INTRODUCTION

1.0 Research background

The world is undergoing a transition from print to a digital era. It is essential for any kind of library to take part in this changing environment which is equipped with strength of IT (Information Technology). Libraries are being encouraged to invest in their IT infrastructure so that they can participate in knowledge based online world for knowledge sharing and development. Advances in information technology have brought many changes in libraries. Information and communication technology (ICT) has provided libraries with new opportunities to improve their resources and services.

In the present information age, it is simply impossible to keep track with development activities in the absence of a dependable information system in the country. A workable information system is an essential pre-requisite for research and development in every field of study. Scientists and researchers need to know about the information tools and resources available for better utilization of information. Failure to provide accurate and adequate information to the scientists, researchers, planners and administrators may lead to faulty results which will, in turn, hinder national development. The solution lies in identifying the available information resources and ensuring quick dissemination of information to the concerned users through various channels of communication. In this regard libraries and information centers can be considered crucial media, which can play a dynamic role in the universal diffusion and advancement of knowledge and can provide right information to the right user at the right time.

IT has come to be a great blessing for the science and brought great revolutions in this world. Now a day IT application can be seen in almost each and every field of human life whether it is education, medical, banking, railway, communication, business, etc. Libraries have also been adopting various Information Technology applications for their better management and optimum use.
It is a comparatively new discipline that has developed from computer science. IT covers the more humanistic perspective of Computer Science whilst also incorporating some of the more technical aspects. It is a term that encompasses all forms (Business data, voice conversations, still images, motion picture, multimedia presentation and other forms including those not yet conceived).

Information Technology can be defined as a collection of technologies that enable data and knowledge to be stored and exchanged, accessed, displayed and communicated and in some cases, synthesized and created. It incorporates variety of disciplines, including Telecommunications, information systems, Software Development, Hypermedia and Multimedia publications, database Management System, Graphical and Visual Application and computer Modeling. It is ubiquitous through telecommunication networks, the Internet, mainframe computer, PC’s palm device, smart appliances that talk to us etc.

In simple words, IT can be defined as the combination of computer and communication technology to process data into information. It’s a convenient term for including both communication and computer technology in the same work. It is the technology that is driving what has often been called “the information revolution”.

### 1.1 Background of IT application in libraries

In the early 1970’s libraries began to adopt software applications to allow them to perform specified function more efficiently. These applications were frequently developed by the University or research institutions with some cooperation from commercial software and hardware firms in time. These systems became more widespread and the benefit more evident. The next phase combined several library activates into one integrated system allowing libraries to perform almost all their functions online. This produced the turnkey systems commonly known as integrated Library system that subsequently dominated library management and service functions. Data entered once could be used in multiple ways, which increased the accuracy. These integrated software applications were introduced to the market place using minicomputers capable of processing of Machine readable Cataloguing (MARC) records. A standard record format in 1980s era of one way networking over communications networks were launched in the libraries. At this stage hardware operating systems and application software were proprietary and permitted find customization or
sharing between libraries and their users. The transition from large scale computing technologies to microcomputers was well under way by the mid 1980s. This trend required re-education of library and systems IT staff, which added significant cost to libraries. Changes followed different library application providers, more powerful technologies and software application and networking configuration that were no longer developed in-house. Library and information carters of all type began utilizing new application systems to automate resource sharing. Union catalogs and Inter-Library Loan modules were developed to allowing cooperating institutions to combine their catalogues and allow patrons or one library to request and borrow materials from linked Institutions. These technologies fostered the growth of library consortia and the extension of offering beyond the organizational boundaries of individual libraries. It became key for Universities, research organizations and information centers to provide their campuses with communication technologies that wired libraries, classroom, laboratories, and dormitories. Networking of such Institutions was prerequisite for accessing local internet and external Internet database resources. Internets provided campus connectivity using TCP/IP communications standards. The 1980s saw a greater use of campus communication Infrastructures and then to deliver it from libraries and journal publishers became increasingly available to digital format - at first on CD-ROM, later via online services. Library services are transitioning from local traditional collections to global resources provided on demand via the most advanced networking technologies.

1.2 Need of IT application in libraries

IT has provided new media, new modes of storing and communicating information. The application of IT for various library operations and services has been increasingly steadily. Following are some factors, which have contributed for application of IT in libraries and information centers.

