CHAPTER I

INTRODUCTION

1.0 INTRODUCTION

Libraries have witnessed a great metamorphosis in recent years both in their collection development of information sources, service structure and access methods especially with the impact of information and communication technology. Print medium is increasingly giving way to the electronic form of materials and the concept of automation, digitization, e-services, cloud computing and remote access have been the order of the day for academic libraries to manage human and information resources to provide fast access to information; to satisfy the expectations of the users and to reduce the costs of the services. As a consequence, it is not surprising that one can find a vast and increasing body of literature on these subjects providing multiple methodologies to improve the quality and performance of the library services.

In the academic scenario, over the years, e-resources have undergone a tremendous change assuming new dimensions influenced by the technology driven applications. The value of information lies in the ability to access and adapt to suit new applications and improve the efficiency of existing system. Universities are called upon not only to generate new knowledge but also to be able to market the innovations that have been generated out of knowledge
transferred and adapted. Quality service package delivery is a formidable task for all educational institutions.

The knowledge economy emphasizes that knowledge from wherever it is produced can be transferred to where it is needed. Library use study as an aspect of users’ studies is a vital aid for effective planning and management in academic libraries. The academic library is an inexhaustible store house of knowledge and practical life of the past, present and prognostications for the future. If a library is well stocked and the users know they can find more information than what they are thought, they will use the library maximum.

Libraries are mainly entrusted with a host of predetermined tasks like acquiring, organizing, preserving, retrieving and disseminating information to the users. Right from ancient times to the present Internet era, the primary objective of library has always been this. However, the way this purpose has been achieved has drastically changed.

Information technology has influenced the very nature of academic libraries. The conventional set up of brick and mortar libraries that store information within a constrained physical space have given way to data centers that integrate data sources around the globe by way of networking. The pervasive nature of Internet, coupled with platform independent database connectivity is turning library portals more and more effective.
The technological tools for disseminating information have progressed from conventional books and journals to electronic journals, online databases, etc. With Internet, it is possible to explore the worldwide pool of knowledge sitting at one’s desk or home. It is an accepted fact that quality of education depends on the resources that the institute has. These resources are: highly qualified faculty, well-designed curriculum, good physical ambience and the very crucial support of well-stocked and maintained library and information center.

More Oyedun (2007) defines academic libraries as those libraries that are mainly found in tertiary institutions, they are established to support learning, teaching and research processes. Over the past decades academic libraries have been affected by changes in information and communication technology. The introduction of various Information and Communication Technology (ICT) trends has lead to reorganization, change in work patterns and demand for new skills, job retraining etc. The technological advancement in the past few years, such as the Electronic database, online services, CD-Rom databases and introduction of Internet has radically transformed access to information. Rana (2009) opines that ICT holds the key to success of modernizing information services. According to Krubu (2011), ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources. Furthermore academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library services and resource sharing.
networks, form the integral part of university system to support for teaching, learning, and scholarship. Library must become "virtually present" as an information resource at all points on campus "library without walls" that is accessible in classrooms, laboratories, dorm rooms, and beyond. Thus, Libraries must provide the facilities for teaching both students and faculty how to effectively use and manage information resources both in print and electronic format, from the mechanics of using them, to the information literacy needed to use them wisely, to the techniques and creativity required to create them and render information services to the users.

Information technology has changed the mode of publication of traditional sources of information. Development in electronic publishing can be used efficiently and effectively to provide information to users pinpointedly, exhaustively and in time. Today, libraries are surrounded by networked data that is connected to vast ocean of Internet-based services. Moreover, electronic resources relevant to the professions are developing at an unprecedented pace. Electronic publishing has been revolutionizing the format of the recorded knowledge. Electronic information services are attracting reader’s attention in today’s network environment. This changing scenario in library environment has arisen because of the need and use of e-resources along with print version. Electronic resources bring new challenges before the library and information professionals to give full text access to scholarly publications both in print and electronic version to its end users.
E-resources provide access to thousands of magazines and newspapers, far more than the library could possibly subscribe to in paper format. Some e-Resources include publication subscriptions on archival databases and this facilitate to search e-Resources to find articles on a particular subject from many different publications at the same time without having to search each publication separately. They are especially useful for finding information not yet available in books, or obtaining up-to-date information on current events or issues. Everyday more and more of library resources become electronic and users also prefer to access these e-resources.

