CHAPTER 3

RESEARCH METHODOLOGY

This chapter defines the research methods adopted to conduct the study, and also explains how the necessary data and information address the research objectives are optimized and represented. This study has been conducted in order to assess the information needs and web browsing behavior of library users of Undergraduate students, Postgraduate students, Research scholars and members of faculty of IIT Delhi, Kanpur and Roorkee. In descriptive methodology both qualitative and quantitative approaches has been implemented to collect necessary data. Survey, by way of questionnaire and interview are the primary techniques of data collection. This chapter presents details

3.1 Research design

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research. It includes an outline of what the researcher will do from writing hypotheses and their operational implications to the final analysis of data. A structure is the framework, organization, or configuration of the relations among variables of a study. A research design expresses both the structure of the research problem and the plan of investigation used to obtain the empirical evidence on relations of the problem

Thyer (1993) A traditional research design is a blueprint or detailed plan for how a research study is to completed- operationalizing variables so they can be measured, selecting a sample of interest to study, collecting data to be used as a basis for testing hypotheses, and analyzing the results.

According to Covey (2002), survey is an effective way to gather information about peoples current behaviors, attitudes, beliefs and feelings. The present study has used questionnaire based survey method, as many similar studies conducted earlier, have also used this method for data collection. This method is also preferred as it is less time consuming and economical for a scattered population and support quantitative analysis.

The study essentially involved the following steps:
Analyzing selected literature to gain a better understanding of the subject and to learn about the gap in knowledge in the subject
1 To identify the research objectives
2 To prepare an introductory list regarding research queries
3 To select an appropriate research method for the purpose of study
4 Research tool develops the questionnaire
5 Selecting the Institute involved in the study
6 Pre testing the questionnaire, and revising it
7 Distributing the questionnaire to the respondents.
8 Collecting the questionnaire and checking the data for reliability and usability.
9 Analyzing the data coding the response, to create tabulating and graphs, performing appropriate statistical computations and interpreting the results.

The present study is the status of the extent of prospects of three IITs i.e. IIT Delhi, Kanpur and Roorkee library users. Survey method of research was applied to know the web browsing behavior of library users. The survey has been conducted on the sample libraries with the help of questionnaire and interview techniques. The data collected has been analyzed and interpreted.

3.2 Research Methods

The descriptive survey method as one of the most important so called methods of research which looks with intense accuracy at the phenomenon, as far as the study is concerned, at this moment. Further, it describes precisely what the researcher does, and yet further how the analysis will take shape as such. Descriptive research design is concerned with describing characteristics of a problem. Questionnaire and Interviews are the two methods used to get information in a descriptive research. This study utilizes the descriptive method of research, which is widely accepted as a research method as presented in the above lines. Commonly described or defined as a research which finds facts and thereby involves adequate and accurate interpretation of findings. Hence, descriptive in all sense. Relatively the method is appropriate to this study since it aims to describe the present condition of information needs and web browsing behavior of library users of faculty members, Research scholars, Postgraduate students and Undergraduate students of IIT Delhi, Kanpur and Roorkee. The technique that has been used
under descriptive method is the normative survey approach and evaluation, which is commonly used to explore questions according to respondents that can be represented as a whole population. The descriptive survey is appropriate in this study, because it enables the researcher in formulation of generalizations. It is to be mentioned here audaciously and specifically that, two types of direct data survey are included in this study. These are questionnaire survey and interviews. Both these methods have effect in the analysis segment, of which becomes an essential part of the general research work. Taking the current research work into express consideration, we would like to again confirm that, interviews with librarians and other library staff in the institutions library, where the research work has been conducted, in order to provide further insight about the results of the survey, has been amply suitably sustained here in this current study.

3.3 Research tools

Several studies on the related topics have been consulted and their instruments have also been examined. Generally, survey research is conducted by on questionnaires. A questionnaire is a formalized list of questions that is used to solicit information from respondents.

This study uses a questionnaire as the main instrument for the data collection, as many similar studies conducted earlier have also used this method for data collection. The questionnaire has been chosen, as it is more appropriate compared to interview, for this kind of survey, to get response from a relatively large number of respondents in a short period. The questionnaire also allows respondents to answer at their own leisure or free time.

The questionnaire has been prepared after comprehensive search of related literature and discussion with subject experts and my colleagues. The questions are obtained from similar questionnaire used in similar studies, and in some cases adapted to the details of the study. Both open and closed ended questions are included in the questionnaire. At the beginning of the questionnaire, brief instructions explaining purposes of the study are provided. In order to secure honest response from the respondents, anonymity and complete confidentiality have been promised.

