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2.0 Introduction

The main purpose of this literature review is to find the previous studies conducted on information needs and seeking behaviour. The literature review plays a very important role in the research process. It is a source from where research ideas are drawn and developed into concepts and finally theories. It also provides the researcher a bird’s eye view of the research done in that area so far. Depending on what is observed in the literature review, a researcher will understand where his research stands and how to proceed further. This was done in order to refine the research area, research questions and objectives.

It is extremely difficult to review the entire user-research done so far. Many significant contributions have been made by psychologists, sociologists, behavioural scientists and others in addition to the library and information science experts. As a result, the literature is scattered across many disciplines and wide-ranging resources.

Above all, the biggest hurdle for review of even well-defined user-research relating to academic environment is the abundant number of studies and publications. Consequently, a review of highly selected and important studies and their findings relating to Information Seeking Behaviour of faculty and students is attempted. In the process of review of literature, the focus of review is dealt with some categories like research outcomes, research methods, theories, applications, criticism of previous work, building the bridges between related topics etc.

Here in this literature survey, all primary, secondary and tertiary sources of information were searched. In locating the relevant information for this topic,
several different sources were searched. These included general and specialized bibliographical tools, abstracts, dissertations and online catalogues of library holdings. The electronic resources, such as the Internet, Education Research Information Center (ERIC) indexes, Wilson Web, and Emerald sources were also examined to obtain the current information on the topic. The current library science periodicals and online journals were also referred.

The main emphasis of the search was on the literature that dealt with information seeking behaviors of the faculty and students in the commerce colleges affiliated to the University of Mumbai. In this chapter, the literature has been examined and reviewed in the following subheadings:

- Commerce Education in India
- Changing Information Environment
- Library Resources and Services in the ICT Environment
- Information Seeking Behaviour.
- Information Seeking Models

2.1 Commerce Education in India

Education includes all the ways in which one person deliberately tries to influence the behaviour of another person. Throughout history, education has been one of man’s most important activities. The academic scenario, over the years, has undergone a tremendous change assuming new dimensions influenced by the technology driven applications. Commerce education is no exception to this.

The trends in commerce and management education are tracked by Khanzode (1990). The author explains the constraints faced by commerce as a
discipline and how the necessity for the trained professionals in industry resulted into starting of several colleges with commerce as a course. Virmani and Rao (1994) explain in the article how the financing of higher education brought much needed impetus to the growth of commerce education also.


Today, the Commerce education is a fast developing discipline. Now practically there is no recognized college in India which does not offer one or the other Commerce course. Aravanan (2002) discusses the evolution of commerce education in India. The author says that even among the Arts courses, the Commerce Programmes catch the fancy of the students.

The world is changing very fast. The pace of globalization, liberalization and privatization has tremendously influenced the various dimensions of Commerce education. Gupta (2002) writes his observation on commerce education in the coming years. The author has made an effort to prepare an integrated model for commerce education to meet the challenges posed by
industry and business. He also discusses the training practical oriented to develop skills and qualities among students.

The importance of commerce education has increased greatly with the expansion of trade and commerce, banking and other financial institutions and the use of Information Technology in the business firms. Sadar (2002) gives the data about the beginning of commerce education in India. Similarly, Patil (2003) expresses his thoughts on commerce education and its history in India. The author remarks that the commerce education needs reforms with regard to curriculum, teaching, learning and evaluation to meet the ever changing needs of the industry and commerce. Similarly, Tiwari (2005) discusses the restructuring of commerce education in the light of globalization. The same opinion is supported by Aggarwal (2005).

There are scores of excellent research works on Industrial Economics and Human Resource Management by prominent Indian Scholars. Sharma (2007) stresses the importance of higher education in Trade, Commerce and Industry. He highlights the few subjects which are to be given prominence in commerce education syllabus to train the students to cope up with the changing industry environment and global changes in the business.

Education is for life, not for living. It also serves a social role. It must provide the individual to face the challenges and find meaning and fulfillment in life. Sahni (2007) stresses the value orientation to higher education particularly integration of values in commerce education.
The liberalization and globalization have influenced the industry and also the commerce education. Chand and Kumar (2007) analyze the impact of globalization on higher education in India. Both give relative prominence on globalization and say that it is an old concept that was illustrated in 18th century by Adam Smith.

2.2 Changing Information Environment

Understanding how the deployment of information and communication technology (ICT) has changed the nature of tertiary learning over the past decade is crucial in trying to obtain a picture of how information sources, library services, teaching-learning methods are changing in the electronic age. The provision of study materials, staff–student communication, teaching practices, and models of learning are all being recast through the spread of ICT within the college campus.

Pal (1992) highlights the impact of collection development in the university libraries on their space requirement, and shows how CD-ROM technology can alleviate the problem. He suggests its effectiveness as an alternative to on-line searching of international databases and the value for retrospective searches. Further, he calls for introducing CD-ROM in the university libraries.

It has been witnessed how academic libraries are undergoing a fundamental transformation. Corral (1995) describes that electronic communication will transform service provision with significant shifts towards distributed networked services and empowering the end-user.
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The customer centric approach is the significant shift among the present libraries. Explaining the project and case study of Brent Libraries, UK Tyerman (1996) puts libraries at the heart of user communities. In a case study at United Kingdom, James (1996) discusses the social, national and local factors affecting higher education in the UK in relation to the development of the libraries, learning resources and information services.

The changing information environment also poses a difficulty for the users. This changing format, devices and the methods to use them has given rise to the problems in their use. Rader (1997) stresses that the library users’ need education that includes information training to become productive and effective users of information. Similar apprehensions about changing information formats and services is expressed by Gozzi (1997) and Boissonnas (1997).

The advent of internet is threatening to change the information environment and the information profession will have to confront the challenges presented as a matter of urgency. Nicholas and Fenton (1997) examine the implications of internet such as a change in work patterns, the huge shift to use of internet, the displacement of traditional information services and the dawning of a new information age.

A similar opinion is expressed by Alfino and Pierce (1998) who discusses the changing face of the library world and what values and priorities the profession will carry with it into the next century. The changing learning environment is largely because of the developments in the internet technology and its applications in education. Corcoran (1998) gave a comprehensive report on the
Educom '97 Conference, where topics like teaching and learning on the Net, Web based computing competence education, creating and managing interactive Web based learning, publishing on the Web are discussed. Guimond (1998), Gobbin (1998) and Nelson (1998) also have expressed similar opinions about information technology and changing environment.

Ramesh (1998) states that in order to provide efficient library services to the enlightened readers of the present day world, it is essential that the technical service of a library should be well organized with proper demarcation by making use of the recent applications for fast and quick service to the users. Malaisamy (1998) emphasizes the concept of computer literacy among the library staff. He points out the bottlenecks in using internet and also suggests some methods to overcome these problems.

Electronic networks and different information formats are changing information access operations worldwide. Morrison and Stein (1999) in their article discuss the role of the Universities and Colleges in preparing students to handle the rapidly expanding range of information formats. Watson (1999), Kousha(1999), Sun and Rader (1999), Werf-Davelaar (1999) and Rowley (1999) explain how different information formats and networking are changing the learning environment. Odini (1999), Sweeney (1999) and Martin (1999) discuss the changing information formats.

Information and knowledge are the high-value tools of the present age. The rise of the Internet has led to 'free information services'. Lennon (1999) looks at how 'free' information really is and whether we can continue to expect high-
quality information to be available without cost using the Internet. Explaining what hybrid library is Garrod (1999) explains that the academic libraries and library staff need to adapt swiftly to the new learning environment. Similar view is expressed by Logue and Preece (1999).

Lavagnino (1999) has conducted a series of interviews with top librarians to find out what challenges they believe libraries are experiencing that could be assisted by technology, and how they can be overcome. Dugdale (1999) advocates that as managers of digital information systems, the librarians cannot remain mere intermediaries, though some find that digital collections pose unwanted learning challenges and threats to the current working practices.

There have been several articles which have tried to predict the way information age will evolve. In one such attempt, Scammell (2000) looks about the future of information. The changing information format and the access mode is the crux of the issue in this information age. Similar thoughts about the innovations and the future of information management are expressed by Kunneke and Terblanche (2000), Wood and Walther (2000), Stickley (2000) and Brophy (2000).