Consortia in India are still a new concept that requires proper guidelines and methodologies. In a survey by UGC, it was noted that although 142 university libraries had computer and Internet facilities and were interlinked to INFLIBNET, they were subscribing to printed journals only. In order to solve this problem, UGC launched a major initiative called UGC-INFONET that provides high speed Internet connections so as to have electronic access to professional literature including research journals, abstracts, review publications, and databases from all areas in science and technology, as well as in social sciences and humanities. Today, a number of professional journals are available over UGC-INFONET to all universities. The e-subscription initiative under UGC-Infonet is an important portal for sharing print as well as electronic resources amongst university libraries. INFLIBNET functions as a resource center with an aim to cater to the needs of its members for resources not accessible to them in electronic media or are available in print media. The
Ministry of Human Resource Development (MHRD) has set up the “Indian National Digital Library in Science and Technology (INDEST) Consortium”. The ministry provides funds required for the subscription to electronic resources for 38 academic institutions, including the Indian Institute of Sciences, Indian Institute of Technology, Regional Engineering Colleges, Indian Institute of Managements, and about 60 centrally-funded/aided government institutions through the consortium. The INDEST consortium is the most ambitious initiative so far in the area of engineering and technology disciplines (Preeti, 2005).

In Indian context, a novel initiatives by the INFLIBNET Centre, a programme by University Grants Commission to support learning, teaching and research activities of colleges and universities in India provides technological infrastructure, imparts technical skills to the librarians and more importantly provides large number of e-journals and e-books under National consortia UGC Infonet for universities and “National Library and Information Services Infrastructure for Scholarly Content (N-LIST) for colleges. This involves large amount of investments by Government of India to strengthen research base and support the libraries to build need based e-collections. Besides, the colleges and university libraries are also subscribing e-books, databases and e-journals from the commercial vendors. But the question is its cost-effectiveness. In a broad context of public finance and taxation, renewed pressure on libraries to demonstrate accountability and value for money has created a new emphasis on formal performance assessment and reporting regimes. In this situation,
librarians have to evaluate the methods to judge whether, and to what extent the resources or the services is operating successfully.

**Impact of electronic resources on university libraries and their users**

Student reliance on the web and online resources continue to rise at a rapid pace and this is supported by recent studies (Habiba & Chowdhury, 2012) that confirm that student usage patterns are shifting and student preference for using online resources is becoming predominant on college campuses. This shift to reliance on online resources both interests and alarms many librarians and faculty and have lamented student reliance on online resources, citing the student’s inability to properly evaluate what they find, their lack of understanding of how little is actually available via the Web, their unawareness and optimization of Web resources etc. The concern and interest in understanding the impact of electronic resources on libraries and its usage by user community has assumed great importance in the recent time.

The impact of electronic resources characterized on information services by changes in format, contents and method and use/delivery of information products. The new tools used for dissemination of information, shift from physical to virtual services environment and extinction of some conventional information services and emergence of new and innovational web based.

**Impact on Resources**: Information technology has altered the mode of publication in such a way that along with traditional print based sources of
information, we are getting flooded with a lot of attractive electronic forms of publications like e-journals, CD ROM based databases and online databases. In such changing scenario, libraries and librarians will have to play a vital role handling conventional and electronic resources. The most significant advantage of electronic resources is that they can be accessed from anywhere, anytime and by any number of persons. Though these require libraries to invest heavily in infrastructure, libraries are not complaining after seeing its benefits. Most of the leading university libraries are using one or the other form of electronic resources.

**Impact on Services:** The academic libraries do not just store the resources in them. They also keep making additional efforts to create awareness about them so that the members use them. However, few years ago it was limited to informing a user about the availability of a particular book/journal and waiting for him to pick up that. It is no longer the same. Library automation and subsequent application of information technology at various stages of information processing enables libraries to generate several value added services to their patrons. Smith (2003) in his article "Changes in faculty reading behaviors: The impact of Electronic journals on the University of Georgia" aimed to explore the role of electronic journals in the weekly scholarly reading habits of faculty. The study showed that electronic access to journals particularly library funded access is integral to research activities, with
the vast majority of respondents reported that they read at least one article from an electronic source weekly.

Availability of e-journals, Online Databases through the library portal have enabled library users to access information at their own desktop and their convenient time. Libraries have formed consortia and are now providing thousands of e-journals and online databases to their patrons. This kind of information service was completely unheard when libraries had to depend on their meager budgets.

1.2 NEED FOR THE STUDY

In the present ever changing information environment, libraries are encountering both opportunities and challenges. Information technology has induced lot of changes in the way information is identified, procured, processed and disseminated to library clientele. Further, more information technology has created a sense of urgency among library users and librarians themselves. Information centers are witnessing new paradigm shifts. Libraries of all sizes and types are embracing digital collections, although most libraries will continue to offer both print and digital collections for many years to come. New purchases and purchases of journals, magazines, and abstracting and indexing services are heavily weighted toward digital, while digital books (e-books) are only beginning to become a presence in library collections. Libraries prefer digital collections for many reasons, including, but not limited to, the following: digital journals can be linked from and to indexing and abstracting
databases; access can be from the user's home, office, or dormitory whether or not the physical library is open; the library can get usage statistics that are not available for print collections; and digital collections save space and are relatively easy to maintain. When total processing and space costs are taken into account, electronic collections may also result in some overall reductions in library costs.

Information technology has also changed the way information is accessed and utilized. From physically accessing books / journals in libraries, users have got used to accessing web based sources from their desktop itself. Realizing the importance of Information Technology (IT), libraries have made heavy use of IT in building their collection and generating information services. Though most of the users of management libraries have some level of skills in using library services, it is necessary to introduce some induction programmes, which are aimed at creating awareness about the use of library services.

Due to financial crunch and the rising costs of journals, many Indian universities and college libraries cannot afford to subscribe to all the required journals and online databases which have led to the significance of National Consortia like UGC Infonet and INDEST. This has provided a great boon to academic and research community to access electronic information resources on the net and this call for effective ICT infrastructure, awareness and optimization of electronic resources to serve the purpose of national consortia and justify for the huge investments made in making provision for electronic
resources. Such a dramatic switch from print collections to digital collections has an impact on library users and users' perceptions of the library.

In an era of constant change, financial shrinkages, stiff competition in information industry, government priorities, user’s information consciousness, alternative information media, there is an increasing pressure to reduce the costs of academic library services and the management demands for cost-effectiveness of investments made in the library for the benefit of user community. Hence, the librarians and information managers all over the word have used various assessment models and performance indicators in an effort to improve the quality of the services. According to Davies (2008), it is important to evaluate the services because we must know if “we are providing the best possible service at right time, to the right people and at the right price”. In this context, Aabo (2009) refers that: As recipients of high proportion of the public funds for cultural activities, public libraries meet demands for more accountability. Academic libraries, too, meet similar types of demands, being asked for performance measurement, cost justifications, and return on investment from administration of their university or college.

Performance evidence also encompasses information gleaned from users regarding their perception of the value and impact of the service as well as how, and why they use it. This may be information acquired formally through user surveys, focus groups or open days. A wealth of relevant published research material originating from academic institutions, university libraries, professional bodies and business organizations is available, and easily
accessible. Some recent examples of valuable broad based research evidence include the OCLC study - College students’ perceptions of libraries and information resources (2006), the ACRL Environmental Scan (2007), the SCONUL Top Concerns Survey (2008) and Library and Information Statistics Unit, Loughborough University (2006).

Many researchers have attempted to predict or measure the impact through surveys, transaction log analysis, and other research techniques. Librarians would like to be able to use the information and conclusions generated by the many research studies, especially because it is time consuming to conduct good research on their own and because the best measures of impact come after decisions are already made and collections are converted. Such a study of measuring the impact is necessary to understand the users’ perception of the library and its resources, so that necessary steps can be taken to convert any negative impact to positive impact and also to enhance the use of the resources of the library.

