Chapter IV

RESEARCH METHODOLOGY

4.1 Introduction:

There are number of definitions of research, Rusk writes, “Research is a point of view, an attitude of inquiry of a frame of mind. It asks questions, which have hitherto not been asked, and it seeks to answer them but making fairly defines procedure. It is not mere theorizing, but rather an attempt to elicit facts and to face them once they have assembled.” This definition explains the way of research and its accountability. According to P.M. Cook “research is an honest, exhaustive, intelligent searching for facts and their meanings or implications with reference to given problem”. This definition explains the importance of consistency in the research project.(Agarwal 1975)

4.2 Research Statement:

The researcher selected this research enquiry due to relevancy of research query and its impact on library personnel. The role and attitudes of librarians in this change process has been central, as they are the champions of introducing new technology-based library resources, services and systems. Successful implementation of information and other technologies is linked with enhancement of librarian’s own knowledge and skills in the areas of information resource, tools, access modes, technology, management and their capabilities to integrate all these to provide effective and efficient library services. Hence the researcher has selected the topic ” Use of Information and Communication Technology in Libraries : An Empirical Study of Academic Libraries Affiliated to Swami Ramanand Teerth Marathwada University, Nanded And Dr. Babasaheb Ambedkar Marathwada University, Aurangabad” to study the use of ICT in libraries including Library Automation,
collection development, document processing, librarians attitude towards ICT in the libraries of Swami Ramanand Teerth Marathwada University, Nanded and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

4.3 Research Design:

A Research design is a plan of action to be carried out in connection with a research project. It is the conceptual structure within which research is conducted and it constitutes the blue print for the collection, measurement and analysis of data. It is the specification of methods and procedures for acquiring the information needed for solving the problem. Decisions regarding what, where, when, how much, by what means concerning an inquiry or a research study constitute a research design.

4.4 Aims and Objectives of the Study:

The purpose of this research was to examine the use of information and communication technology in college libraries affiliated to Swami Ramanand Teerth Marathwada University, Nanded and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (Maharashtra) Marathwada Region by investigating the:

1) To know the existing technological infrastructure of college libraries.
2) To investigate the current status of library automation.
3) To know the use of library software and its applications in college libraries its impact, activities and services.
4) To study the barriers to implementation of library automation and also librarians' attitudes towards the use of ICT.
5) To study the problems and prospects in implementation of ICT sources and services.
4.5 Scope of the Study:

The present study covers 216 senior college libraries affiliated to Swami Ramanand Teerth Marathwad University, Nanded and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Questionnaire was distributed to 180 colleges having ICT, out of which 105 colleges responded including academic and aided professional colleges i.e Academic (Arts, Commerce, Science) and Professional (B.Ed., Law & Engineering etc.). Both are granted & affiliated to this university. It has wider scope but considering limitation of time and other factors present study was confined to the only granted college libraries, especially researcher has focused on ICT in granted college libraries. However non-granted colleges are excluding in this study. The researcher covered various aspects related to the use of ICT i.e. infrastructure, status of Library Automation, library software and its applications, problems and prospects etc.

4.6 Selection of Research Method:

Methodology in research is a way to solve the problem, to unfold the probable answer, and to test the hypothesis stated. As there are many roads leading to a city, likewise there are many methods to solve the problem of research. According to Webster’s Collegiate Dictionary, a survey is a critical inspection often official to provide exact information. The main purpose of the descriptive research is to tell ‘what exist’. It deals with the relationship between variables, testing hypothesis and development of generalization of principle or theories that have universal validity. The descriptive survey research is particularly appropriate in behavioural sciences because many of the experimental studies cannot be experimented either in the laboratory or on the actual field. The prevailing research method of behavioural sciences is a descriptive survey under the condition that naturally occurs in the training colleges, classroom or in the home, office and the factory. Descriptive survey
research can systematically observe and analyze the human behavior. The researcher has to select one of them, which is appropriate and requires minimum efforts, time, energy and money. The research was studying the ‘Use of Information and Communication Technology in Libraries : An Empirical Study of Academic Libraries Affiliated to Swami Ramanand Teerth Marathwada University, Nanded And Dr. Babasaheb Ambedkar Marathwada University, Aurangabad’, therefore the descriptive research is the appropriate method for the study undertaken for the research by the researcher.

