in the important cities of the Gujarat state. They comprise of three libraries from Surat, four libraries from Vadodara, one library from VallabhVidyanagar, one library from

Nadiad, one library from Changa and one library from Vasad, four libraries from Ahmedabad and four libraries from Gandhinagar and two libraries from Rajkot.

The name of the twenty one sample libraries – region wise are mentioned below.

(A) *SOUTH GUJARAT:*

Three libraries are selected from the southern region of Gujarat. They are ...

- Sardar Vallabhbhai National Institute of Technology, (SVNIT), Surat
- Sarvajanik College of Engineering and Technolgy(SCET), Surat
- Veer Narmad South Gujarat University, (VNSGU), Surat

(B) *CENTRAL GUJARAT:*

Eight libraries are selected from the central region of Gujarat. They are...

- Sardar Patel University(SP), VallabhVidyanagar
- Sardar Vallabhbhai Institute of Technology (SVIT), Vasad
- Dharamshi Desai University (DDU), Nadiad
- Charotar Institute of Technology Changa (CITC), Changa
- Smt. Hansa Mehta Library of M. S. University of Baroda (HM), Vadodara
- Parul Arogya Seva Mandal (PASM), Waghodia, Vadodara
- Babaria Institute of Technology and Pharmacy(BITP), Vadodara
- Baroda Railway Staff College Library (BRSCL), Vadodara

(C) *NORTH GUJARAT- AHMEDABAD:*

Eight libraries are selected from the north Gujarat –Ahmedabad region. They are ...

- Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT), Gandhinagar
- Indian Institute of Manangement Ahmedabad (IIMA), Ahmedabad
- Centre for Environment and Pollution Technology(CEPT), Ahmedabad
- Entrepreneurship Development Institute of India (EDI), Ahmedabad
- Institute of Plasma Research (IPR), Gandhinagar

- National Institute of Fashion Technology(NIFT), Ahmedabad
- Institute of Technology, Nirma University (NU), Ahmedabad
- Mudra Institute of Communications(MICA), Ahmedabd

(D)   SAURASHTRA:

Two libraries are selected from the Saurashtra region. They are ...

- Saurashtra University (SU), Rajkot
- Atmiya Institute of Technolgy and Science (AITS), Rajkot

Apart from these twenty one libraries which were selected for in-depth study, data was also collected from seventy one automated libraries (see Appendix B) across the regions in Gujarat to get a wider perspective.

3. METHOD AND TECHNIQUE USED IN THE STUDY

Case study method is the primary method used in this study. Case study as defined by Gorman & Clayton (2005) as, "an in-depth investigation of a discrete entity (which may be a single setting, subject, collection or event) on the assumption that it is possible to derive knowledge of the wider phenomenon from intensive investigation of a specific instance or case."

Another definition of case study by Robert (2000) is, "A case study is an empirical inquiry that investigates a contemporary phenomenon within a real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidences are used."

This method was preferred as it is very intensive in nature and helps in studying everything about few units rather than something about several units. As the basic objective of the present research was to study the post automation problems faced by the automated libraries, it required an in-depth study of a few automated libraries. Some research studies describe a series of cases. The undertaken research study also required the study of a series of cases i.e., automated libraries.

The method employed for the collection of data is long interview of librarians of the selected libraries. This was done by framing structured interview schedule (see Appendix C). Structured or survey interviews are those where "the questions and the answer categories have been predetermined" by the interviewer, Ahuja (2001). This method helped in describing the questions to the librarians, understanding their responses and the problems faced by them. Any ambiguity in their answers or in the questions of the questionnaire could be clarified during the interviews. At the same time structured interviews could help the researcher in asking the same questions in the same way to all the twenty one librarians. In the questionnaire the investigator has covered all the terrain in same order for each respondent. The care has been taken in scheduling of the prompts necessary to manufacture distance. While constructing, it has been kept in mind that the hierarchy of questions establishes channels for direction and scope of discourse.

Although, these interviews were long, expensive and time consuming but they helped the researcher in achieving an excellent communication with the librarians of the selected libraries. Such long interviews enabled the researcher to gather more complex information relating to post automation problems and explore the topic in- depth. In the process, the investigator could establish a rapport with the librarians and get an insight into their minds. This research work is a collection of twenty one case studies. The researcher found this type of multi case study, as an ideal method for the research problem under investigation. The logic behind multi case study is that each case will either produce contrary results or similar results. Such results were needed to study the post automation problems which could be same for all libraries or unique to a particular library. Although this multi case study approach required more time and effort, it provided a wealth of data which could not have been gathered otherwise.