- **Information Explosion:** As a result of R&D, a huge amount of information is generated day today. And it is very problematic to manage such information using traditional system; information Technology cased these problems for betterment of libraries and information centers.
• **Rapid growth of information:** In this fast moving world information is being produced rapidly and within a small period it becomes outdated. Information technology helps to provide the latest and updated in right time.

• **Electronic publishing:** Large number of database, journals, periodical and other information resources are being published in the electronic form. In order to manage this type of information resources, libraries and information centers need computer and electro mechanical devices.

• **Quality Information Services:** To satisfy the users with quality of information services, libraries are providing them various kinds of computerized information services like SDI, CAS, Indexing, abstracting.

• **Time:** Researchers and Scientists are unable to spare much time for searching and filtering the information of their use due to their deep engagement in research activities. Therefore, librarians are using computerized storage and retrieval system and other services in IT environment so that users could get themselves updated with relevant information at their end without wasting the time.

• **Space/Storage:** Even for largest library of the world, it is impossible to manage the space to collect all material published in this world. But using computers storage devices has reduced the physical size of information resources. Online electronic publishing and resource sharing has also solved space problem to some extent.

• **Manpower:** Now a days job of libraries and information centers are not restricted up to acquiring and distribution of the books or information but becoming much more complex and difficult, if performed manually. Using computerized tools and techniques number of manpower may be reduced while efficiency can be increased.

• **Budget:** Cost of the information resources are hiking very much and budget of libraries are not adequate to acquire all relevant published information. Libraries are moving towards co-operative acquisition and resource sharing using networking and communication technology.

### 1.3 Information Technology in Libraries

• **Library Automation software:** Libraries themselves and commercial vendors are developing this type of software as per their requirement. Traditional integrated Library System (ILS) commonly includes the modules that perform acquisition, cataloguing,
circulation, retrieval, serial control, etc. There have been lots of tremendous improvements on the capability of these library software’s.

- **Web Based OPAC:** The OPAC has become more accessible to library patrons through web interface allowing them to access the library catalogue from any location. The most advanced OPACS today provide enriched content related to library holdings such as depictions of cover art tables of content summaries and reviews etc.

- **Resource Sharing and Networked Database:** Acquisition of all resources used for library patrons is not easy for a single library due to increasing cost and number of information resources. In order to promote optimum use of resources libraries and information centers are promoting the co-operative acquisition and resource sharing using networking software.

- **Internet:** Internet is the result of advancements in the field of information communication and networking technology. It is a big source of various kinds of information and supporting the libraries and information centers for getting electronically published information so as to provide better information services and quality information to their users.

- **Broadcast Searching:** Due to growth of vast amount of information resources particularly in the electronic from, it became a problem to identify the best resource to search the desired information. New broadcast search tools climate is the need for the user to make repetitive searches in different databases and present a single user interface for all searches. With a single query, library patron can search many different resources simultaneously.

- **Digital Library:** Keeping in view of the problem in managing traditional library with issue return of books from circulation counter and other services, mostly organization are developing digital library so that library patrons can access the information at their desktop. It has increased the quality of information saving the time of user. Digital library is not like a traditional library where information collected, processed and distributed to the users physical, but it is a network of multimedia systems and group of distributed repositories that users see as a single repository in digital form.

- **Reference linking:** reference linking software provide a means of intelligently navigating from one piece of information to other related information of interest. This saves the user time and allows discovery of more information related to a user interest.
• **Portal of library and information centers:** Library are now developing there personal portal as a single interface consolidating almost all services, searches of bibliographical data bases, other information resources, online electronic data bases etc. There portals provide with the facility of authentication to validate the access permissions, ability to save searches results, ability to alert the user about new books or articles of their interest, ability to view the account information.

• **IT based Reference Services:** To save the precious time of the researches and scientists involved in R&D work, librarians are providing them information services on their desktop. Use of E-mail, chatting helped the library patrons for putting the queries before the library staff and getting quick reply for their queries just sitting on their terminals in campus or outside.

In this study an attempt has been made to examine various aspects and analyze the opinion and perceptions of library staff and users on IT applications in libraries and information centers in the Gwalior and Jhansi. The study also attempts to discuss the present status of IT resource availability, changing pattern in providing library services and changing approaches of users of libraries and information centers in Jhansi and Gwalior Region. It also covers the previous situation, present condition and future prospects of library services and functions of these libraries.

