CHAPTER-3

Research Methodology
And Field Area of the Study
3.0 Introduction

Research in common parlance refers to search for knowledge, through objectives, formulating a hypothesis, collecting data, analyzing facts and systematic method of finding solution to a set of concern problems. Research methodology refers to a variety of methods, tools and techniques adapted to conducting research. Research can also be defined as a scientific and systematic search for pertinent information on a specific topic. Dictionary shows research as a careful investigation of inquiry especially through search for new facts in any branch of knowledge. Social research according to P.V. Young “We may define social research as scientific understanding which by means of logical and systematized methods aims to, discover new facts or old facts, and to analyse their sequences, interrelationships, casual explanations and the natural terms, which govern them.” (Young, P.V., 1960). Bogards defines, “Social research is the investigation of the underlying process operative in the lives of person who are in association.” (Bogards E., 1954). Moser says, a social research is “Systematized investigation to gain knowledge about social phenomena and problems, we call social research.” (Moser C.A., 1961). Various series of steps used to carry out research are:

3.1 Objectives of the Study

The study aims at identifying the Impact of Information Communication Technology on the library services of degree colleges affiliated to Delhi University. The detailed objectives of the study are as follows:

1) To view the degree college libraries under study with regard to their organization and working.
2) To examine the influence and effectiveness of ICT on the day to day functioning of the libraries under study.
3) To identify the problems encountered in day to day working in an ICT environment.
4) To identify and study the various ICT infrastructure facilities made available to
the users in the libraries under study.

5) To understand the reasons for inadequately ICT infrastructure and non-promotion
of ICT based services

6) To assess the impact of ICT on library services and users.

7) To assess the level of users satisfaction with ICT resources and services.

8) To find out the suitable measures for improving ICT skills of library
professionals.

9) To suggest solution measures for the problems encountered, to take full advantage
of ICT to make degree college libraries more resourceful for providing
information services.

3.2 Methods of Research: The present study has been conducted on the topic
‘Impact of Information Communication Technology on the Library Services of
Degree Colleges affiliated to Delhi University: an Analytical Study’. Keeping the
above point in consideration, the circumstances and objectives of concern study the
survey method has been used as the research methods. The Questionnaires and
Observation have been employed as the tools for primary data collection and related
studies and records are the base for secondary data collection. However, indirect
studies of records were adopted for collection and analysis of relevant data to
supplement the data collected through questionnaires to enhance and strengthen its
reliability and to gather, some additional information on specific aspects of ICT
utilization by libraries and users.

3.3 Formulation of Research Problems: The technological factor changes
the means and mode in a system. The technology transfer has been faster in modern
time of information. The ICT is the backbone of information society and the libraries
also cannot survive without its handling. It has been found through observation and
various studies that ICT has changed the way of knowledge and information organization in a library and information system and its adaption has become the necessity of current time. ICT has influenced the library staff, users, resources and services. Thus, for fulfillment of research purpose firstly, the research problems have been formulated and for this purpose a detailed literature survey has been carried out; this was followed by discussions with colleagues, experts and research supervisor. This has helped in understand the problems thoroughly and reshaping the same into meaningful terms from an analytical point of view.

**Literature Search:** Secondly, an extensive literature survey related to problems was carried out and this was supplemented by new ones from time to time. This helped a lot to get acquainted with the proposed problems. In this process two types of literature reviews were followed: conceptual literature concerning the concept and theories, and empirical literature consisting of studies carried out earlier, which are similar to present proposed study. For this purpose various: Primary, Secondary, Tertiary and cross references were consulted. This included primary journals and review articles like as Library and Information Science Abstract (LISA), Indian Library Science Abstract (ILSA), full text journals, published/unpublished documents, bibliographies, seminar and conference proceedings, government reports, books, websites etc. The literature search also helped in hypothesis formulation.

**3.4 Preparation of Research Design:** Decision regarding designing the present study (what, where, when, how) was taken into consideration after consulting various earlier studies, experts’ opinions and frequent discussions with the research guide. Keeping in view the above stated design decisions; the whole study was split into: (i) statement of research problem; (ii) procedures and techniques to be used for gathering the data/information (iii) the population to be studied and (iv) Methods to be used in processing and analyzing the data. After formulating the research problems, an exploratory research design has been prepared i.e. conceptual structure
within which research/study is supposed to be conducted. To prepare the research
design above points were considered i.e. what is study about? why the study is
needed? where will the study be carried out? What type of data is required? and
period of time to be covered? How data will be analyzed? And finally what style of
report will be prepared? The degree colleges affiliated to Delhi University were
selected for data collections, and report preparation.

3.5 Population and Sample Design: Each study is related to a research
population. Population means all units of any well defined class of people, events or
objects. All the items under consideration in any field of enquiry constitute a universe
or population. Impossibility of the complete enumeration of all the items within
limited period and with limited resource gives rise to selecting a few items from the
universe for study purposes. The items so selected constitute sample. Sample is
defined “In every branch of science we lack the research to study more than a
fragment of a phenomenon that might advance our knowledge.” In the definition
‘Fragment’ is denoted for sample and ‘phenomenon’ is the population of universe, the
sample observation are applied to the phenomenon i.e. generalization. The researcher
must decide the way of selecting a sample or what is popularly known as sample
design. In other words a sample design is a definite plan determined before any data
are actually collected for obtaining a sample from a given population. Sample should
be representative of the population from which it is drawn. Thus the basic concern in
sampling is not about what types of units will be interviewed but with how many
units of what particular description and by what method should be chosen.
(Krishnaswami, O.R.,1993)

Here the **purposive-random sampling** has been adopted for research work.
Purposive sampling is also known as judgmental sampling. In purposive sampling,
we select sample with a purpose in mind. We usually would have one or more
specific predefined groups we are seeking (Negi, 2005). The researcher purposively
chooses the sample. The person who, in this judgment about some appropriate characteristic required for the sample are thought to be relevant to the research and are easily available to him and in other side random sampling is also known as chance sampling or probability sampling, where each and every item in the population has an equal chance of inclusion in sampling and each one of the possible samples, in case of finite universe has the same probability of being selected. The selected libraries for study purpose have been implemented ICT application fully or partially. The population of this study comprises 400 Undergraduate and Postgraduate students as users and 40 librarians of degree colleges affiliated to Delhi University, whose libraries provide ICT based Library and Information services. The sample size of 40 degree college libraries has been selected purposely; because these are the providers of ICT based Library and Information services. The sample selection has been made on the basis of lottery method of random sampling.

3.6 Tools Used for Collection/Analysis of Data: There are several ways and tools to collect the data. Hence, questionnaire has been used as the main tools for the data collection. Observation, interview and the documentary (references) sources were included to support the study as well as to give the authenticity of the data. However, MS-EXCEL and MS-WORD was used for data analysis and interpretation.

3.7 Questionnaire: The questionnaire has been utilized extensively in order to collect the necessary data. The hybrid questionnaires (contains both open and closed type) has been adopted for primary data collection. Two sets of questionnaires (for librarian and user) have been used to collect data. The survey questionnaires were pre-tested as a part of pilot study by librarians and users as the samples. The suggestions were incorporated and questionnaires were modified accordingly. The suggestions and recommendations by librarian and students problems raised by the users during the pilot study were taken into consideration. After the pilot study, the
questionnaires were mailed to librarian as well as students with a request to return the same. The total numbers of 450 questionnaires were distributed to library users and 410 questionnaires were returned, in which 10 were incomplete thus finally a set of 400 questionnaires were selected for analysis. However, majority of respondents were personally contacted and in case of any difficulty, the details were explained.

3.8 Statistical Tools: After the data collection procedure, the collected data was processed, condensed, classified, coded, edited, tabulated and entered in the computer. The data was analyzed statistically. The descriptive statistics, including frequency and percentage were used to provide a general picture of the current major trends in respect to the impact of ICT on the Library Services of Degree Colleges affiliated to Delhi University. The computer was used at this juncture, which was based on the computation of various tables, percentage, diagrams.

3.9 Computerized Software: MS- OFFICE Word was used for typing the texts and drawing the tables while MS OFFICE Excel also used to draw the necessary figures.

3.10 Execution of the Study: As execution of the research/project is a very important step in the research process, the questions as well as the possible answers were coded. From time to time respondents were personally contacted to ensure that the respondents are doing their assigned jobs sincerely and efficiently.