In case study methods, observation is also an equally important technique of data collection. According to Harris and Michelle (1987), "Observation is employed as a means of determining patterns of behavior, contextual factors affecting behavior and interactions between subjects. The observed behavior patterns reveal previously unknown or unsuspected realities about library users and services." The observation technique gave an opportunity to the researcher to perceive reality from the viewpoint of an outsider. It also helped in verifying data collected through the process of interview.

A separate small questionnaire was framed (see Appendix D) to elicit data from the seventy one automated libraries across the regions in Gujarat. One State Level workshop was organized for the library professionals at the researcher's institute on 6th September 2008. The questionnaire was distributed to the participants of the above mentioned workshop. The data thus collected were analysed for the study of seventy one automated libraries across the regions in Gujarat.

4. SOURCES OF DATA

The data for the present study were gathered through primary, secondary and tertiary sources of information. For the selection of samples for the study the tertiary source, *Directory of libraries and information centres in Gujarat* by Gujarat Granthalaya-SevaSangh, which is the state library association of Gujarat was used as the tool. The secondary sources like papers published in Indian and foreign/international journals, books, surveys, conference proceedings, news articles, etc available in print or in electronic form were consulted to gather an insight in the area of library automation. The review of existing research facilitated in identifying a context for this study. It had been found that there exists a gap in the study. A number of publications are available in the library automation area. However, the investigator could not find any related literature on the post automation issues of libraries. There is a need to extend and to broaden the field of knowledge in this area. The information thus gathered from secondary sources greatly facilitated in conceptualizing the research topic, developing a research framework for carrying out this study and developing the questionnaire needed for the study.

Finally, keeping all these issues in mind, the present study is carried out, i.e., "Post Automation Problems: A study of libraries in Gujarat". Thus, the present study focuses on post automation problems in the libraries in the state of Gujarat in India.

Besides these secondary sources, the primary source of data for the study was the data collected through interviewing the chief librarians of twenty one sample libraries. In the process of developing a strategy to conduct this study, the library which was using the automated system at least for five years has to be studied. Besides the interviews, the

primary source of information was also the data collected through questionnaires given to the seventy one librarians of small libraries. Lastly, the observation of libraries by the investigator also helped in collecting some unsaid data.

To collect data relevant to this topic the following research questions were developed which also happen to be the objectives of the study.

> Do the automated libraries face financial problems?
> Do the automated libraries face personnel administration problems?
> Do the automated libraries face any technical problems?
> Do the automated libraries face any technological problems?
> Do the automated libraries face managerial problems?

For purposes of this study, in the context of these objectives, and based on earlier researches the data required were identified into three main segments as follows:

    I.   General Information of the library

    II.   Implementation Process of Library Automation

    III.   Post Automation period

An attempt was made to gather information about these aspects through a detailed interview of the librarians of the twenty one sample libraries through a structured interview schedule. The details of the above three segments have been discussed below.

I. GENERAL INFORMATION OF THE LIBRARY

This section is about the basic information of the library and the institution, such as name of the institution and library, physical as well as URL address, year of establishment, the courses which are being offered etc.

(a) Infrastructure and Networking of the library

Through this section the information regarding the infrastructure of the library such as physical area of the library and the seating capacity in the library could be found out. Further, the data related to the networking and information regarding the Internet facility, its bandwidth etc could be gathered.

(b) Availability of Hardware and Software in the Library

To understand the actual picture of automation, it is necessary to get data related to the availability of hardware, software and operating system that is being used by the library. The data related to the hardware availability in the library are for instance number and configurations of computers, printers, scanners, back up devices, UPS system and other related peripherals. With regard to software, it is important to understand the operating system which is being used to run the library automation. Further, it is necessary to find out which library management software has been implemented for the same purpose. Then the details of the software were gathered, like whether it is a single user system or multi user system; whether the system is being protected by the anti virus software or not. All these data were gathered through this section.

(c) Library Staff

To run a sizable big library, it requires enough number of technically skilled professionals. To get the exact data of the staff of the library, the questions were asked related to the recruitment of permanent library staff members and its subordinates.