The findings and recommendations of this study should hopefully lead to a clarification of many problems in the adoption of IT tools and applications planning and policy making regarding overall management of library. It is assumed that it would help the librarians, policy makers and concerned authority to develop and implement suitable systems with effective use of IT and ICT based tools and applications for better services to the users and monitoring library resources for greater accessibility. However, all the possible investigations have been made to collect data related to the study in order to give a complete opinion. If the work is found useful to the planners, librarians and information specialists, the efforts undertaken would be successful.

### 1.4 Research Methodology

Research is a systematic study which comprises of several steps to reach at conclusion of a specific problem. Conducting a scientific study includes identifying the problem, framing
objectives of the study, framing valid research hypothesis, collecting data, analyzing data using appropriate methods and finding the results and suggest the solutions to the problem. These steps make a study a scientific study. Kothari (2003) has described the research as a scientific investigation. Before starting the research, it is important to finalize all the tools and techniques involved in the various steps of the study. It will lead to smooth and hassle free research. All the steps, research methods, and tools & techniques used in the present study are elaborated in this chapter.

Present study is on the application of Information Technology in special libraries of Jhansi and Gwalior. The study is focused to understand the IT application in the selected libraries and to understand the opinion and perception of library users and Library staff on application of Information Technology and other associated aspects. In view of the requirement of the study and the objectives framed for the study, researcher opted descriptive analytical method for the present study. Descriptive analytical method is concerned with existing conditions or relationships, opinions, ongoing processes, obvious effects, or developing trends (Best & Kahn, 2006). Best suited descriptive analytical method for this study was the survey method. Researcher has used several methods for conducting the survey. For smooth conductance of survey of the selected libraries, questionnaire was used to collect the data related to opinion and perceptions of the library staff as well as library users. To understand the views of the senior level authorities and management of library, interview method was used. The number of libraries selected for this study was very small, hence, observation methods was used to assess the status of Information Technology in the selected libraries. To gather some additional information and to cross check the information provided by the respondents, some records of the libraries were also verified which provide solid support for data collection. In this study, there was a need to describe the various aspects of the Information Technology in Libraries, as such the descriptive research method was most suitable for this study.

Present study has adopted Descriptive-analytical method i.e. survey approach. Questionnaire method was chosen as the tool for survey. For conducting this study, two sets of the structured questionnaires were prepared and distributed for collecting the data. Before distributing the questionnaires, a pilot study was carried out to test the validity of the questionnaire. On the bases of the result of this study, some modification and correction were made in the questionnaires. Hence, both the questionnaires were duly pre-tested and
finally structured keeping in view of the objectives of the study. For collecting the data, twenty (20) libraries were selected out of those nine (09) libraries were from Jhansi and eleven (11) libraries were from Gwalior. One set was for library staff and another was for library users including students/scholars and faculty/staff. The first questionnaire (For Library staff) was distributed among seventy six (76) respondents including library professionals, IT professionals and non-professionals. Library staff in the level of peon and attendant was excluded. Out of the seventy six, only sixty two (62) respondents has returned filled in questionnaires. Another set of questionnaire (for library users) were distributed to 1750 library users, out of those 1114 users have responded the same with the response rate of 64%. Observation of the libraries were also carried out to understand various aspects related to IT applications in libraries. Collected data were tabulated and coded using MS excel. Further, the data were analyzed using SPSS and MS excel software. Most the figures and charts were prepared using MS Excel for interpretation of data. Statistical tools like frequency analysis, percentage, mean, ranking etc. were used for interpretation of data. MS Word was used for typing text to write the thesis.

1.5 Literature review

Literature search provide the base for any research study and should be carried out very carefully and systematically. After conducting the preliminary literature survey for identifying the research problem, there was a need to again conduct the literature survey on the identified problem. Literature survey on the problem was not ended until the study ended, but the process added newly published literature on the topic to better understand the problem and finding out the solutions. During the process, attempt were made to review three category of literature:

1. Conceptual literature
2. Empirical literature
3. Methodological literature

Conceptual literature was used to understand available concepts and theories related to the problem. Empirical literature was useful to review the previous similar study to understand and compare their results with the present study. And, the methodological literature helped in understanding how the study should designed, which research tools and techniques
should be used. Methodological literature was helpful to design the research methodology of the study.