A note book has also been prepared on the basis of information obtained during data collection phase to be used to substantiate the information obtained from questionnaire to provide a balanced understanding of the situation.
This being survey research it cannot be guaranteed in definite terms, but the researcher tries his best to avoid introducing his own biased by keeping the interaction with the respondents limited to the minimally necessary pleasantries and sticking to the process of going through schedule.

3.4 Pre Test
A pretest was conducted prior to the actual data collection to make sure that the questions fit the purpose of the study and easy to follow by the respondents, in order to preempt the difficulties that may be confronted during the course of the study. The pilot study respondents consisted of 25 undergraduate students, 25 MBA students and 25 members of faculty from the library of Accurate Institute of Management and Technology Greater Noida. They give important suggestions to seek clarification, if required, for any of the items in the questionnaire, provided they encountered any difficulty in answering the questions. The questionnaire was shaped in accordance with the user’s reactions and also with the objectives set apart for the study.

3.5 Sampling:
Sampling is one of the vital steps in survey research. The process of selecting a sample out of the population is called sampling. Population is a group of individual or objects having at least one common characteristic e.g. Librarians of degree colleges, women librarian etc. Sample is a unit of the population to be investigated. The sample should be representative of its population. A sample is preferred to conduct a study because it is less expensive and time consuming.

Sampling Method:
There are different kinds of sampling techniques some of the major and popular methods are Systematic sampling, Simple random sample, and Stratified random Sample. Researcher has adopted Stratified random sample in his study.
**Stratified Random Sampling:**

Stratified random sampling is a improved version of quota sample, where different sections of a population are proportionately represented in the sample in a random fashion. Suppose a researcher is conducting a survey of an academic library users, where the populations includes faculties, students and office staff in different proportion. If random sampling then the sample will represent all those graphs of population proportionately.

Sampling involves the study of a few representative units of the study area. Here in this study, to have maximum representation and reliability, investigator has adopted stratified proportional random sampling method. The present study would be conducted on a 2400 users operating in three IITS. IIT Delhi 800 (200 questionnaire for Undergraduate), (200 for Postgraduate), (200 for Research scholars) and (200 for Faculty members). Kanpur (800) and Roorkee (800). Whenever necessary the questionnaire method was supplemented by interview method. Librarian and other library staff were also informally interviewed in order to ascertain how to cultivate cordial relationship between the librarian and the library users for better information services.

By using stratified proportional random sampling 200 library users per category were selected in the relation of the subjects. This will include (UG- Undergraduate, PG-Postgraduate, RS- Research Scholar and Faculty members).

As the present study proposed two factors have been found important which affect web browsing behavior of library users. They are personal background factors and information seeking factors. Personal factors include education, rural/urban background. Web browsing facilities and services given by the library to measures the web browsing behavior of library users a self measured scale will be distributed among the respondents which appeared most relevant in today culture.

**3.6 Data Sources:**

The research relies on both primary and secondary data in order to come up with accurate and objectives findings.
Primary data refers to the data collected for the first time in the field. It is the data that has been collected for the purpose for which it is originally used. Primary data for this particular research has been collected through interview and questionnaire.

Primary data collection has been given the highest priority in this research as there is limited published material on the subject under study. For a subjective study like this one primary data is of prime importance because primary data draws information directly from the field. Facts and figures are drawn directly from people because culture exists within a society of people.

Secondary data is the data that is collected for purposes other than the original use. It is an analysis of data that have already been collected for some other purpose. These may be contemporary or historical and the data may be qualitative or quantitative and usually needs adjustments and validation before being put to use. This data can include survey data and documentary data.

Sources of used to gather secondary data were document analysis collected from published and unpublished documents and subject relevant literature, and frequent visit to related websites became crucial in collecting up to date secondary data as well as publications by renowned authors on web browsing behavior.

Using secondary data saves time and money since the work has already been done to collect the data. It avoids the problems associated with the data collection process. Unlike primary data, secondary data generally provides a source of data that is both permanent and available in a form that may be checked relatively easily by others. The published documents give the researcher extra information on the research problem.

3.7 Data collection Techniques:

The data collection techniques are:

1) Questionnaire
2) Interview
3) Observations
Questionnaire:

Questionnaire is a most common and widely used survey method. It is a primary data collection method. The important step in this method is to take care in the design of questions. The questions should be specific to hypothesis and direct to the purpose of research.