3.11 Analysis of Data: When a huge amount of data was assembled, it is necessary to analyze the materials in some kind of concise and logical order. The data analysis require a number of closely related operations such as establishment of categories, the applications of these categories to raw data through coding, tabulation and then drawing statistical inferences. Firstly the collected data were classified under different headings, the data was classified according to research purpose and then the data are kept under tabular form by constructing some simple, complex and crossed
tables, then tabulated data were interpreted. The analyzed data is presented in co-related tables, diagrams and supplemented by descriptive form. MS-Word and MS-Excel has facilitated data analysis and interpretation work Thus, anticipated and observed consequences has been presented in report.

3.12 Generalization and Interpretation: The real value of a research lies in its ability to arrive at certain generalization. If the researcher had no hypothesis to start with, he might seek to explain his findings on the basis of some theory and it is known as interpretation. The process of interpretation may quite often trigger off new questioning which in turn may lead to further research. In the present study the result is generalized after data analysis. The generalized result may be interpreted in contemporary situation and explore the ICT impact on academic libraries.

3.13 Preparation of the Report: Finally report was prepared based on guidelines given by the Jiwaji University of Gwalior. It comprises of preliminary part viz. certificate and declaration, acknowledgements, followed by contents, list of tables, figures and abbreviation used in the report, middle part as main part and last part as annexure.

3.14 Scope and Limitations of the Study: The present study covers the Impact of Information Communication Technology on the Library Services of Degree Colleges affiliated to Delhi University. The study covers general background of selected libraries, technical infrastructure, financial, learning resources, and services such as conventional LIS as well as ICT based LIS covers OPAC (LAN based) Web OPAC, Access to web resources, Internet access, Databases search service, Impact of ICT Based LIS on users, encountered problems of library professionals and user and measures for improving ICT skill.

The University of Delhi has number of UG colleges & PG colleges including evening
colleges. The present study covers only day colleges. Evening colleges have been
excluded from the study due insufficient infrastructure. The study includes PG and
UG students only as library user of 40 degree colleges.
A list of selected 40 colleges is mentioned at the end under annexure II.

3.15 Field Experiences: Researcher in the present study has followed survey
method and all the data was indirectly collected through questionnaire method from
respondents. While conducting the research activities researcher has gained a number
of interesting experiences of mixed type (both pleasant and unpleasant). He has also
faced many problems in site. The field experiences gained by researcher are as
follows:

- In the first instance, the respondents were not willing to spare much amount of
time to the researcher.

- It was not easy to meet with respondents at any fixed time. Many librarians were
busy in library working schedule and users were busy in college activities.

- Some of the respondents were not willing to give their opinion regarding some
topic like budget spent on ICT, their experiences with ICT implementation,
administration and staff co-operation etc., then questionnaires were sent to them
by e-mail also, for complete data collection

- Another problem faced by the researcher, while collecting data from some
students as respondents, they were not ready to give detailed information easily,
and provided incomplete information, due to which the researcher had to make
repeated visits for data collection.

- In spite of these difficulties in many cases some respondents were polite and co-
operative. They showed a great interest in the topic as it is related to advanced
study for their libraries. Many respondents communicated freely about the ICT
implementation, its problems and its consequences. Moreover, the entire data
collection process remained most satisfactory. In this way with some pleasant and
unpleasant experiences, in some difficult and easy situations, the researcher finished his work by studying a sample of 40 librarians and 400 library users of U.G. and P.G. classes as respondents of Degree Colleges affiliated to Delhi University.

3.16 Field Area of the Study: For the study purpose the Degree colleges affiliated to Delhi University have selected for primary data collection. The University of Delhi is the known for its high standards in teaching and research and attracts eminent scholars to its faculty. It was established in 1922 as a unitary, teaching and residential university by an Act of the then Central Legislative Assembly. The Indian President is the Visitor, the Chancellor is Vice President and the Chief Justice of the Supreme Court of India is the Pro-Chancellor of the University. When the University was established, only three colleges existed in Delhi then: St. Stephen’s College founded in 1881, Hindu College founded in 1899 and Ramjas College founded in 1917, which were subsequently affiliated to it. The University thus had a modest beginning with just three colleges, two faculties (Arts and Science) and about 750 students. In October 1933, the University offices and the Library shifted to the Viceregal Lodge Estate, and till today this site houses the offices of the main functionaries of the University. The University has grown into one of the largest universities in India. At present, there are sixteen faculties, eighty six academic departments, seventy seven colleges and five other recognized institutes spread all over the city, with 132435 regular students (UG: 114494, PG:17941) and 261169 students (UG:258831,PG:2338) in non-formal education programme. The Delhi University library may be considered as Delhi University Library System. University today boasts of as many as 15 big libraries apart from libraries in colleges. The University has recently laid fiber-optic network in the North and the South Campuses connecting all colleges and departments (http://www.du.ac.in/).
3.17 Hypothesis: Hypothesis is an idea or predetermined thought, gives guidelines to the researchers. Hypothesis has its own importance in research work because it minimizes the complexities of research work. It provides direction to research identifying which is relevant or irrelevant. George A. Lundberg defines that “a hypothesis is tentative generalizations the validity of which remains to be tested.” Goode & Hatt defines hypothesis as, “a proposition which can be put to test or determine validity.” (Rajendra Kumar, 2008) It is essential to formulate hypothesis for guiding the research study. For providing the scientific base to the study following hypothesis is formulated:-

We conclude the hypotheses in following points:

1. There should be remarkable improvement in the quantity and quality of the library services and resources in the context of ICT.
2. The accessibility of libraries has been increased through ICT implementation.
3. The degree colleges affiliated to Delhi University should have sufficient ICT infrastructure and budget for providing ICT based LIS.
4. ICT should be implemented for conventional as well as new enabled ICT based library and information services in the degree colleges affiliated to Delhi University.
5. ICT has been enforced positive and negative impact on users.
6. ICT has reduced the manpower need and space requirement of the modern library than that of tradition library system.
7. A majority of library staff and users should have ICT skills.
8. The ICT implementation is in developing stage, so library professional and users face some difficulties and also required some skill development programme.

3.18 Significance of the Study:

1. The result of this study will help in improving the function and services of the college libraries as well as academic libraries in general so as to provide effective and efficient services to the users.
2. This study will provide information with regard to nature of application of ICT in different library services in Degree Colleges affiliated to Delhi University.

3. This study will provide current status of the libraries of Degree Colleges affiliated to Delhi University and impact of ICT on libraries and services.

4. The study is beneficial for modernization projects and aspects related to academic libraries like INFLIBNET.

5. The present study will help in formulation of national library and information policy in special context with academic library.

3.19 Structure of the Study:

The present work organized under five chapters, brief details of which are given below:

**Chapter One: Introduction** - This chapter present a detailed background of ICT, justifying the need for the investigation, important facets discussed in this chapter are introduction, meaning and definitions of ICT, overview of academic and college library, need, benefits and applications of ICT in college library.

**Chapter Two: Review of Literature** - This chapter presents a survey of the literature available in India and abroad. The review of related literature has been collected from various forms such as books, journals articles, thesis, reports, and websites and so on. The aspects covered in literature review are General studies on ICT in libraries, ICT Infrastructure in libraries, ICT Implementation in Libraries, ICT and Library and Information Services, ICT skills among library and information science professionals.

**Chapter Three: Research Methodology** - A detailed methodology is adopted for research purposes, so this chapter covers the Objectives of the Study, Methods of Research, Formulation of Research Problems, Preparation of Research Design, Population and Sample Design, Tools Used for Collection/Analysis of Data, Execution of the Study, Field Experiences, Field Area of the Study, Scope and Limitations of the Study, Hypothesis, Significance of the Study, Structure of the study
Chapter Four: Impact of ICT on Libraries: An Analysis- This chapter covers analysis of general background of selected libraries, technical infrastructure, financial, learning resources, and services such as conventional LIS as well as ICT based LIS, experiences shared by librarians about ICT, encountered problems of library professionals and measures for improving ICT skill.

Chapter Five: Impact of ICT on Library Users: An Analysis- This chapter covers analysis of ICT based LIS used by user with satisfaction level, Impact of ICT based LIS on users, encountered problems by user and measures for improving ICT skill.

Chapter Six: Findings and Discussions- This chapter presents the findings on the basis of analysis made in the previous chapter 4 and 5. The findings on each of the issues covered in the investigation are followed by short discussion

Chapter Seven: Conclusion -Followed by the finding and discussions made in the chapter 6, some of the conclusions are drawn and recommendations are put forth for further studies concerning ICT impact on college library as well as academic libraries. A proposal of college library networking included in this chapter.

Bibliography: The chapters 1 to 7 are followed by a detailed bibliography on the subject of the study.

Appendix: At the end of the work, two appendixes are given; one covers two sets of questionnaire, one for librarians and other for users and second appendix covers list of sample degree colleges affiliated to Delhi University.
References:


4. http://www.du.ac.in