4.7 Research Methodology:

The main purpose of the present study was to study the use of ICT in College Libraries affiliated to Swami Ramanand Teerth Marathwada University, Nanded and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. The researcher adopted survey method and questionnaire technique to collect the primary data.

4.7.1 Targeted Population:

The population for the present study was selected as following.

- College Librarians of Swami Ramanand Teerth Marathwada University, Nanded and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

4.7.2 Structure of Questionnaire:

The study was based on the use of Information Communication Technologies in College Libraries affiliated to Swami Ramanand Teerth Marathwada University, Nanded and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. The questionnaire was framed on following factors.

1. General Information
2. Physical Infrastructure
3. Technological infrastructure
4. Document Processing
5. Library Automation
6. Use of ICT in Collection Development
7. ICT Based Services
8. E–Resources
9. Users of e–Resources
10. Information Resources
11. Web based services
12. Collaborative services
13. Barrier in implementation of library automation
14. Acquiring IT skills by the staff
15. Librarians attitude towards the use of ICT
16. Implementation of ICT source and services
17. Librarians attitudes towards cost and resource allocation for ICT
18. Librarians attitudes towards impact of ICT
19. barriers in use of ICT in College Library

4.7.3 Instruments for Data Collection:

The Data-gathering tools used included questionnaire, observation and informal interview with selected college librarians.

Two instruments were developed to collect data:

- Self-administered, semi-structured questionnaires (Closed and open questions). These was used to capture both quantitative and qualitative data and represent a relatively inexpensive means of obtaining the required information from a fairly large number of people in a short time.
• Face to face semi-structured interviews. This was used to collect additional data on respondent's opinions and perspectives as well as to supplement the questionnaires' simplicity, impersonality and brevity.

4.7.4 **Statistics used for Analysis of Data:**

The statistical analysis of the data for the present study was done by applying 1) Simple percentage and 2) Chi-square Test

**Chi-square Test:**

The Chi-square test is an important test amongst the several tests of significance developed by statisticians. The Chi-square test was used to compare an observed group of frequencies with an expected group of frequencies. This led to deduce the expected frequencies from the null hypothesis. The level of significance was set at 0.05. The statistical analysis of the data of the present study was done by statistical package. (Best & Kahn, 2002).

Chi-square, symbolically written as $X^2$ is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance.

**Steps involved in applying chi-square ($X^2$) test:**

i) First of all calculated the expected frequencies on the basis of given hypothesis or on the basis of null hypothesis. Usually in case of 2 x 2 or any contingency table, the expected frequency for any given cell work as under

\[
\text{Expected frequency of any cell} = \left( \frac{\text{Row total for the row of that cell}}{} \times \frac{\text{Column total for the column of that cell}}{} \right) \div (\text{Grand total})
\]

ii) Obtained the difference between observed and expected frequencies and find out the squares of such differences i.e. calculated $(F_o - F_e)^2$
iii) Divided the quantity \((Fo - Fe)^2\) obtained as stated above by the corresponding expected frequency to get \((Fo - Fe)^2 / Fe\) and this was done for all the cells frequencies or the group frequencies.

iv) Found the summation of \((Fo - Fe)^2 / Fe\) values or what we call.

This is the required \(X^2\) 

\[
X^2 = \sum \frac{(Fo - Fe)^2}{Fe}
\]

\(Fo =\) Observed frequency

\(Fe =\) Expected frequency-

\(df = (r-1) \times (c-1)\) or \(df = (r-1)\)

\(df =\) Degree of freedom.