For conducting the literature search, primary, secondary and tertiary sources were extensively scanned to find out the relevant literature. Major source to start the literature survey was the abstracting database like Library & Information Abstract (LISA), Indian Library Science Abstract database. Using these databases, relevant papers were found out along with the abstract. Further, the journals were searched for these selected papers. Additionally, other important national and international journals, full text databases, conference proceedings, unpublished sources, records of selected libraries etc. were accessed for collecting the desired material. The cross references of the relevant articles and papers were also scanned. During this process of survey, website of google scholar and academia were found very useful. For the purpose of literature survey, scholar visits so many organizations like NISCAIR, IGNOU, and other libraries as well as central library of Bundelkhand University, Jhansi. Resources and references of Internet was also accessed for literature search.

1.6  Research Design

Before conducting any study, a preparation of research design is very important step. It works as map to reach the destination. This is the outlines of the study conducted which briefly describe research method of the study. It will also through the light on statement of problem, objectives, research hypothesis, scope and limitations of the research, definition of the major terms of the title of study, need & significance of the study etc.

1.6.1  Need and the significance of the study

IT trends are changing very fast and new developments in IT are taking place very rapidly. Due to enormous advantages of IT tools and equipments, it becomes indispensable to adopt in core activities of library and information centers. There are several aspects associated with the modernizing the libraries with the help of IT applications which need to be addressed while managing the information technology in libraries. Libraries and information centers are facing many challenging in applications of Information Technology. IT skills of library staff, their attitude and knowledge towards IT applications play an
important role for development of IT based library systems. Ultimate objective, of all initiatives taken for development of libraries is to provide best of the user oriented services with the increased level of satisfaction. Now a day, common man deals with the IT based system in day to day life, which increases his exposure of IT trends. Library users are also very competent to use computers, Internet and other IT related tools and equipment. Internet has also evolved as a major source of information of their need. As such, the expectation of the users from libraries has been increasing day by day for readymade, exhaustive, pinpointed and relevant information without wastage of time. To meet the demands for individual and collective information of the user community, the improvement of the IT infrastructure and professional performance of library staff is very crucial.

There are several studies conducted on the above issues related to IT applications in libraries in different areas which are also described in the literature review. Present study is focused the various issues related to applications of IT application in selected libraries of Jhansi and Gwalior, because no specific study is conducted addressing the issues under the present study in this region. Understanding the issues under this study will help the authorities and decision makers to develop the ICT infrastructure, new user oriented services and to fill the gap by increasing the satisfaction level of library users.

1.6.2 Statement of the problem

Considering the above factors, the statement of the present study is entitled as “Application of Information technology in Special libraries of Jhansi & Gwalior: an analytical study”. It is hoped that the study will give an insight about opinion views; perception and opinion on various issues related to IT applications and will also explore the challenges being faced for implementation of IT Initiatives in libraries. The results of the study will also highlight the level of knowledge and IT skills of library staff for providing IT based services and managing Information Technology in the libraries. After analyzing the user’s satisfaction level, efforts were also made to bridge the gap between users need and the delivery by the libraries.
1.6.3 Aims of the Study

Shift from print to digital information has a high impact on all components of a library, especially the users, the services and the staff. Though information is considered as an important resource, the use of ICT tools to collect and disseminate information seems to be in a slow pace in majority of the libraries. This may be due to various factors like insufficient funds, inadequate trained staff, lack of IT infrastructure, administrative concerns, etc. Use of ICT relating to library systems and services has come into force at the present information age in most of the libraries in our country. Information technology has been adopted by in libraries of India in most of the sectors. The aims of the present study are to examine various applications of Information technology in the libraries and information centers from library staff perspectives. It will also help to understand the skills of library staff on these IT applications and their perception to evaluate the various aspects of these applications. Efforts were also made to understand the satisfaction level of library users and their skills to use the IT based services and facilities of libraries, and other aspects from users’ point of view.

1.6.4 Objectives of the study

Keeping that view in mind the researcher stated following objectives of the Study:

1. To understand the conditions of Information Technology based infrastructure of the special libraries of Jhansi and Gwalior.
2. To suggest the way of modernizing the libraries with the help of application of Information Technology
3. To understand the satisfaction level of the library users with the ICT based library services, resources and infrastructural facilities.
4. To suggest the way of increasing the satisfaction level of the library users.
5. To identify the problems being faced by the library users and suggest the methods to encounter these problems.
6. To understand the opinion and perception of library users on the various aspects of IT applications in the Special libraries of Jhansi & Gwalior.
7. To assess ICT skills of the library staff of the special libraries of Jhansi and Gwalior.
8. Formulate the guidelines for improving ICT skills of library staff.
9. To understand the opinion and perception of library staff on application of Information Technology in the special libraries of Jhansi and Gwalior.
10. To identify the problems being faced by the library staff in application of Information technology in Special Libraries of Jhansi and Gwalior.
11. To formulate the solutions to the problems being faced by the library staff in application of Information Technology