‘Use’ and ‘Impact’ of the e-resources are the two separate and independent components of the study. Use of e-resources generally, the level of service penetration, or what proportion of the potential user community use the library’s services, gives some overall indication of outcomes, as does the level of repeat use of the library or level of satisfaction. But Impacts describe, at a macro level, the higher order influences that the library service has on the totality of the community or organization. Impact may be interpreted as: what
difference, in the long run, has the service made; and what added value has it created through its presence.

In this context, the present study intends to assess the impact of electronic information resources and services on Libraries and its users of Universities in Mumbai.

A literature search on LISA and scanning of journal articles, convention volumes revealed the lack of in-depth studies on the topic except a few general surveys. Hence, need for the study.

1.3 STATEMENT OF THE PROBLEM

Quantity of use is in itself no proof of impact, but changes in the structure, form and quantity of use can well indicate such impact like use statistics for new electronic resources, the range of resources used before and after introducing the new services, change in remote access, number of new users of a service that has been converted to electronic form and percentage of the primary user group that uses electronic library services.

The present study is a quantification of such impact of electronic resources on library users and hence the research title is “Impact of Electronic Resources on University Libraries and its Users in Mumbai: A study”.

- Impact: According to Encyclopedia of Library and Information Sciences, impact means “Outcomes can be seen as the eventual
result of using library services, the influence the use had, and its significance to the user”.

- **Electronic Resources**: as “to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device. They may either be accessed remotely via the Internet or locally”. Some of the most frequently encountered types are: E-journals, E-books, Full-text databases, indexing and abstracting databases, reference databases, Numeric and statistical databases, E-images and E-audio/visual resources -. (IFLA, 2012)

- **University Libraries** are attached to an academic institution i.e. an institution engaged in teaching and or research and imparting formal education which exists to cater to the information needs and requirements of user community to support the teaching and research programmes of the university.

- Users refer to the end users of the library that includes students, research scholars and teaching faculty in a university environment.

### 1.4 OBJECTIVES OF THE STUDY

The objectives of the study are

- To identify the awareness of electronic resources among the users,

- To determine the extent of use of electronic resources among the users,
• To understand the barriers faced by the users and libraries in using electronic resources and

• To assess the impact of electronic resources on university libraries of Mumbai and its users.

1.5 HYPOTHESES

The null hypotheses of the study are

• There is no association between designation of respondents and
  o Awareness of Electronic Resources

• There is no association between each designation of respondents by gender with respect to
  o Usage of various electronic resources i.e. library websites, abstracting and indexing databases, full text databases, e-books, e-journals, online catalogues, email service, blogs and CD-ROM databases.

• There is no association between designation of respondents and
  o Impact of e-resources to support learning, teaching and research activities.
1.6 METHODS AND TECHNIQUES

The Oxford English Dictionary defines method as a mode of investigation; a special form of procedure adopted in any branch of mental activity for investigation and inquiry. Research methods may be understood as all those methods/techniques that are used to conduct research. Research methods or techniques, thus refer to the methods researcher use in performing research operations. Methodology also refers to a process by which the researcher tries to find solutions to a problem. In social sciences, methodology is a procedure of conducting research. Depending upon the nature of problem, a researcher adapts different techniques and methods for studying, investigating a research problem.

1.6.1 Research Design

A research design is a logical and systematic plan prepared for directing a research study. It specifies the objectives of the research study, methodology and techniques to be adopted. It provides for the blue print for the collection, measurement and analysis of data.

Present research design consisted of formulating the research problem, comprehensive review of the available literature, defining the scope of the study and its limitations, development of hypotheses, collecting, processing and analyzing the data and finally enumerating the inferences and conclusion.

Formulating the problem facilitated the researcher in deciding the relevant and irrelevant data. Data collection is of paramount importance in this
research design as it facilitates collection of both qualitative as well as quantitative information about a research problem.

Present study utilized a combination of historical analysis, literature survey, questionnaire survey and lastly personal interview for data collection. Historical analysis and literature survey were useful in collecting textual data from published and unpublished sources. Questionnaire tool is quite useful in soliciting information from the faculty members and students of the respective universities. Hence, the data collected for this study has the combination of primary as well as secondary data.

