Chapter 5

Research Methodology
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This chapter focuses on the conceptual research design and methodology used in the present study. It consist the selection of problems, objectives of the study, definition of terms, scope and limitations of the study, method for the data collections and questionnaire design. The sampling and population design, sample size and distributions and data analysis methods have been explained in detail.

5.1. Selection of the Problem

The problem selected for the present study entitled “A Study of Total Quality Management in Central University Libraries of India”. The problem deals with the application of TQM process, principles in the central university library systems and to measure the user’s perception about the quality of services.

5.2. Objectives of the Study

The main objectives of the study is to investigate the application of Total Quality Management in central university libraries of India and to measures the perception of users as they relate to quality of information products and services and to determine how far the library has succeeded in delivering such services to its users.

5.3. Scope and Limitations of the Study

The scope is to determine and analysis the various dimensions and processes of TQM in Central University Libraries in India and to measure the perception of library quality services. The scope of the research entitled “A Study of Total Quality Management in Central University Libraries of India” is limited to only central university libraries. The study includes only seven central university libraries in India namely: Maulana Azad Library, Aligarh Muslim University,(Aligarh); Sayaji Rao Gaekwad Central Library, Banaras Hindu University,(Banaras); Central Reference Library, University Of Delhi, (New Delhi); Dr Zakir Husain Central Library, Jamia Millia Islamia. (New Delhi); Central Library, Jawaharlal Nehru University,(New Delhi); Central Library, North-Eastern Hill University,(Shillong); and Central Library, Visva Bharti University,(Bolpure, Shanti Niketan).

The decision regarding the selection of seven central university libraries out of 20 for this study is based on the logic of stratified sampling. The selected seven universities cover 35% of populations and have been chosen carefully from different
state/location irrespective of the geo-political scenarios. Another reason is that, all these universities have well established library and recognized by the University Grant Commission (UGC) and also established by the government of India Act.

It is necessary to draw some limitations specific to this research. The limitations are mostly based on these factors: time, geographical location and selection of library and area of study. This limitation was necessary to develop worthwhile norms towards the accomplishment of the present study. The investigator was able to identify some of the major limitations such as,

5.3.1 The limitation of time is associated with the period of research. In the other words, the gathering of information from questionnaires takes more time.

5.3.2 The present study consists of users including, research scholars and faculty members of seven central university libraries of India. The questionnaires were distributed to university librarian, research scholars and faculty members.

5.3.3 It is also necessary to narrow down the geographical areas of study because selecting a much wider area tends to defuse the results and findings in a research works; therefore, such a study will not be feasible if a much wider geographical area is taken into consideration. In view of these factors, the present study confines its scope and limitation to the seven-selected central university libraries in Indian. The geographical area is restricted in Delhi, UP, Bengal and North East region.

5.3.4 The responses have been taken only from research scholars and faculty members those who have been using library services and are regular users of libraries.

5.4. **Research Methodology**

Methodology has its own implication and importance in scientific investigation, because objectively any research investigation cannot be obtained unless it is carried out in a very systematic and planned manner. Scientific investigation involves careful and proper design, use standardized tools and tests identifying adequate sample by using sampling technique. There are several methods of collection of data for measuring the performance and quality of libraries. These methods can broadly be grouped into two, namely quantitative and qualitative methods. The quantitative methods include verification of library records, questionnaire and interview methods. The qualitative method comprises of focus
groups, observation, and case study methods. But the latest trend is using both these methods for qualitative study of libraries and information centers. There are several techniques available for collecting data such as (i) Questionnaire method (ii) Interview method (iii) Observation method (iv) Schedules (v) Interview by telephone. For this study, the investigator used questionnaire, observation and interview method for the collection of data.

5.4.1. Questionnaire Method

Questionnaire is the most popular method of collecting data for an evaluation and assessment. It can be used to a whole range of issues from a sample overview survey to a detailed survey of a specific issue. Questionnaire is a tool to collect the data from the diverse large and widely scattered group. It is called the heart of survey operation. The important step in this method is to take care in the design of questions. Questionnaire is given to the person concerned and asks for the opinion or factual information. The questions are formed in such a way that the relation of one question to another can be readily apparent to the respondent, question sequence must be clear and the respondents have to answer the question on their own level. To collect the necessary data for the present study, the investigator designed two sets of questionnaires and divided into four parts. One set for the university librarians and another one for users of seven central university libraries.