1.6.5 Research Hypotheses

The following hypotheses have been formulated for the present study:

1. Library users are satisfied with the ICT based services, resources and facilities
2. Library users have adequate ICT skills to access the ICT based services, resources and facilities
3. Library staffs are adequately trained in managing ICT based library

1.6.6 Scope & Limitation of the study

This study is conducted to critically examine the application of Information Technology in the selected libraries and information centers of Gwalior and Jhansi. Study evaluates the views, opinion and perception of library staff regarding application of various application of Information Technology in the selected libraries. The library staff includes all the library professionals, IT professionals and other non-professionals staff but not include the lower level staff like peon, helpers, guards etc. To understand the effectiveness of libraries and information centers and its It based services, resources and facilities, the opinion and view of library users including scholars/students and faculty/staff, were also obtained for better examination of IT applications. The scope of study is geographically restricted to Gwalior and Jhansi cities and it is not purpose of the study to generalize the results for libraries and information centers other cities. Samples were collected from each selected library individually but the analysis was done collectively not individually with the purpose to not reveal the analysis of any specific library. During the pre survey, researcher has visited to the libraries and information centers of many organizations of both the city i.e. Gwalior and Jhansi and selected nine (09) libraries from Jhansi and eleven (11) libraries from Gwalior.
The selection of libraries was done on the basis of availability of at least basic IT infrastructure and possibility to get the significant responses within the framework of study.

1.6.7 Population of the study

When any research is conducted, it is on any specified population. Population means each and every entity which is to be covered under the study or the result of the research is meant for those. Population of a study may be the persons, organizations, objects, events, etc. In the present study, there are three categories of population i.e. Special libraries, their users and their library staff. Total populations of special libraries are 20, out of which 11 special libraries are of Gwalior and 9 libraries are of Jhansi. The names of organizations/institutions which were selected for this study are as under:

Selected libraries are given as under:

1. Bundelkhand Government Ayurved College & Hospital, Jhansi
2. Bundelkhand Institute of Engineering & Technology, Jhansi
3. College of Science & Engineering, Jhansi
4. Indian Grassland and Fodder Research Institute (IGFRI), Jhansi
5. Institute of Pharmacy, Bundelkhand Univ., Jhansi
6. Institute of Tourism & Hotel Management, Jhansi
7. Maharani Laxmibai Medical College, Jhansi
8. National Research Centre for Agroforestry (NRCAF), Jhansi
9. Vidyawati College of Pharmacy, Jhansi
10. Birla Institute of Medical Research, Gwalior
11. Central Potato Research Station, Gwalior
12. Defense Research Development Establishment (DRDE), Gwalior
13. Gajraraja Medical College (GMC), Gwalior
14. Indian Institute of Information Technology and Management (IIITM), Gwalior
15. Indian Institute of Tourism and Travel Management (IITTM), Gwalior
16. Institute of Hotel Management Catering Technology and Applied Nutrition (IHMCTAN), Gwalior
17. Institute of Technology and Management (ITM), Gwalior
18. Laxmi Bai National Institute of Physical Education (LNIPE), Gwalior
1.6.8 Sample of the study

Sampling based survey was used for this research study. Sample means select some entities out of the population to get response to the survey. It is helpful when we conduct the research on big number of population and the resources are limited. The population size of library staff was smaller in case of this study, hence the survey was conducted on the whole population. Sampling was adopted in case of the library users. For this purpose researcher used the convenience sampling to select the sample size. Researcher visited each and every library personally accompanying one person for assistance. On the day of visit, researcher distributed the questionnaire to all the users of library who visited the library on that particular day but the number of the questionnaire is restricted to 100 questionnaires for each library. The same process for distributing the questionnaire was adopted for each and every library. Most of the questionnaires were received on the same day from the users, and few of the questionnaire were got back later through the library staff. As such, the sample size of library users taken for this study is 1750. The detail is shown in Table 1.1.