The changing academic environment is also defined by the Digital Divide which is quite evident. The Information Technology made its impact on academic library in recent years in India. According to Chopra and Mukherjee (2000) library services are redefined with changing Information Technology environment. Similar idea of impact of ICT and social exclusion in this information society is expressed by Dutch and Muddiman (2000).
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The librarians must continue to develop the skills in interpersonal relations and communications, as well as in technical areas. Stover (2000) conducted a qualitative survey to find patterns and themes among librarians in regard to their attitudes toward managing technology and the technological change. Vasanthi (2001) in her article dealt with end-user education and training Programmes.

New Information and Communication Technologies are transforming Scholarly Communication. Lally (2001) argues that researchers and research intermediaries need to find new ways of working together in order to understand and take full advantage of the emerging forms and media for scholarly communication. Discussing about the future of the academic libraries, Akeroyd (2001), touches upon ICT innovations and its impact on all the components of the library systems. Bawden (2001) outlines some of the diverse meanings of the information and their consequences for the terminology of information sciences.

Discussing some of the key technological and managerial issues emerging from the IT innovations, Arte (2001) explains the experience of the National Research Council Library. The author expresses his view on the success of a library which depends on the librarian role and library staff in the successful implementation of the library services. The electronic resources and their management is very crucial in today’s IT environment. Ashcroft and McIvor (2001) stress on the electronic resources and their management.

The digital era has revolutionized the methods for the organization and automated handling of information. The web documents are significantly different from traditional versions in their presentation and also the ways to organize and
retrieve them. Ghiselli and Padula (2001) propose the integration of tools to the provide unified access to remote and heterogeneous archives, the contents of which can be grouped under the same subject, and which have been integrated to allow the user to navigate and conduct the thematic searches.

Troll (2002) describes that the academic libraries are changing in response to the changes in the learning and research environment and the changes in the behaviour of the library users.

The distance learning or e-learning has been gaining significance and the ICT has played a crucial role in making it much sought after mode of education. Revill (2002) reviews with the comments on Information and Communications Technology-mediated learning. Fors and Moreno (2002) assessed the compatibility between the implementation of information communication technologies (ICTs) strategies and the bottom-up approach in the developmental process. In this article, the authors discussed on the benefits and obstacles of implementing the ICTs strategies and exemplified, in short the explanatory cases.

Veeranjaneyulu and Singh (2003) examine the impact of Information Technology (IT) on the academic libraries. The authors feel that these computer applications have helped libraries in meeting the complex needs of library users and hence thereby a positive effect.

The Information technology innovations have made the librarians and libraries to redefine their services in innovative ways. Thinking deeply the about changing academic environment Rockman (2003) states that libraries should plan ahead and take their services to where users require most rather than becoming
too limited or denying users the chance to learn in modern environment using virtual reference service.

Gaur (2003) argues that manpower is one of the three main components of reengineering process. He feels that the impact of the technology can be handled well if a well thought reengineering plan is in place for human resources. The similar thought is expressed by Tyckoson (2003) also.

The changing information environment is also marked by a rapidly changing information user. The search engine technology degraded over time by the rapid increase of Internet pages and the retrieval strategies has yielded poor results. Carlson (2003) explores the alternative retrieval strategy approaches including a demonstration of their best areas of application. Dalbello (2004) gave a thought on renaissance of cultural memory in a digital form which can be accessed by the defined communities of users.

A recent addition to the existing information formats is gaining fast popularity in the e-Books. Carlock and Perry (2008) made a study on a group of selected faculty to discover their perceptions and use of electronic books (e-books) in their research and teaching. This study revealed the advantages of e-Books over traditional print format books. This study once again proved that like e-journals, e-books are also likely to gain huge popularity among the users.

Anunobi and Okoye (2008) discuss the nature of academic libraries in the digital age including the print resources. The authors describe a conceptual model of resource access of academic libraries in developing countries.
Kumar and Singh (2009) describe that the advancement of information communication technology (ICT) has ensured the application of Internet and other electronic resources i.e. CD-ROM, DVD-ROM etc. in the learning resource centre (LRC). The authors stress on the competencies of LRC staff to handle the problems associated with the use of computers. The above views also supported by Bansode, et al. (2009) and view that ICTs have allowed traditional LIS methods to be replaced by the newer, faster, and more accurate ways of transmitting information.

The changing format of resources is the challenge for the library in preserving and managing them. Pandey (2010) has touched on the Management and Preservation of Resources in digital library. The author also has covered the digital library and traditional library resources.

2.3 Library Resources and Services in ICT Environment

The innovations in information communication technology have influenced libraries to serve better and adapt the changes. The libraries also changed drastically with service provision, collection development, human resource planning and training. The librarians also have changed their mind set towards service and the management of libraries.

One of the major developments in the libraries and information services in the last 20 years has been the introduction and spread of electronic information sources (EIS). The progress in information technology has offered today’s information seekers different opportunities to access to information resources in an increasing array and format. The commonly available EIS, namely, CD-ROMs,
online databases, OPACs, the Internet, and other networked information sources are competing with, and in some instances replacing, the print-based information sources as the primary media for the storage and communication of recorded information content.

An academic library is expected to provide materials for courses, research projects and institutional academic activity to satisfy the needs of the well defined specialized clientele like faculty, students, researchers, administrators. Boakye (1994) explains about the academic libraries of developing countries and their services. He describes the document procurement methods and services.

The role of a librarian has changed due to the IT appearance in the educational system. Shimmon (1995) assesses the future of libraries and librarians regarding impact of Technology; and presents evidence for and against their decline. Tyerman (1996) Spotlights the Brent Libraries. The author is the Commissioning Manager for Libraries, London Borough of Brent, UK. He highlights the central aim of the project.

The library services always depend upon the involvement of a librarian in the service modules prepared for the system. Atton (1996) has found in his study that the information provision in the academic libraries depends on the librarian involvement and his interest in the services. This is the era of a constant changes; James (1996) discusses the social, national and local factors affecting higher education in the UK in relation to the development of the libraries, learning resources and information services. Hyams (1996) discusses the changes likely to take place in the information professional’s role in the IT environment.
Boissonnas (1997) gives details about the managing technical services in a changing environment, specifically touching the experience of Cornell University, New York. He reports the study made in Cornell University on technical services.

In the changing Information Technology environment, the library can expand resource sharing efficiently by overcoming the traditional methods. Giving the example of the changing Ohio environment Kohl (1997) focuses on the issues in resource sharing and illustrated possible solutions with actual examples. Lynch (1997) talks on the changing role of the library in a networked information environment. He concentrates on the Authentication and Authorization services during the transition from stand alone computing to networked environments.

Prabha and Donnelley (1997) talk on resource sharing in a changing environment. They explain how library can overcome the problems involved in the services. Mittal (1997) explains the changing role of the librarians in an electronic environment. He says today's librarians' responsibilities can be those of a system analyst, an information manager, a database manager, a network manager and as an intermediary. Klein and Ross (1997) describe how end user search services can become a force for an expanded information management and technology role for the librarians.

The information need demands current, comprehensive and cost effective devices, then one should have the correct mix of technologies, online and CD-ROM. The developments in information technology including computers and communications have led to this trend. Subba Rao (1997) outlines the information access through right mixture of technologies, namely online and CD-ROM.
In the current information environment of rapid change and technological innovation, planning library instruction Programmemes are important which meet the needs of the students. Hammond and Mitchell (1997) made a report of library instruction Programme at an Arizona University. They focus on the library instruction Programme which helps users to find the information in a library. Schwartz (1997) in the introductory chapter of his edited book highlights on the restructuring of academic libraries and how the organization can develop with technological change.

Clegg and Carey (1997) summarize the practical work, examining the impact on the users of information technology. There have been efforts in the academic community to move from a paper-based classroom to a paperless classroom. Adams and Janson (1997) focus on the information technology and tell how it supports the model of learning in a particular situation. They mainly focus on how the information technology enhances learning.

Subba Rao (1998) gives the picture about CD publishing and its scenario in India. He highlights the features of CD-ROM as a choice medium for information storage and dissemination. He discusses the scenario of a CD-ROM industry in India while listing a few Indian CD products.

The electronic environment has created significant role changes for the health sciences and health science librarians. Weller (1998) examines how the librarians should expand their expertise into the area of instructional Programmes, improving access and advancing scientific information communication.
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The increased cost and decreased funding has made the library directors in fund rising activity with the library services in USA. Martin (1998) discusses the role of the library’s director and the role of other library staff in the development process of library. The collection development in library is one of the concerns in changing technological environment. Elliott (1998) discusses the Nashville Public Library experience on staff development for improved collection management in a rapidly changing and enhanced technological environment.

The library-faculty collaboration in the developing library resources will make the students learning habits more success. Williams and Hunt (1998) reveal that the college library staff must work to bring the students and information technology together, especially where students are poor in information technology use.

The index is a powerful tool to access the library resources. It is very essential for the electronic text of any library. Morgan (1998) focused on the creation of indexes of electronic texts, customizable information services and searching the collection by the staff and users. User resistance to information technology is noticeable. Gobbin (1998) focused on user adoption or rejection of new information technology tools. Nelson (1998) also made an attempt to study on students’ perception of Technology used in the class room. The study reveals that the response to the new system by the students is huge.

Information and knowledge are the high-value tools of the present age. The rise of the Internet has led to the ‘free information services’. Lennon (1999) looks
at how ‘free’ information really is and whether we can continue to expect high-quality information to be available without cost using Internet.

The idea of reengineering is universal, but the action is full of local considerations. Liang (1999) begins with the project at Yuan Ze University in Taiwan. In addition he briefly describes the project carried out. The user education is concerned to acclimatize to the new environment. Sun and Rader (1999) explain about the academic library user education particularly in China. He takes the example of Tsinghua University’s library and how they built integrated library information system developed including CD-ROM online searching. Alemana (1999) reviews the various types and levels of library evaluation. He attempts to stimulate a debate on the pros and cons of the methods of evaluation in order to provide options for academic libraries, especially those in Ghana. Rieh (1999) gave a thought on the academic library reference services and examines the changes in IT environment based on the perspectives of managers, librarians and users. He proposes the directions to users’ information searching process and librarians’ interventions in reference service which are integrated.

Davis (1999) talks about changing role of serial acquisitions librarians in the electronic environment. He reports on a discussion which took place at the American Library Association’s 1999 Midwinter Meeting and the several key issues addressed. Garcha and Buttlar (1999) consider how the role of cataloguers has evolved over the past decade due to the impact of automation. Helfer (1999) took a case of 9 libraries in California University system at the time of severe
economic constraints. Taking this case as a model he illustrated how academic libraries could go with the flow instead of being swept upstream.

Logue and Preece (1999) explain how instructional support through web services help to meet the users need in the changing library environment. The electronic resources are more supportive these days and compliment the traditional resources and serve the library users efficiently. Stern and Connaway (1999) highlight the power of those electronic books which give traditional libraries to more effectively use their resources to serve their patron. Rowbothom (1999) in her article explores the reasons why librarians should be at the heart of Internet site development.

The Web, Internet and Intranets now make it possible for an individual unit or the teams within a company, research institute, or university department to offer their reports and documents in electronic form directly to outsiders without involving the library. Phelps (1999) looks at what can be done through a professional approach and vision to convince parent bodies of the benefits of involving the library if they care about the long term future of their publications.

The Internet has become emerging technology for information generation and its services to users. Jha and Mishra (1999) describe the basic nature and functioning of the Internet and its practical potential for generating information and providing access to a wide range of information services from electronic mail and electronic publishing to World Wide Web. Shemberg (2000) searched the web sites of 125 academic libraries in USA to find out the information about the libraries.
As technology changes, so do methods for delivering electronic information resources to library users. Bordeianu, Carter and Dennis (2000) describe Web-based online public access catalogues (Web OPACs) and other web based tools as gateway methods for providing access to library collections. The innovations in ICT have made impact on every facet of library. How the future of academic libraries will be in this changing ICT environment is discussed by Wood and Walther (2000) with changing student population. They look at the depth of the information formats and changing delivery mode of information with the integration of technology in library.

The library services are basically same in the traditional and electronic libraries. Brophy (2000) reviews the historical development of libraries and information services. He found out that the service offered in traditional and electronic libraries are same but only the way they serve is different. Pores (2000) explore the utility and usefulness of traditional social science research methodologies in relation to information retrieval experiments.