1.6.2 Data Collection

Data serves as the basis or the raw material for analysis. Without the analysis of factual data, no specific inferences can be drawn. Inferences based on imagination or guesswork cannot provide correct answers to research questions. The relevance, adequacy and reliability of data determine the quality of findings of the study.

Several tools are available for data collection and important ones are: Personal interview and diary, questionnaire, observation by self, analysis of library records and citation analysis. However, considering the nature of problem, the most suitable method for data collection is Survey method using questionnaire tool. Hence this survey has been undertaken with the help of questionnaires designed for the purpose. While designing the questionnaire, care was taken that it has the mix of closed and open-ended questions. Multiple
Choice Questions enhance the response, as they are easy to fill up. Hence they were included in sufficient numbers. Wherever necessary, interviews were also held with the librarians and few users to interpret the questions to them and to collect the data.

Researcher visited all the University libraries in Mumbai in person and had interactions with the librarians. Two separate questionnaires were designed, one for librarians and the other for users consisting of faculty and students. Repeated checks and review was done on both questionnaires and librarians, teachers and statisticians were consulted to review them critically and improve upon their reliability and validity. A copy of the questionnaires is appended as Appendix “A” and “B”.

1.6.21 Methods and Approaches for Development of Questionnaires

Researcher tried several methods to distribute the questionnaire among library users. Faculty and students were approached in the library and requested to fill up the questionnaires. Several faculty members were approached in their chambers and were persuaded to fill up the questionnaires. Librarians of different Universities located in Mumbai were given several questionnaires and were asked to get them filled up by students and faculty, whenever it was convenient for the users.
The research questionnaire has been designed to collect and analyze the data pertaining to

- Profile of University Libraries and
- Awareness and Use of ICT Gadgets and E-Resources among librarians
- Characteristics of Library Users
- Awareness of ICT gadgets and E-Resources among users
- Use of Internet Facilities and E-Resources by users
- Impact of E-Resources on Users and Library and Information Centres.

1.6.22 Pilot Study

It is very much essential to pre-test the questionnaire before the actual study is carried out. This serves the purpose of eliminating any ambiguity in questions, and the difficulties in translating the objectives of the survey into a set of questions. Researcher pre-tested the respective questionnaire against a small group of sample population consisting of five faculty members, 10 students and three university librarians. This exercise helped the researcher in identifying the demerits, correcting them and thus improving the validity of questionnaires.

Suggestions received in the pilot study helped in revising and restating certain questions in the questionnaire. And after this pilot study, questionnaires were finalized.
1.6.23 Population and Sample Size

The study is confined to Libraries and users comprising of Teaching Faculty, Research scholars and students of twelve universities located in Mumbai.

Questionnaires were administered to 12 university librarians. All the University librarians responded by returning the filled-in questionnaires, thus resulting into a response rate of 100%.

The distribution of Questionnaire’s in 11 Universities in Mumbai is as shown in Table 1.

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<th>Research Scholars</th>
<th>Students</th>
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<td>Tata Institute of Social Sciences</td>
<td>International Institute for Population Sciences</td>
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<td>Total Percent</td>
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<td>82.6%</td>
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Table 2: Distribution of Respondents: Designation-wise

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<th>Users</th>
<th>Total Available</th>
<th>Distributed</th>
<th>Responded</th>
<th>Percentage</th>
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</thead>
<tbody>
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<td>Faculty</td>
<td>1100</td>
<td>690</td>
<td>472</td>
<td>68.41</td>
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<tr>
<td>Research Scholars</td>
<td>1885</td>
<td>1200</td>
<td>992</td>
<td>82.67</td>
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<td>Students</td>
<td>10330</td>
<td>840</td>
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<td>13315</td>
<td>2730</td>
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</table>
The whole population covering students, research scholars and faculty in eleven universities in Mumbai accounts to 13315 and out of which a total number of 2730 questionnaires were distributed to the users covering 472 teaching faculty, 992 research scholars and 712 students. Out of them, 2176 questionnaires were duly filled with a response rate of 79.7%. The responded users include teaching faculty (68.41%, N=472), research scholars (82.67%, N=992) and students (84.76%, N=712).