5.4.2. Interview Method

As questionnaire method has certain limitations to collect the data. So the investigator adopted interview methods also for the same purpose. Interview is a universal method of obtaining information from respondents in a direct manner. It is the verbal questioning of respondents for collecting data. It is a two-person conversation. Initiated by the interviewer for the specific purpose of obtaining research relevant information and focused by the research objectives of description and explanation. It is a structured activity to probe in detail into the experiences and reactions of respondents. It is a good method for exploring sensitive and confidential issues. It is a skilled activity as it is the interaction between the staff interviewer and user. It can be recorded either in paper or in audio videotapes.

The interview method is direct and has greater flexibility. This method is unique because the collection of data is through direct verbal interaction between the individuals. In this study, the investigator asked some questions to the users and
library staff related to services and facilities provided by the library and clarified some doubts.

5.4.3. Observation Method

Observation method is normally employed in measuring, testing, characterizing human behavior by the way of the investigators own observation, without interviewing the respondent. For the present study, investigator observed overall activities, library functions and services provided by them. Investigator specially had a close eye on all sections of the library. Moreover, this helped the investigator to know the ground realities of qualities. It is a technique in which the investigator observes what the customers or user actually do in the library. It allows the investigator to observe the users in their natural setting and get correct data. It is a systematic process of acquiring knowledge using sense organs. It is the process of recording non-verbal as well as verbal behaviors and communication.

5.5. Tools Used for the Study:

Questionnaire, observation and Interview were used as the tool for the study.

5.6. Questionnaire Design:

Questionnaire is the most popular method of collecting data for an evaluation and assessment. It can be used to a whole range of issues from a sample overview survey to a detailed survey of a specific issue. While designing a questionnaire, it is good to use standardized methodologies, as it will allow to benefit from the experience of other and to compare the results with similar libraries.

The questionnaire designed for the investigation of TQM in central university libraries and quality service perceptions among research scholars and faculty members were administered. Two sets of questionnaire were designed for the purpose of data collections. Part 1,2,3 of first set of questionnaire was designed for the librarians of seven respective central university libraries and second set of questionnaire, i.e., part 4 was designed for user groups. Part 1 questionnaire deals with brief profile of libraries and collected factual data and quantitative statistics of libraries, such as size of collections, status of library automations, facilities and services, staff and budget, etc. Part 2 consists for the exploring TQM principles and practices and to find out the status Planning and awareness of TQM in selected libraries. Part 3 consists five elements of TQM, i.e., Leadership, Policy and Strategies, Staff Management, Resources and Process. Part 4 of the questionnaire contains the modified SERVQUAL instrument developed by Parasuraman, et.al.
to measure the outcome performance and perceptions of quality services through users. It includes 33 open ended and closed-ended questions referring to different aspects of service quality in an academic library. The questionnaire reflected six dimensions of quality services, i.e., Reliability, Responsiveness, Assurance, Access, communication and Tangibles. All the closed-ended questions were designed to solicit responses on a five-point Likert scale for both types of respondents to measure perception of service quality.

The instrument was earlier adopted by Seay, et al. (1996) with some changes in the SERVQUAL instrument of Parasuraman, et.al. (1988). Later the same instrument with some modification was used by Thapisa and Gamini (1999) to test the perception of quality services by users in University of Botswana Library.

The Quality Services attributes to six dimensions, which are as follow,

**5.6.1. Reliability:** This service quality dimension of reliability consists of five questions (attributes), it refers to the delivery service as it relates to dependability and accuracy. It includes;

- Giving correct answers to reference questions;
- Making relevant information available;
- Keeping records consistent with actual holdings/status;
- Keeping computer databases up and running;
- Making sure that overdue notices and fine notices are accurate;

**5.6.2. Responsiveness:** The service quality dimension of Responsiveness consists of six questions (attributes), Responsiveness measures the readiness of library staff in providing service. It includes,

- Making new information available;
- Timeliness delivery of information;
- Re-shelving of books;
- Effective ILL System;
- Familiarity with OPAC;
- Recency of journals and newspapers;

**5.6.3. Assurance:** The service quality dimension of assurance consists of five questions (attributes), it measures the knowledge and courtesy of the library staff and their ability to convey confidence. This includes:

- Appearance of staff;
• Through understanding of the collections;
• Familiarity of CD-ROM System;
• Providing individual attention to users;
• Recognizing the regular users by the library staff;

5.6.4. **Access:** The service quality dimension of access consists of five questions (attributes), Access measures the ability to reach out for something and finding or getting it as and when it is needed. It includes:

- Availability of staff at reverence desk
- Availability of Xerox facility
- Availability of computer terminals
- Library opening hours
- Time spent at circulation desk

5.6.5. **Communications:** The service quality dimension of communication consists of five questions (attributes), Communications measures the ability to keep clients informed in a language they understand and the ability to listen to them:

- Awareness of library facilities and services
- Provision of user education
- Availability, clarity, easy in uses of OPAC User manual
- Availability, clarity, easy in uses of CD-ROM user manual
- Assuring the users that her/his Problem will be handled

5.6.6. **Tangibles:** The service quality dimension of tangibles consists of four questions (attributes), this service quality dimension of Tangibles consists of four questions, to measure the maintenance of physical facilities its includes

- Library furniture
- Temperature setting in library
- Proper illuminate in the library
- Maintenance of Silence in study hall

5.7. **Sample and Population Design**

It is not feasible to collect large quantities of data having each and every library users in seven different central university libraries in India, therefore, samples were selected by using stratified random sampling method. The questionnaires were distributed personally among the research scholars, faculty members and librarians. Sample size of research scholars and faculty members has been limited to approx 10%
of the total populations and sample size of central university has been limited about 35% of total populations.

5.7.1. Sample Size and Distributions

A total of 1700 questionnaires were distributed to the user community, i.e., research scholars (830) and faculty members (870) of seven central university libraries of India, of which 1507 (89%) were received back. 763 (90%) responses were received from faculty members and 744 (89%) responses were received from the research scholars. The investigator selected only 1425 (84%) questionnaires for the analysis of data as 82 questionnaires were rejected because of incomplete responses from the respondents. Similarly 7 questionnaires were distributed to the university librarians of seven central university libraries, i.e., 100% responses were collected from the respondents.

5.7.2. University Wise Distribution of Sample

5.7.2.1. Maulana Azad Central Library, AMU, Aligarh

A total of 360 questionnaires were administered among the user community, i.e., research scholars (200) and faculty members (160) of Maulana Azad Central library of AMU Aligarh, of which 320 (88.9%) were received back. 140 (87.5%) responses were received from the faculty members and 180 (90%) responses were received from the research scholars. The investigator selected only 303 (84%) questionnaires for the analysis of data as 17 questionnaires were rejected because of incomplete responses from the AMU, Library users.

5.7.2.2. Sayaji Rao Gaekwad Central Library, Banaras Hindu University, Banaras

A total of 300 questionnaires were administered among the user community, i.e., research scholars (200) and faculty member (100) of Sayaji Rao Gaekwad Central Library, Banaras Hindu University, (Banaras), of which 269 (89.7%) were received back, 175 (87.5%) responses were received from the faculty members and 94 (94%) responses were received from the research scholars. The investigator selected only 254 (85%), questionnaires for the analysis of data as 15 questionnaires were rejected because of incomplete responses from the BHU Library users.

5.7.2.3. Central Reference Library, University Of Delhi, New Delhi

A total of 250 questionnaires were administered among the users community, i.e., research scholars (130) and faculty members (120) of Central reference Library, University of Delhi, (New Delhi), of which 220 (88%), were received back, 108
(90%) responses were received from faculty members and 112 (86%) responses were received from the research scholars. The investigator selected only 211(84%), questionnaires for the analysis of data as 9 questionnaires were rejected because of incomplete responses from the DU, Library users.

5.7.2.4. Dr Zakir Husain Central Library, Jamia Millia Islamia, New Delhi

A total of 250 questionnaires were administered among the users community, i.e., research scholars (100) and faculty members (150) of Dr Zakir Husain Central Library, Jamia Millia Islamia (New Delhi), of which 245 (98%), were received back, 147 (99%) responses were received from the faculty members and 98 (98%) responses were received from the research scholars. The investigator selected only 233(93%), questionnaires for the analysis of data as 12 questionnaires were rejected because of incomplete responses from the JMI, library users.

5.7.2.5. Central Library, Jawaharlal Nehru University, New Delhi

A total of 280 questionnaires were administered among the users community, i.e., research scholars (160) and faculty members (120) of Central Library, JNU, New Delhi, of which 238 (85%) were received back, 98 (80.65%) responses were received from the faculty members and 140 (87.5%), responses were received from the research scholars. The investigator selected only 225(80%), questionnaires for the analysis of data as 13 questionnaires were rejected because of incomplete responses from the JNU, Library users.