The Information Technology has made its impact on the academic library in recent years in India. The library services are redefined with changing Information Technology environment. Communication, resources sharing among other libraries become easy. Chopra and Mukherjee (2000) trace the need of networking among academic libraries by pointing out its basic targets. This article highlights the situation of networking among the academic libraries of Jabalpur, India, before and after 1995.
The web sites for libraries are essential in today’s environment. Web site supports library services in a better way. Designing web sites is a more important task depending on the type of the library. Balas (2000) discusses some of the issues involved in designing the Web sites for libraries, including: moving from print design to web design, the use of tools available online. Similar views are expressed by Jeevans (2000).

Sridhar (2000) explains the purpose of modernization of library services through the introduction of information technology (IT) and indicates the unlimited potential of IT for modernizing the library services. Clyde (2000) explains how the computers could make changes in the library services: as an administrative tool, as a resource for teaching information skill; and as part of the library collection in the form of software and databases.

The computer languages have made tremendous impact on web designing. The web site design for library using Perl scripting is described by Ghaphery and Ream (2000). They explain how the librarians can use this as a personal tool for the library classes or library instruction. Kim and Choi (2000) show how the XML (Extensible Markup Language) is applied to the digital library systems. They review the major features of the XML and compare them with those of the HTML (Hypertext Markup Language). Agreeing this thought, Angadi and Koganuramath (2000) reveal various facets of interpersonal skills in their paper. They have also focused on the importance of public relations skills, including librarian’s own skills that help the users to cultivate interpersonal skills as a positive reference service. Rockman (2001) emphasizes on e-library environment.
The recent advancements in technology have inspired the libraries to develop creatively customized services. Ghaphery, Kesselman and Watstein (2001) discussed about the personalized information clients’ i.e. personalized information services. Akeroyd (2001) talks about the future of academic libraries. He touches upon electronic changes its impact on all the components of library systems.

Arte (2001) explains the experience of the National Research Council Library. The author expresses his view on the success of a library which depends on the role of a librarian and library staff in the successful implementation of the library services. The electronic resources and their management is very crucial in today’s IT environment. Ashcroft and McIvor (2001) stress on the electronic resources and their management. The authors suggest that the management of e-journals and easy and perfect access to them depends on how the library embraces the new technology and the skill developed by the library staff.

The digital era has revolutionized the methods for the organization and automated handling of information. The web documents are significantly different from the traditional versions in their presentation and also the ways to organize and retrieve them. Ghiselli and Padula (2001) propose the integration of the tools to provide an unified access to remote and heterogeneous archives, the contents of which can be grouped under the same subject, and which have been integrated to allow the user to navigate and conduct the thematic searches.

Porter (2001) discusses on teaching, learning and technology. The author says in detail, how technology has changed the teaching and learning process. The
author describes how the partnership between the library, computing/telecommunications units, and teaching and learning centers will make the progress of education.

Covey (2002) identifies with survey how the students and the faculty perceive and use the entire information about the landscape. He identifies the inefficient and ineffective services of the academic library. The author instigates to develop the library guidelines, the best practices and the standard instruments to make the best academic library.

Rockman (2002) in his editorial remark says that the users engage by transforming the way we think. He stresses on the campus portal development and use, and electronic course packs through electronic course delivery systems offering academic libraries active participation with their expertise. Knight (2002) explains about the role of assessment in the library user education.

The emergence of web technology has condensed the diversified and distributed world in a compact form creating the concept of global village. Koganuramath and Angadi (2002) have made a study of TISS library. They emphasize the need for the library home page. They elaborate the techniques of designing and developing a library home page. The authors also attempt to answer the structure and maintenance of web page.

Richardson Jr. (2003) gives birds-eye-view on five papers written on the information resources, technology and users. He points out that the social aspect is one of the most important drivers in the provision of reference service.
The librarians take a larger role in adapting information technologies to meet the users’ information needs successfully. Rettig (2003) expresses his views on future of academic reference service in changing technological environment.

Thinking deeply about the future, Rockman (2003) puts forward that the libraries should have planned ahead and taken their services to where users require most rather than becoming too limited or denying users the chance to learn in modern environment using virtual reference service. Tyckoson (2003) discusses the relations between the librarians and readers of past and today. He looks on the future of reference service.

Kracker and Pollio (2003) have made the study thoroughly which speaks about the lived experience of the library users. It highlights the strengths and weaknesses of the libraries in general. It gives the librarians a way to think about the entire system from public library to academic research library.