Questionnaire is a tool to collect data from diverse large and widely scattered population groups. Goode and halt state” Questionnaire refers to a device for securing answers to question by using a form which the respondent fills himself.

Construction of the Questionnaire

While constructing a questionnaire, the following points should be taken into consideration.

1- What is expected from the questionnaire
2- Types of questions to be asked: Unstructured or Structured?
3- If structured questions are to be included then the type of scale to be used Nominal OR Ordinal or Interval or Ratio?
4- The content of the questions should not be biased or suggestive.
5- Sequencing of the questions in an orderly pattern
6- The first draft should be subjected to pretesting for modification a d establishing reliability and validity.

Interview:

Interview method, as a social research tool is used by contemporary researchers. The interview method is more direct and has greater flexibility. Young defines “Interview as a systematic method which a person enters more or less imaginatively into the life of a “Comparative stranger”. Good e and Hatt amplify if saying “perhaps no research techniques are as close to the researcher problem as the interviewer”.

The interview method is unique because the collection of data is through direct verbal interaction between individuals. Interview stands out distinct from questionnaire; and more
original, because verbal communication with interview, by investigator. The limitations of the questionnaire method can be eliminated supplementing it with interview method.

**Observation**

Observation is a well established technique for collection of data. The observation method is normally employed in measuring, testing charactering human behavior. Observation methods go into past events and then study the present, hence it has historical orientation.

**Observation Devices**

1 Diaries
2 Note book
3 Schedules
4 Photographs
5 Maps

To conduct a research study in a developing country like India is rather difficult where research culture is not conducive. Generally people are unaware of the importance of research. To get response to a questionnaire from respondents is difficult because most of them feel reluctant and hesitant to give their opinion freely.

The respondents were very busy in their profession schedule the researcher requested them to give some time for the questionnaire so many respondents responds very well they avail their important time to the researcher.

The researcher personally distributed the questionnaire in IIT Delhi and IIT Roorkee users go through their library, lab and Faculty cabin. IIT Kanpur authorities do not give permission to researcher for personally distributed to questionnaire. Their library staff members distributed and collected the questionnaire.
The members of faculty of IITs are very tight schedule their classes, labs and other curriculum activities of the institutions they have not much time for the questionnaire, so I have make a great patience I was waiting from 9 am to 10 pm. Some members of faculty refused to cooperate and some of the members of faculty were very cordial and hospitality. So it is a vey nice experience as a researcher

3.8 Presentation of Data

The data collected through survey must be transformed into data files (for computer analysis) or compiled into tables. This operation is considerable as presentation of analysis if data.

Steps in Presentations

As stated already presentation is a step before analysis. Sometimes, it is also considered as part of analysis. In fact, it is stated that, “Analysis involves many steps” such as:

i) Categorization
ii) Coding
iii) Tabulation
iv) Graph
v) Statistical analysis and inference

But practically presentation is done before analysis. In brief the basic steps of presentation are:

i) Coding:

It consists of assigning symbols. Usually numeric, to each answer through coding, raw data is transformed into symbols that may be tabulated.

ii) Tabulation

It is an orderly arrangement of data in columns and rows. It is a part of the technical process in statistical analysis of data. The essential element in tabulation is the summarization of
results in the form of statistical tables. This is of great help in the analysis and interpretation of data. While preparing tabulation, the purpose of the study has always to be kept in mind.

iii) **Graph**

It is an arrangement of data through graphs to easy the understanding of data analysis, so we present the some graph for the study.

iv) **Statistical analysis**

The range of statistical techniques used in the survey analysis it too large and varied. It consists of methods and procedures for summarizing, simplifying, reducing and presentation of raw data to communicate the essence of data to another. The purpose of such method is essentially reporting.

**Scaling of items**

**Nominal Scale** it has been used to select responses in respect of qualification, teaching experience etc.

**Likert Scale** Respondents were presented with response categories ranging from highly important to highly unimportant, and asked to respond according to their need.

Some variables have been studied as frequencies also wherever deemed suitable.

3.9 **Analysis of Data**

The collected data has been coded and uploaded into the MS Excel sheet. Responses by characterized by Undergraduate, Postgraduate, Research Scholar and Members of Faculty as the basic independent variable. Collected data tabulated and summarized as percentage and frequencies. The cross tabulation has been mainly used to find out relationship between different variables to fulfill the major research objectives of the present study.
REFERENCE