\(r =\) number of rows

\(c =\) number of columns

It is essential for a scientific study to process data and analyse them in accordance with the method laid down for the purpose in order to arrive at the possible results. Data obtained through the questionnaire was analysed and interpreted.

The steps followed by the researcher for data analysis are given below:

1. After analysis, data was framed in the tabulation form.
2. Calculated percentages.
3. Chi-square test was used to compare an observed group of frequencies with an expected group of frequencies. This led to deduce the expected frequencies from the null hypothesis.
4. The analysed data was used for the conclusion of the present study.

**4.7.5 Research Questions and Related Hypotheses:**

1. What is the status of Existing technological infrastructure?
2. What is the current status of Library Automation?
3. How is the use of library software and its applications in college libraries its impact, activities and services?

4. What are the barriers to implementation of library automation and also librarians' attitudes towards the use of ICT?

5. What are the problems and prospects in implementation of ICT sources and services?

3.8 Outline of the Thesis:

The thesis was organized into six chapters including Introduction, Review of Literature, Information and Communication Technology in Academic Libraries, Research Methodology, Descriptive Analysis and Interpretation of data, Findings & Conclusion followed by Bibliography.

Chapter I: Introduction:

The first chapter presents a brief introduction to the subject which selected for research study. It starts by defining the problem, then providing the research focus. Concepts are defined so that they do not remain general as they are meant to be specific to this research. The statement of the problem answers questions relating to the exact nature of the problem that the research is addressing. The purpose of the research or its justification is to study the ICT in Academic libraries affiliated to Swami Ramanand Teerth Marathwada University, Nanded and Dr.Babasaheb Ambedkar Marathwada University, Aurangabad.

Chapter II: Review of related literature:

In Chapter two, there is a review of existing literature which helps clarify the nature of the problem, while highlighting gaps. It explains how the present research brings out to open the gaps or problems through an examination of literature by other researchers. Put differently, “the author must establish that existing perspectives are inadequate, and persuade the reader that the new vision is relevant
and adds greater insight to the phenomena than was possible previously” (Parry, 1998: 284).

Chapter III: Information and Communication Technology in Academic Libraries.

This chapter is descriptive information about ICT in Academic Libraries. This chapter includes Impact of ICT, role of Librarians and attitude towards the implementation in Academic libraries to provide the sources and services effectively and efficiently to the users.

Chapter IV: Research methodology & Tools

Fourth chapter deals with the Research methodology including the research design of the thesis explaining research statement, aims and objectives, scope, research method, research questions and related hypotheses and also the statistical application used for data analysis.

Chapter V. Descriptive analysis and interpretation of data:

Fifth chapter consist of presentation of the results, an analysis and synthesis of the findings regarding to the ICT in Academic libraries. This chapter deals with the descriptive analysis and interpretation of data related to general information, Infrastructural status, Library Automation, Document processing, E-Resources and services. Also discusses about the role and attitude of the librarians towards ICT in Academic Libraries.

Chapter VI- Summary, Findings and Conclusion:

Sixth chapter provides the presentation of the summary, findings, conclusions and suggestions arising from the research, as well as highlighting implications for further research followed by the bibliography and Appendices.

The further research study may be possible comparative study of college to college libraries, also university libraries in the state and national level with depth.
Bibliography: Bibliography was created with APA style of format.

3.9 Referencing Style used in the Thesis:

In doing research, the acknowledgement of scholarly works and ideas by other people is achieved by referencing and citing. At the beginning of the research, it is important “to find out which referencing style or citation format is used by or acceptable. The Harvard citation style, the Publication Manual of the American Psychological Association, and the MLA style handbook are widely used” (Wilkinson 2000). The significance of this is the fact that “in a doctoral thesis, appropriate citation and critique signals the espousal of the appropriate values, etiquette, style and cultural savvy” (Parry, 1998).

The American Psychological Association (6th Edition) reference style uses the Author-Date format. In the field of research, many authors are more familiar with the author and date system. Hence the APA citation style has been used to cite the authors work.
References:


