3.0 Research Methodology

“Research Methodology does not deal only with the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using the others so that research results are capable of being evaluated either by the researcher or by the others”.

(Gupta & Gupta, 2011, p.11)

In this chapter details of the methodology and sources adopted for the collection of data are discussed, later on they used for the data analysis. The study is mainly theoretical, surveying and analytical type. The literature related to the ICT available on huge amount. Many developed countries such as USA, Germany, France, U.K. and international organizations like-UNESCO, UNO and WHO etc are working in this direction. Developing countries like- India, Canada, and China are also putting their efforts to move ahead in the field of ICT.

Generally, library researches have been performed as user studies to discover the information seeking behaviour of library professionals and users, user’s characteristics, planning of strategies and information professionals' skills. (Walster, 1996). In the academic library research survey method is often used for collecting data (Kumar, 1992). So the researcher has also adopted the most appropriate survey method for this study.

3.1 Objectives of the Study- This study aims at identifying the Impact of ICT on Medical College Libraries of M.P. to achieve the following objectives-

1. To study the concept of Information Communication and Technologies.
2. To ascertain the progress made by the medical college libraries in the context of Information Communication and Technologies.
3. To study the views of medical library professionals/users about the use of Information Communication and Technologies in medical college libraries.
4. To study the different software/tools available for ICT in medical college libraries.
5. To study the problems faced by medical college libraries, in implementation of Information Communication and Technologies and to suggest remedial majors.
6. To find out the issues and challenges involved in implementation of Information Communication and Technologies under digital environment.

7. To find out the level of library professionals for participating in Information Communication and Technologies.

8. To find out the awareness regarding the importance of ICT resources for the automation in the medical college libraries.

9. To find out the status of implementation of the ICT infrastructure and resources for library automation.

10. To find out the users satisfaction with ICT based Library Services.

11. To find out the status of users education program for the new library members.

12. To find out the services offered for searching/answering the various queries by the library staff.

3.2 Research Methods- The library surveys have become the useful tool to get the information about library resources and other services to meet the needs of faculty, students and other users. It is a chance to find what the information, surveyor want from the selected libraries. It is a procedure of data gathering that gives tools, facilities and services to collect the data.

To find out the impact of ICT on government medical college libraries in the M.P. state the present study has been conducted on the topic “Impact of ICT on the Medical College Libraries of M.P.” Keeping all the sides of above points in consideration, descriptive survey method was used for data collection and analysis, which is used to find out "what is," through observations.

3.3 Formulation of Research Problems- The technology is changing modern knowledge world faster and become the backbone of modern information society. Medical college libraries are also not far-away from these changes. It was found from many previous studies that adaption and implementation of ICT has changed the whole infrastructure and working pattern of the library and information system, which is very necessary for them.
So, some research problems have been formulated to accomplish the purpose of the research first, with the help of literature survey. A detailed literature survey is carried out to formulate the research problems for this study and followed by discussion with supervisor, experts and colleagues. It helped to understand the research problems deeply and rearrange the technical terms analytically.

3.3.1 Sources of Literature Search- The researcher has used primary sources along with the secondary source of information to analyze collected data. Following sources were used for the data collection-

1. Books, Bibliographies
3. Different library resources
4. Published/Unpublished documents
5. Government reports
6. Questionnaire filled by the librarians and users
7. Websites of Medical colleges

3.4 Preparation of Research Design- After the formulation of research problems an outline of the research design has been prepared. This outline of the research design is based on the following point of views-

1. What is the type of study?
2. What is study about?
3. Why the study is needed?
4. Where will the study be carrying out?
5. What type of data is required for the study?
6. How to data will be analyzed?
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7. How much time the study will take to be completed?

8. Which type of research report will be prepared?

In the present study seven government medical college libraries of M.P. have been selected for the research report preparation.

3.5 Population and Sample Design- Most of the researches are related to the analysis of the population. The group of people, objects or units, whom a researcher can intend to generalize the results of a research, is called population. In other words research population consist well defined units of various class of people, objects or units.

A sample is the subset of the population. This is the group of people, objects or units, who actually participate in the study and the result of this study will be finally applied on the whole population. The process of selecting the sample is called the sample design. A sample design is a definite plan to determine the sample size before the data collection from a given population. A sample should actually represent the whole population from which it has been taken for the study. So, the sampling process should not only concerned with all the units (what type of units and how much units?) have been taken for the study but it should also be concerned with the particular description of those units and what the method is chosen for the study.

The researcher has adopted the purposive sampling technique for the study. This is also known as the judgmental, selective or subjective sampling. The sample of present study was purposive as users included in the samples were associated with medical college libraries. The sample size of 600 users i.e. Students (UG & PG), Teachers, Researches and Practitioners has been taken purposely from the six governments medical college libraries.

3.6 Tools used for Collection/Analysis of Data- There are many tools available for the collection and analysis of data. Hence, questionnaire is the main tool for the data collection. Observation and Interview methods also support the study to define the authenticity of the collected data. However, MS-Excel and MS-Word have been used for the data analysis.
3.6.1 Questionnaires - As a tool for collecting data in survey method the questionnaires are widely used for a particular problem. Questionnaires are the tools administered to the librarians/users to know their background, views, and attitudes towards the library and its services. This technique can be used to make broad observations from an approximately small number of respondents.

Kumar (1992) described the questionnaire that “Questionnaire is a list of written questions in a form of series which related to the research problem and which answers researcher requires for the analysis”.

3.6.2 Questionnaire Design- The researcher prepared the questionnaire keeping in view the available literature and consulting preliminary in-depth interviews with the guide. Two different sets of questionnaires were used for collecting data. The first set of questionnaires was- “Questionnaire Administrated to the Librarians of the Medical College Library”. The purpose and objective of this questionnaire is to collect data for evaluation of the libraries under the study. The researcher personally handed over the copies of the questionnaires to the librarians of the medical colleges. At the same time some of the librarians were interrogated to collect the relevant information and some were sent it by the post after some time.

The second set of questionnaire was designed for the “Users of the Medical College Libraries” under the study. It comprised of general demographic questions regarding the user’s like- User’s gender, Age, Position and Qualifications etc. Some other questions are related to the ICT infrastructure, ICT based services, Databases, Availability of Internet for different kinds of services. Most of the users of these libraries are not familiar with the ICT infrastructure available in the libraries. That is one of the big reasons that Madhya Pradesh legs behind in its contribution to medical research.

The questionnaire set no. 2, that was designed for the library users, as the response rate of such survey is not very enthusiastic and the respondents are generally reluctant to spare time in responding to the questionnaire. Faculty members of medical colleges were so busy due to their tight schedule and the exams. So they are not interested to fill the questionnaire.
When the researcher insisted them- it was mixed experience, some are very polite Vs some faculty members have no time to listen. The questionnaire is designed as the closed ended so that less time and efforts are needed in filling it. Most of the answers to questions were framed into Yes or No. However, some of the questions contain an option of ticking from the given options.

3.6.3 Interview- An interview can define as a face to face conversation between two or more people for a specific purpose. They meet to set together for in front conversation or could have the telephonic conversation. Video calling is also being a best option in the absence of a one or more interviewee. In the research it could be defined as a verbal communication between interviewer and interviewee to get an answer for the research related problems. The interviewer can use any medium like- Personal visit, Telephonic conversation and Video-chat to find the answers. The researcher personally visit to the all seven medical libraries to fulfil the questionnaires and got some desire information by the telephonic conversation with the librarians.

3.7 Statistical Tools- The collected raw data on different aspects of research problem was unorganized and difficult to calculate. To processed and organize the raw data in the understandable form the classification and tabulation have been used in the analysis. The data was analyzed statistically. To look at the previous studies, percentage method could have been best to classify and tabulating the data related to medical colleges and their libraries. So researcher has preferred to use percentage method to analyze the data. The word processing and tabulation work was done by the help of computer system.

3.8 Software Used- MS-Word word was used in typing the text and making the tables although MS-Excel was also used for the tabulation and draw the figures.

3.9 Execution of the Study- The execution part of any research is very important for the whole study. In this step all possible questions and their answers related to the study were coded. To make sure that all the respondents are doing their assigned job precisely and honestly, they were personally contacted through Mobile-phones, E-mails and any other sources time-to-time.
3.10 Data Analysis- The results of any research are totally based on the analysis of the collected and assembled data. The data analysis is the process of performing step by step many operations to gather the final results. Firstly, according to the research purpose the raw data has been coded and classified under different headings and then tables were constructing according to the need i.e. simple, complex or crossed. MS-Excel, SPSS and other software can be used for the data analysis. After the analysis the data can be present in the form of tables and graphs etc with their generalization and interpretation. And at the last a research report has been prepared to present the final results.

3.11 Generalization & Interpretation- A hypothesis in research plays an important part to describe the final results through some certain generalization. The results may be proved with the generalization and interpretation on basis of the previously proved theories in the absence of hypothesis, which should be done after the data analysis. In this study the results were also generalized after the data analysis. Through these generalized and interpreted results, the impact of ICT may be found on the government medical college libraries of M.P. under the study in present circumstances.

3.12 Preparation of Research Report- At the end of study, the research report has been prepared, that comprises the preliminary part-declaration, certificate, acknowledgements, list of tables, list of graphs, list of abbreviations, list of contents followed by the main part i.e. the chapters and the last part was annexure.

3.13 Scope of Study- Information Communication and Technologies is important to organize the modern libraries. ICT has its own importance; it is time saving, efficiency oriented and practically convenient process of modern library professionals. The medical libraries have limited area of operation. However these are the part of modern Indian library system and hence cannot function independently on traditional method as it brings failure to them in new era of competition after globalization. The aim of this research is to study technological developments in medical college libraries, different aspects affecting development of automated libraries, problems and prospects of Information Communication Technology, views of library professionals and users on, impact of Information Communication Technology and different solutions available for Information Communication Technology in medical college libraries.
The present study will also help for the improvement of medical college library system and services.

**Limitation**- The scope of the research is limited only to the seven government medical college libraries of Madhya Pradesh. The libraries have been selected on the basis of their working, exists in M.P. State. The authority of AIIMS, Bhopal has refused to provide any kind of data for the research. So finally user study has been conducted on the remaining six medical college libraries. The chi-square test method has been used to check the association between the variables.

**3.14 Target Respondents and Field Experience**- The seven government medical college libraries have been selected as justified in the earlier section. The scope of the questionnaire is to find the existing services, current infrastructure and facilities available in the medical college libraries. As discussed in the earlier section, the two questionnaires are developed based on extreme literature review consultation with experts and an in-depth semi-structured interview with all of them who are the users under the above three categories. The observation of the target responds are as under. The researcher has personally distributed total 600 questionnaires to the users of different medical college libraries and received back 421 filled questionnaires, in which 22 were incomplete. So the user survey has been conducted on these 399 adequately filled questionnaires.

It was not very easy for the researcher to reach the large sample of medical library users of various disciplines. The researcher has taken the permission of the Administrative Dean of each medical college, under the survey and distributed the questionnaires in the classrooms, libraries and canteen etc.

It was very different experience by researcher during the personal visit of different medical colleges. A numbers of problems were faced in collecting the data. The respondents from the faculty members often showed reluctance to fill up the questionnaire and demanded the prior permission of their higher authorities. The faculty also had a shortage of time due to their teaching and academic work responsibilities. They asked to leave the questionnaires with them and told to be filled is at free time. Finally, it has been decided and left the questionnaire to faculty members.
After the period of around two and half month, a total of 45 filled questionnaires was collectively received from the Faculty, Researchers and Practitioners of the 4 medical colleges, except the Teachers/Practitioners and Researchers of the SSMC, Rewa, BMC, Sagar and AIIMS, Bhopal. The authorities of SSMC, Rewa and BMC, Sagar refused the request of researcher to provide data about library in the first attempt. In the second attempt they accepted the request of researcher and provided the data. The authority of AIIMS, Bhopal has refused to provide any kind of information for the research. Hence the researcher has used the information which she got the personal interrogation with librarian during the visit for the study. The researcher had spent 3-4 working days in each medical college to collect the first-hand information through interview and questionnaires. At Rewa, Sagar, and Bhopal researcher visited 2 times for data collection.

3.15 Hypothesis- Hypothesis could be defined as a set of positions to occur some specified group of phenomena by some investigation in light of established facts. In consistent with the objectives following hypotheses were formed by the researcher-

1. There is no significant association between the awareness regarding the importance of ICT resources and implementation of the ICT resources.

2. There is no significant association between the resources available for the library automation and implementation of ICT.

3. There is no significant association between the ICT based library services and user’s satisfaction.

4. There is no significant association between the user’s education programs and the newly joined library members.

5. There is no significant association between the users and services offered by the library staff.
3.16 Significance of the Study-

1. It will help to implement the ICT resources in the Medical College Libraries.

2. The results of this research will help to improve the quality of the services, provided to the users and functions performed by the library professionals in the medical college libraries of M.P.

3. The research will provide the current status of Automated Government Medical College Libraries of M.P.

4. The research will help to formulate the National Information Policy for the Medical College Libraries.

3.17 Organization of the Study- The study aims to examine the “Impact of Information Communication Technology (ICT) on Medical College Libraries of M.P.” The present study has been organized under eight chapters.

Chapter- 1: Introduction- In the first chapter of the study the emergence of Medical education, Medical libraries, Information Communication Technology, its resources and impact have been discussed with the Statement of the problems.

Chapter- 2: Review of Literature- In the second chapter various views of learned authors; relevant to the present study has been given. The study has been reviewed medical college libraries and ICT both. The studies, research and investigations carried out in the area of medical college libraries in India and abroad.

Chapter- 3: Research Methodology- The third chapter discusses the various aspects relating to research methodology i.e. - Objectives of the study, Research methods and Target respondents and field experience. Sampling techniques, Scope of the study, Limitation, Hypothesis and Organization of study were also discussed.

Chapter- 4: Profile of Government Medical College Libraries of M.P. - The fourth chapter discussed brief Profile of the Government Medical College Libraries of M.P. under the study.
Chapter- 5: Impact of ICT on Medical College Libraries: An Analysis- The fifth chapter includes the analysis of data i.e. - Collection of Printed reading material, Bound journals, E-journals in the area of Medical field, Collection of Medical Thesis, Collection of Non-printed Materials-AV/VD,CD-ROMs, Medical databases, Consortium, Institutional Repository, NDL etc.

Chapter-6: Impact of ICT on Medical College Library Users: An Analysis - The sixth chapter incorporates the Profile of respondents, Purpose of using libraries and Frequency of using libraries. Evaluate and examines the library services, Organization of Reading Material, Circulation of Reading Material, Reading Room Facilities, Inter-Library Loan, Electronic Documents Delivery, Library OPAC (Online Public Access Catalogue), Indexing and Abstracting Services, Literature Search, Photocopy Services, Internet, Adequate ICT infrastructure to Access On-line Resources etc on the basis of selected demographic area.

Chapter-7: Findings, Conclusions and Suggestions- This chapter lists the major findings, conclusions and suggestions for further research and also interprets the data collected to test the hypotheses formulated for the study.

Chapter-8: Proposed Model for the Automated Library and M.P. Medical College Library Network- This chapter presents the proposed model of an automated medical college Library and a Medical College Library Network.
REFERENCES


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