<table>
<thead>
<tr>
<th></th>
<th>Distributed</th>
<th>Responded</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jhansi</td>
<td>790</td>
<td>513</td>
<td>65%</td>
</tr>
<tr>
<td>Gwalior</td>
<td>960</td>
<td>601</td>
<td>63%</td>
</tr>
<tr>
<td>Total</td>
<td>1750</td>
<td>1114</td>
<td>64%</td>
</tr>
</tbody>
</table>

Similarly, questionnaire for library staff were distributed among 76 respondents out of which 63 responses were received with the response rate of 83%. The details of the sample size and response rate among the both the cities and type of category of respondents related to questionnaire of library staff is presented in Table 1.2.
Table 1.2: Response rate of questionnaire for Library staff

<table>
<thead>
<tr>
<th>Library Staff</th>
<th>Jhansi</th>
<th></th>
<th></th>
<th>Gwalior</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distributed</td>
<td>Responded</td>
<td>%</td>
<td>Distributed</td>
<td>Responded</td>
</tr>
<tr>
<td>Lib Professionals</td>
<td>16</td>
<td>13</td>
<td>81</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>IT Professionals</td>
<td>4</td>
<td>4</td>
<td>100</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Non-professionals</td>
<td>10</td>
<td>8</td>
<td>80</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>25</td>
<td>83</td>
<td>46</td>
<td>37</td>
</tr>
</tbody>
</table>

1.6.9 Study execution

Study is executed after collection of data in a systematic manner. It was began from the data collection, thereafter coding of the questionnaire was done for use of data in statistical package for analysis purpose. Coding of data is useful for converting the lengthy text into number which is helpful while analyzing the data. For this purpose, all the questions and options given to answer the questions were coded in numbers. After codification, all the data of the questionnaires were entered through the excel sheet on computers. This process has been completed with the help of colleagues very carefully and cross checked to ensure proper research results. During this process, the respondents were contacted personally or telephonically in case where the data is not clear for some questionnaires. After clarification the proper data has been entered. There are few case where responses was not clear and the respondents couldn’t be available for clarification. In such few cases, the data has been ignored.

1.6.10 Data collection

Data collection is an important step of any research study. Major data collection was done using questionnaire and observation of libraries. Descriptive method is very useful for collection the data for hypothesis testing and answering the questions related to current status of the study (Gay, 1976). Survey design was used to collect the data as descriptive analytical method, which is very useful in describing the population in which the data collection is carried out by asking the questions to the peoples (Gall, Borg, & Gall, 1996). The study used multiple data collection strategies as described by Denzin & Lincoln (1994).
This research investigates the various aspects of application of Information Technology on the special libraries. Two types of questionnaire were designed for the present study.

a) **Questionnaire for Library Users:** To collect the data from the library users several questions were asked from the library users through the questionnaire. The questions were grouped in 25 sections considering the various aspects of the study. Question no. 1 to 7 were about the general information of respondent like, name, gender, visiting pattern of library, knowledge, etc. Other questions are related to their opinion and perception on different IT applications in the libraries, their problems to access the IT based library services, their satisfaction level and suggestions etc.

b) **Questionnaire for Library staff:** In the present study, it was important to understand the opinion and perception of the library staff related to IT applications in the special libraries. Hence, the questionnaire was designed to get response from Library staff. This questionnaire includes the general questions about the respondents in 1st section. Another Parts consist of the questions related to their ICT Skills, Skills on Library related technologies, their opinion on IT based system and service, attitude of library staff towards IT applications in libraries, their problems in IT application, training related aspects etc.

1.7 **Definition of term used**

i) **Information Technology:** Information Technology is considered a very important tool and necessity of human civilization in present time which help to improve the efficiency, productivity, quality in day to day works of human life in more economic way. Information Technology is not an individual technology but the collective form of several technology with the major components as computer technology, communication technology and reprographic, micrographic and printing technology that is used for handling of information. Information Technology as a set of these technologies is used to for collecting, storing, processing and communicating or exchange of information. In the present study the term ‘Information Technology’ is used for the various components which are frequently used in libraries and information centers.

ii) **Libraries & Information Centers:** Library & Information Centers are the heart of any organization especially in academic and research organization. These
centers are supposed to acquire the information resources and facilitate its access through various user oriented services to the users for which these centers are established for. These libraries and information centers are meant for information support to the overall organizational activities such as education, research and development or assist to achieve the other specific organization goal.

