CHAPTER – 3

RESEARCH METHODOLOGY
The various steps that are covered under research methodology are discussed below.

### 3.1 Selection of the research domain

The work started by familiarising with going through the existing literature and having discussions with other library professionals and academicians in the field. The domain was selected purposively covering all eight university libraries and six libraries of the important national institutions such as ATIRA, Ahmedabad, CSMCRI, Bhavnagar, IPR, Ahmedabad, NIOH, Ahmedabad, PRL, Ahmedabad and SAC/ISRO, Ahmedabad (which have been considered here as Information Centres) located all over Gujarat which can be seen in Figure 3.1. A questionnaire for the study (to be administered) was pre-tested and the required modifications made.

The University libraries and libraries of important national institutions are outlined as under:

1. Ahmedabad Textile Industry’s Research Association (ATIRA), Ahmedabad,
2. Bhavnagar University (BHAV), Bhavnagar,
3. Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar,
4. Gujarat University (GU), Ahmedabad,
5. Gujarat Vidyapith (GV), Ahmedabad,
6. Institute of Plasma Research (IPR), Ahmedabad,
7. M.S. University (MSU), Vadodara,
8. National Institute of Occupational Health (NIOH), Ahmedabad,
9. North Gujarat University (NGU), Patan,
10. Physical Research Laboratory (PRL), Ahmedabad,
11. Sardar Patel University (SPU), V.V. Nagar,
12. Saurashtra University (SAU), Rajkot,
13. South Gujarat University (SGU), Surat, and
14. Space Applications Centre (SAC/ISRO), Ahmedabad.

Gujarat is situated in the western part of our country (India). On May 1, 1960, as a result of the Bombay Reorganization Act, 1960, the state of Gujarat was formed. The north and west (predominantly Gujarati speaking) part of the original Bombay state is Gujarat the remainder being renamed the state of Maharashtra. The geographical location of the university libraries and information centres in the state favours easy access to the users and even to the institutional libraries in the state.

3.2 Sampling methods

To carry out the study, a group of library professionals, that is, librarians, deputy librarians, assistant librarians and information scientists, with a total sample size of 40 from all these 14 participating libraries from all over Gujarat was selected as has been discussed in Table 3.1. These were chosen on the basis of stratified random sampling method in a single step in proportion to the size of the university libraries and information centres.

Table 3.1

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Professional Groups</th>
<th>Frequency</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Librarians/ Deputy Librarians</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Information Scientists</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>3.</td>
<td>Assistant Librarians</td>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

(N = 40)
Index
1. Ahmedabad Textile Industry's Research Association (ATIRA), Ahmedabad
2. Bhavnagar University (BHAV), Bhavnagar
3. Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar
4. Gujarat University (GU), Ahmedabad
5. Gujarat Vidyapith (GV), Ahmedabad
6. Institute for Plasma Research (IPR), Ahmedabad
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14. Space Applications Centre (SAC/ISRO), Ahmedabad
3.3 Source of data and methods of data collection

Data for conducting the study was collected from both primary as well as secondary sources. The primary data was collected from the sample size in which library professionals were interviewed personally with the help of a suitable questionnaire, which was in 2 parts can be seen as illustrated in annexure 1, prepared for this purpose. The secondary data included the basic information about the study areas, collection of their holding of print document material (i.e. books, conference proceedings, reports, periodicals, patents, standards, translated articles, drawings, maps), non-print document material (i.e. audio-video disks, CD-ROMs, magnetic tape/floppy, microcard, microform, microfiche, etc), and also online facilities, major systems and services, automation, and its activities, availability of hardware and software, budget and humanware (both quality and quantity), etc. In addition, the accessions register, annual reports, brochures published by these libraries were also taken into consideration. The work continued for 90 working days for a duration of 6 to 8 hours per day.

3.4 Processing and data analysis

Each part of the questionnaire had qualitative and quantitative responses. Using the database management packages such as FoxPro and dBASE as well as statistical packages like SPSS/PC +4.0 base manual, SPSS/PC +advanced statistics 4.0 and SPSS professional statistics 7.5, the quantitative and qualitative data were stored in a computer, and necessary procedures were carried out and analysed for data validation, data editing and consistency checks. Finally, the compilation and interpretation of data were done accurately as per the need of the study.

The following approaches were adopted to analyse and process the data related to:

i) the percentage distribution of the library professionals was analysed as presented in a tabular form in Table 3.1,

ii) the collections of library materials of all types have been identified very carefully as presented in a tabular form in Table 4.1,
iii) language-wise break-up of books as well as periodicals collections were analysed as presented in a tabular form in Tables 4.2 and 4.3,

iv) annual expenditure on books and periodicals incurred by all university libraries and information centres in Gujarat during 1998-1999 was analysed as presented in a tabular form in Table 4.4,

v) periodicals procured as well as money spent on these acquisition by all university libraries and information centres in Gujarat during 1990-91 to 1998-1999 were analysed as presented in a tabular form in Table 4.5,

vi) fall in rupee value vis-a-vis other foreign currencies based on the Good Office Committee of Indian Library Association (ILA), New Delhi was analysed roughly a year or so as presented in a tabular form in Table 4.6,

vii) the extent of duplication of periodicals (only paid by them) both Indian and foreign during 1998-1999 and money spent on their acquisition, a union catalogue of these periodicals prepared separately and presented in tabular forms in Table 4.7, 4.8, 4.9 as well as graphical forms in Figures 4.3 and 4.4. The money spent on these periodicals subscribed to individual library during 1998-1999 was analysed separately and presented in a tabular form in Tables 4.8 and 4.9,