(d) Library Collection

The rich collection of resources/reading materials is the benchmark of any library. The collection includes physical plus electronic resources, published by national as well as international publishers. Further, these resources can be fragmented into books, journals,

research proceedings, newspaper clippings, other reading materials. It is very difficult for any library to acquire everything that is published either physical or online. Of late, library consortiums are becoming very popular. To be a member of different library consortiums is a great help to avail more number of resources within the limited budget. The questions were also posed to find out whether the library is a member of any consortium or any other library network through which the resources are being shared.

(e) Library Users

One of the important stake holders of the library is its users. The users of the library include students, faculties, director/principal, other management people etc. Through this section the data related to the users of the library have been gathered.

(f) Procurement of library resources

The policies of procurement of resources are noteworthy for the collection of library. There are different policies or methods being applied in the procurement process of library resources. The related data of the procurement of resources had been gathered through this section.

II. IMPLEMENTATION PROCESS OF LIBRARY AUTOMATION

The data related to the implementation process of library automation have been collected through this section. This includes questions related to the status of automation in the library – whether it is fully or partially automated; number of years of automation; name of the software; whether proprietary software or in-house software; the people involved in the procedure of selection of software; selection criteria; cost of the software; production place of the software; whether the library remained closed during the implementation period; response of the other library staff and training issues.

III. ISSUES RELATED TO POST AUTOMATION PERIOD

In this section an attempt was made to gather data related to the experience of librarians operating the automation system in their library. To begin with,

- The satisfaction level of the automating system, the difference that has been experienced by an individual librarian between manual and the automated system.

- The personnel related issues such as the reaction of the other library staff after the implementation of automated system, their willingness to learn the regular updating of the system of software and hardware.

- Similarly, the questions were posed here to find out the reaction of management body about the automated system.

- The query related to the library management software such as satisfaction with the software, its features or loopholes.

- The after sales service of the vendor is very much essential for the smooth functioning of the system. The questions related to the cooperation from the software vendors in solving difficulties were asked. An attempt was made to find out what do the librarians do in the absence of after sales service.

- With the changes in the technology, it is necessary to make corresponding changes in the software and hardware. It is also important to know whether the software vendor is producing the updated version of the software regularly.

- Every system needs some kind of protection, so does the automated system. It is required to find out whether the automation system in library is protected by any antivirus software or not.

Finally, the issues related to post automation problems have been discussed by posing questions on different aspects of automation system such as hardware, software, back-up of data, technical, technological, data security, standardization based, library staff, financial constraints, infrastructure , electric power supply and others.

5. PILOT STUDY

A pilot study which is a small scale replica and rehearsal of the main study was conducted by the researcher prior to the actual data collection. The total number of sample selected for the study is twenty one libraries. Out of this, the pilot study was carried out on three libraries during the months of September – October 2007.

The purpose of the pilot study was to ascertain that the technique which had been used for data collection is competent to generate enough information required for the study. The structured questionnaire was framed for the interview schedule. The researcher wanted to find out whether the questions being framed were enough or required any change or amendment. This pilot study really helped the researcher in modifying the questions to get the indispensable data. Eventually, she could give the final shape to her questionnaire which was required for the structured interview schedule to collect the data for the study.

6. PERIOD OF DATA COLLECTION

After the completion of pilot study, the final interview schedule for the librarians was prepared. With the help of this interview schedule the actual data collection of all the twenty one libraries were conducted. This was carried out region wise, during the period of October 2009 to March 2010. As mentioned earlier, the data collection of the other seventy one automated libraries across the regions in Gujarat was carried out through the questionnaire distributed and collected on 6th September, 2008, during a workshop conducted at the researcher's institute.

7. METHOD OF DATA ANALYSIS

The researcher finds the nature of this present study more inclined toward qualitative analysis. The intention was to mine not only the expressed but also the unexpressed post automation problems faced by the libraries. However, qualitative analysis also requires the

support of quantitative data. Simple descriptive statistics is used to present the quantitative data that was gathered for the study.

The statistical data gathered for the study are presented in the tabular form. Wherever necessary, graphical presentations are also made.

8. LIMITATIONS OF THE STUDY

The primary limitation of this study is that data collected through interviewing the twenty one librarians or data collected through administering the questionnaire to the seventy one librarians of small libraries could not be adequately verified. Although, the investigator during her personal visit to the twenty one libraries attempted to verify some of the claims made by the librarians through observation, but all claims could not be verified through observation alone. For instance, there was no way to verify what happened in the past, the investigator had to accept whatever the librarians said at the face value.

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