1.6.24 Analysis of Data

The analysis of data is the most skilled task in the research process. Analysis means the critical examination of the assembled data for studying the characteristics of object under study and for determining the patterns of relationships among the variables relating to it. A research work starts with formulation of hypotheses. However, the analysis of data helps in either rejecting or accepting the hypotheses.

In the present study, the data collected from the published sources and the questionnaires have been evaluated and analyzed to find the results. In accordance with the procedures followed for qualitative research, the textual data has been organized; themes and patterns generated and finally hypotheses were tested through statistical analysis. After interpretation, inferences were drawn and the report was prepared.
Data from the questionnaire has been fed to computer using statistical package Software Package for Social Sciences (SPSS) and the output was checked to correct any typographical error. Statistical analysis of the data was made with the help of SPSS software. The same tool was used for presenting frequency distribution tables, graphs and other tables of variables to establish relationship between them.

1.6.24.1 Statistical Measures

The present study has been conducted by adopting questionnaire as research tool for eliciting research data from the librarians and users of Universities in Mumbai. The survey method followed is random sampling, stratified by users, located within the universities in Mumbai.

The impact factor and relationship between independent and dependent variables have been determined by adopting suitable statistical tests namely Chi-Square test, T-Test, F-Test and Principal Component analysis.

**Chi-square test**

The Chi-square test of independence is applied to test whether or not two attributes are associated. On the basis of contingency table the test for independence of two variables is carried by computing $X^2$. The formula used for computation of chi-square is as follows:
\[(f_o - f_e)^2\]
\[X^2 = \sum \frac{f_e}{f_c}\]

**T – Test**

The t-test is used to evaluate the differences in means between two groups has also been used. The \(p\)-level reported with a \(t\)-test represents the probability of error involved in accepting our research hypothesis about the existence of a difference. This is the probability of error associated with rejecting the hypothesis of no difference between the two categories of observations in the population when, in fact, the hypothesis is true.

**F-test**

An F-test is most often used when comparing statistical models that have been fit to a data set, in order to identify the model that best fits the population from which the data were sampled.

**Likert Scaling**

Likert Scaling is a one-dimensional scaling method as an instruction to the people who are going to create or generate the initial set of candidate items for scale techniques. Using this, a set of potential scale items can be created that are normally rated on a 1-to-5 or 1-to-7 scale as Disagree-Agree response scale.
Principal Component Analysis (PCA)

Principal component analysis uses Eigen analysis to solve for the Eigen values and Eigen vectors of a square symmetric matrix with sums of squares and cross products. The eigenvector associated with the largest Eigen-value has the same direction as the first principal component. The eigenvector associated with the second largest Eigen-value determines the direction of the second principal component. The sum of the Eigen-values equals the trace of the square matrix and the maximum number of eigenvectors equals the number of rows/ columns of the matrix.

1.7 SCOPE OF THE STUDY

The study is confined to Libraries and users comprising of Teaching Faculty, Research scholars and students of twelve universities available in Mumbai namely:

- Central Institute of Fisheries Education, Mumbai (Deemed University)
- Indian Institute of Technology, Mumbai (Deemed University)
- Homibabha National Institute, Mumbai (Deemed University)
- Indira Gandhi Institute of Development Research (IGIDR), Mumbai (Deemed University)
- International Institute for Population Sciences (IIPS), Mumbai (Deemed University)
• Narsee Monjee Institute of Management. Studies (NMIMS), Mumbai (Deemed University)

• Dr. D.Y. Patil Vidyapeet, Mumbai (Deemed University)

• Tata Institute of Fundamental Research (TIFR), Mumbai (Deemed University)

• Tata Institute of Social Sciences (TISS), Mumbai (Deemed University)

• Bharati Vidyapeet, Mumbai (Deemed University)

• SNDT, Mumbai (State University)

• University of Mumbai (State University)

1.8 CHAPTERIZATION

Chapter 1 deals with Introduction,

Chapter 2 discusses the overview of Electronic Resources in University environment.

Chapter 3 deals about Review of Literature,

Chapter 4 deals with Analysis and Interpretation,

Chapter 5 provides a summary of findings, Future areas of research and conclusion.

Bibliography

Appendix:

Questionnaire
REFERENCES