viii) the list of total collection of books of all types of all these libraries (collected separately), was analysed and presented in tabular forms based on Dewey Decimal Classification Scheme (DDC), to find out the availability of major subjects, strength of the total collection on a particular subject, their relative position among these libraries and their extent of duplication was estimated roughly, since it was very difficult to identify the exact strength of duplication of books in these libraries where the collections were very large, have also been analysed and shown in both tabular form in Table 4.16 and 4.17 as well as in graphic form in Figures 4.5, 4.6,4.7,4.8,4.9 and 4.10,
ix) the nature and level of library automation, their activities, products, and services, and the availability of computer hardware, and their numbers, library software packages, the data relating library automation were analysed as presented in a tabular form in Tables 4.19, 4.20, 4.21, 4.22 and 4.23,

d) the technical processing of the library documents were analysed as presented in a tabular form in Table 4.25,

xi) the levels of awareness of the library professionals about computer hardware and library software packages were analysed as presented in a tabular form in Tables 4.28 and 4.29,

xii) the strength of the total library staff, professionals and semi-professionals, their professionals qualifications (both formal and non-formal) and hands-on training in automation/computerisation has also been measured as shown in a tabular form in Tables 4.30 and 4.31,

xiii) the opinions of library personnel related to:

(1) cooperative acquisition activities such as (a) cooperative acquisition of books and monographs; (b) cooperative acquisition of current periodicals; (c) cooperative acquisition of theses and dissertations, and (d) cooperative acquisition of non-print materials (i.e. video disks, CD-ROMs, magnetic tapes/ floppies, microfilms, microforms, microfiche, etc.) was analysed as presented in a tabular form in Table 4.18,

(2) important library network services such as (a) online shared catalogue search, (b) bibliographic database services, (c) indexing and abstracting services, (d) union catalogues, (e) inter-library loan (ILL), (f) referral services, (g) current awareness service (CAS), (h) selective dissemination of information (SDI), (i) photocopying services, (j) e-mail, (k) INTERNET search, etc. were collected, analysed as presented in a tabular form in Table 4.24,
library automation, (b) library network, and (c) library network standardisation were analysed as presented in a tabular form in Table 4.32.

A five points semantic differential scale, ranging from highly desirable to highly undesirable was used to find out the opinions of the library professionals. Numerical weights were assigned to each expressions viz., highly desirable=5, somewhat desirable=4, neutral=3, somewhat undesirable=2, highly undesirable=1. The total score for each function is obtained by summing up the value of each item, and the means are obtained by dividing the total score by the total number of library professionals.

For example -

a) The Table 4.32 shows that library automation, network and standardisation are desirable. However, the mean for library network is ranked second highest after library automation; 60% of library professionals expressing that this is highly desirable.

The mean rate is calculated as follows: highly desirable: \(24 \times 5 = 120\); somewhat desirable: \(10 \times 4 = 40\); neutral: \(2 \times 3 = 6\); somewhat undesirable: \(4 \times 2 = 8\); highly undesirable nil.

\[
\text{Mean} = \frac{120 + 40 + 6 + 8}{24 + 10 + 2 + 4} = \frac{174}{40} = 4.35
\]

Thus, the mean rate, for library network is 4.35, which is the second highest amount of all these opinions mentioned in Table 4.32.

(b) Table 4.18 shows that all the four cooperative acquisition activities are desirable. However, the mean for cooperative acquisition of current periodicals is ranked highest; 62.5% of library professionals expressing that this activity is highly desirable.
The mean rate is calculated as follows: highly desirable: 25 x 5 = 125; somewhat desirable: 6 x 4 = 24; neutral: 5 x 3 = 15; somewhat undesirable: 2 x 2 = 4; highly undesirable: 2 x 1 = 2.

\[
\text{Mean} = \frac{(125 + 24 + 15 + 4 + 2)}{(25 + 6 + 5 + 2 + 2)} = \frac{170}{40} = 4.25
\]

Thus, the mean rate for cooperative acquisition of current periodicals activity is 4.25, which is the highest among the activities of the cooperative acquisition functions. For more details please see Table 4.18.

xiv) opinions about the factors affecting growth and development of the library networking such as a) absence of planning, b) absence of institutional leadership, c) absence of the spirit of cooperation, d) inadequate library resources, e) inadequate finance, and f) communication problems, were also analysed and presented in Table 4.33. Semantic differential scale ranging from very high, high, moderate, low and very low was used to find out the opinions of library professionals.

3.5 Limitations

First of all it was not possible to cover all other libraries in Gujarat which were fully or partially computerised, owing to paucity of time. Such a thorough coverage could possibly have enriched the study further in that some of them might have unique learning experiences to share.

Secondly, apart from library professionals, viz. librarians, deputy librarians, assistant librarians and information scientists to whom questionnaires were administered, computer and communication professionals too ought to have been approached for their opinions related to the network architecture, model for library network, communication links, selection of hardware and software, etc.

Thirdly, non-availability of reliable-data on user’s satisfaction of existing services and hence this variable could not be tried.
Fourthly, now that a large portion of data was subjective in nature and therefore not lending itself to quantitative checks, one had to do without the concreteness of the insights, such is the hallmark of statistically tested hypotheses.

Finally, where as simple descriptive statistics were used to analyse data to arrive at sharp inferences, it could have been done using advanced multivariate statistical techniques, which could possibly have thrown up other interesting fronts to the understanding of library network.