5.7.2.6. Central Library, North-Eastern Hill University, Shillong

A total of 135 questionnaires were administered among the users community, i.e., research scholars (90) and faculty members (45) of Central Library, (NEHU), of which 110 (81.5%) were received back, 30 (66.67%) responses were received from the faculty members and 80 (88.9%) responses were received from the research scholars. The investigator selected only 102(76%), questionnaires for the analysis of data as 8 questionnaires were rejected because of incomplete responses from the NEHU, Library users.

5.7.2.7. Central Library, Vishwa Bharti University, Shanti Niketan

A total of 125 questionnaires were administered among the users community, i.e., research scholars (50), and faculty members (75) of Central Library, (VBU), of which 105 (84%) were received back, 65 (84%), responses were received from the faculty members and 40 (84%) responses were received from the research scholars. The investigator selected only 97(78%), questionnaires for the analysis of data as 8
questionnaires were rejected because of incomplete responses from the VBU, Library users.

Table No 5.7. Sample of Distribution

<table>
<thead>
<tr>
<th>Name of Lib.</th>
<th>Sampling</th>
<th>Response</th>
<th>Response%</th>
<th>Questionnaires Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Faculty</td>
<td>Research</td>
<td>Scholar</td>
<td>Total</td>
</tr>
<tr>
<td>A.M.U</td>
<td>160</td>
<td>200</td>
<td>360</td>
<td>140</td>
</tr>
<tr>
<td>B.H.U</td>
<td>200</td>
<td>100</td>
<td>300</td>
<td>175</td>
</tr>
<tr>
<td>DU</td>
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<td>130</td>
<td>250</td>
<td>108</td>
</tr>
<tr>
<td>J.M.I.U</td>
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<td>100</td>
<td>250</td>
<td>147</td>
</tr>
<tr>
<td>J.N.U</td>
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<td>280</td>
<td>98</td>
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<tr>
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<td>135</td>
<td>30</td>
</tr>
<tr>
<td>V.B.U</td>
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<td>50</td>
<td>125</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>870</td>
<td>830</td>
<td>1700</td>
<td>763</td>
</tr>
</tbody>
</table>

5.8. Variables Taken

In order to achieve the objectives of the study and get the meaningful result following variable were taken:

- University Librarians
- Faculty members
- Research Scholars
- Quality Dimensions

5.9. Pilot Survey

Prior to the commencement of measuring the TQM in the central university libraries, a pilot study was conducted to verify the reliability of the method chosen. This step also assisted in the adjustment of research method problem. Hence the pilot study served as a practice for the researcher's interviewing techniques. The results from the pilot study were integrated into the current section.

A pilot survey was undertaken to ensure that the questionnaire were as meaningful to the respondents as they were to the investigator and to decide which questions were relevant for the purpose of the study. So, a pilot study was conducted which was useful in modifying the questionnaire suitably. The investigator distributed questionnaires among 20 research scholars and 10 faculty members...
Maulana Azad Central Library of AMU, Aligarh for the pilot study which was very helpful in modifying the questionnaire suitably.

5.10. Data collection procedure

For the collecting of data, the investigator personally visited to seven central university libraries and approached the university librarian for seeking permission to distribute the questionnaire to the users. Questionnaires were administrated among research scholars, faculty members and university librarians of seven respective central university libraries. Dully-filled questionnaires were collected back on same day or latter.

The investigator personally consulted the research scholars and faculty members, made an informal talk regarding various aspects of their libraries. The investigator also conducted an informal interview with the librarian and deputy librarian to clarify some doubts; besides this observation method was also used to observe the overall effectiveness quality services.

5.11. Data Analysis Method

The quantitative and qualitative data collected through questionnaire and informal interview were organized and tabulated by using statistical methods, tables and percentage, mean and average mean. After gathering the questionnaires, the survey data was keyed in Excel file. Before transferring to SPSS version 16.0, the procedures of data treatment were set to validate the data for further analysis. After data treatment, the data was transferred to SPSS Version 16.0 and do statistical analysis in order to accomplish the purposes of the study. For the analysis the users perception score each item in the all dimensions were calculated in the form of means, average mean and SD. Further to substantiate the data, statistical tests have been conducted namely ANOVA, t-test and control chart for mean.

Analyses of Variance (ANOVA) test were used to identify the differences of service quality dimensions in central university libraries of India and t-test was used to measure the significant differences between perception of service quality of the research scholars and faculty members. For measuring of quality levels, mean control charts were used.

This chapter presented the research methodology of the present study. The next chapter provides an analysis of data collected through questionnaires and interpretations of results.
REFERENCES