iii) **Jhansi:** Jhansi is a famous city of Uttar Pradesh state of northern India. Jhansi is a major road and rail junction, and is the administrative seat of Jhansi District and Jhansi Division. Jhansi city is governed by Municipal Corporation which comes under Jhansi Metropolitan Region. As per provisional reports of Census India, population of Jhansi in 2011 is 507,293, but its urban / metropolitan population is 549,391. Average literacy rate of Jhansi city is 83.81 percent of which male and female literacy was 89.18 and 77.81 percent. Situated between the Pahuj and Betwa Rivers, the town is famous for bravery, courage and self respect. A historic place, Jhansi is popular as the land of Rani Laxmi Bai also known as ‘Jhansi ki rani’, who bravely fought the British. Jhansi is now a major hub of trade and industries like railway workshops and iron and steel factories. This city is also a major education hub of Bundelkhand region of Uttar Pradesh state. Jhansi was added to the United Provinces, which became the state of Uttar Pradesh after India's Independence in 1947. (Source: Census of India, 2011)

iv) **Gwalior:** Gwalior is an historical place of Madhya Pradesh. It is surrounded by District Morena in the North, District Shivpuri in the south, District Bhind in the East and District Datia in the west. Gwalior is located at a distance of only 118 km from Agra and well connected by road and rail. City is well known for its majestic fort, considered as one of the best in the world. As per provisional reports of Census India, population of Gwalior in 2011 is 1,053,505, but its urban / metropolitan population is 1,101,981. Average literacy rate of Gwalior city is 85.20 percent. Gwalior is known as the city of true royals, the Scindias. The Gwalior is blessed with Classical Music Maestro Miya Tansen. The new section of the city called Lashkar. It is the site of factories producing cotton, yarn, paint, ceramics, chemicals, and leather products. Gwalior has been emerged as the pioneer city in the field of education. There are so many government and private university, college, schools of national and international
repute. Gwalior's history is traced back to a legend in 8th century AD when a chief tain known as Suraj Sen was struck by a deadly disease and cured by a hermit-saint Gwalipa. As a gratitude for that incidence, he founded this city by his name. City was the Capital of the princely State of Gwalior until 1948 and the summer Capital of Madhya Bharat State from 1948 to 1956. When Madhya Bharat became part of Madhya Pradesh, it becomes separate District.

1.8 Thesis organization

After the finalization of the complete study, the report of the study has been written in MS Word package. The same has been presented using standard font size and uniformity throughout the thesis. Final report has been prepared including three sections preliminary pages, main text and appendices. Preliminary pages contains certificate, undertaking, acknowledgement, table of contents, list of tables, list of figures etc. Main text includes chapter 1 to chapter 5 and the appendices contains the questionnaire used for the study.

The present thesis has been organized in the following five chapters excluding preface and appendices.

Chapter One is devoted to the background of the study, objectives, scope and importance, methodology applied to the study, implementation and thesis organization.

Chapter Two deals with the review of related literature on use of IT and impact of ICT in libraries of India and other countries and benefits of digital/automated/online libraries.

Chapter Three deals with the brief overview of the organizations of Jhansi and Gwalior and their libraries selected under the study.

Chapter Four covers data analysis, presentation along with finding and discussions.

Chapter Five provides a summary of the results, recommendations and conclusions of the study.
1.9 Conclusion

Information is treated as valuable commodity in this world and it has a vital role to play in every sector of human life. Advances in the field of Information Technology have brought the revolutionary changes in the field of information management and handling. Now a day, Libraries and Information Centers are equipping themselves with the help of Information Technology applications in their operations, management and services. The IT has tremendously increased the efficiency of libraries to acquire, process, store the information and provide better access of information to users. The ultimate benefit goes to the users of the library such as students, scholars, researchers, faculty, engineers, decision makers, planners etc for whom the information is too precious. The major objectives of IT application in the libraries are to improve the system to provide the most recent and accurate information promptly without wastage of time and efforts as per requirement of the users with the proactive approach. IT facilitated the library professionals to make the library system more effective and efficient. The results of the same may be achieved in form of increased user satisfaction. This study is expected to examine various applications of Information technology in the libraries and information centers from library staff perspectives. It will also help to understand the skills of library staff on these IT applications and their perception to evaluate the various aspects of these applications. Efforts were also made to understand the satisfaction level of library users and their skills to use the IT based services and facilities of libraries, and other aspects from users point of view.
References