Enhancement of user empowerment in the area of Internet-based information retrieval is necessary. Carlson (2003) explores the alternative retrieval strategy approaches including a demonstration of their best areas of application.

The use of computers in the college classroom has become so common place in most campuses. It is difficult to find a classroom that does not have at least a projector in teaching-learning process. Guthrie and Carlin (2004) have attempted to learn students’ perceptions of technology which added to the class room.

In the changing academic environment the libraries have to develop their electronic resources with the existing print sources. It is difficult with a limited
budget to develop the electronic resources. Cholin and Karisiddappa (2004) highlight the consortia approach for the academic libraries as a remedy. Similarly, explaining the need of the hour Chakravarty and Singh (2005) highlights two major consortium initiatives, UGC-Infonet and INDEST – Consortium that have come to the rescue of the academic libraries so that they can cater to the needs of the academia. They conclude that the efforts of UGC-Infonet and INDEST - Consortium are appreciable and will definitely strengthen the higher education system in India through library services.

The information technology has a positive impact on all the library and information services like library resources to varied services rendered to users. Kanamadi (2005) in his thesis explains about reference service, CAS, OPAC, etc. Human resource is another aspect, which is influenced by the development in IT and its applications at libraries.

The optimum utilization of internet resources and satisfaction the users get depends on how the users navigate and seek information on the internet. Jange et al. (2006) made a study on the information sources and level of the satisfaction of users. They studied the usefulness of the internet technology, experience of using internet, attitude towards using internet, behavioural intention to use internet, learning style, perceptions and emotions of the engineering students and research scholars of National Institute of Technology in India.

The librarians navigate on the web using new tools and the technologies to provide right information. They also navigate in the development and maintenance of web based services of internet for the user community. Kassim et
al. (2006) attempts on students' needed information to achieve certain purposes. The authors discuss how the information literacy plays an important role in higher education.

The reference service is one of the library's primary services besides acquisitions, classification, cataloguing and physical planning. Dollah (2006) has made an attempt to identify the usage of both traditional and digital reference services, user awareness of digital reference services, user satisfaction, and need for digital reference service. Ferreira (2007) stresses on the issue of open access digital repositories which are also on the top of the national and regional political agenda.

How can the collection managers and selectors structure their practice so that collection decisions are more evidence based? Where does one begin to find useful information and how can it make a difference in day-to-day work? Koufogiannakis (2007) addresses the above questions. The author presents a model which will map out a concrete model that can be used by any library to complement their collection-based decision making.

The consortium is the very promising development in this direction. Bedi and Sharma (2008) discuss about the concept, need, advantages and also the major consortia initiatives in India. How one can satisfy the information needs of the every type of user with minimum cost and resources is discussed.

Modern academic libraries are conglomeration of printed books and journals as well as electronic resources (e-resources) where both forms of the documents can be stored, retrieved and delivered as when required. Sharma
(2008) gives an idea to design an integrated common digital gateway and use of the same will be mandatory to all.

In the changing academic library resources and user requirements, an innovative service is required to strengthen the existing services to cater to the needs of the users. Web 2.0 has really made an attempt to connect the resources and services effectively. Recently, Xiao (2008) made a valuable effort to make use of Web 2.0 technologies such as blog, tags, YouTube, RSS feeds, Instant Messaging, online presentation etc. the author says that these web 2.0 technologies function as catalysts to lower the human barriers and experienced it with library users by reaching them virtually.

Sharma et al. (2009) discuss on the ICT based resources and services. The article illustrates the reflection of the available IT infrastructure and e-resources with the libraries. The study also highlights the management, control and retrieval of respective services and resources.

Kumar et al. (2010) present the shifting of academic libraries from the traditional form to networked information services. The library can offer special services through the blogs. Like Xiao, Kumar et al. (2010) discuss on the blogs. They describe the types of blogs, Blogs for library. They speak on, how blogs can be used for extending the library services and support to dedicated users.

2.4 Information Seeking Behaviour

Undoubtedly, the availability of electronic access to information has gradually brought some major changes to human information behaviour related
sources and services and their use in all walks of life. This is certainly the case with students undertaking graduation study and teachers in the colleges. Such changes have been significant in the emphasis that library and information professionals are now giving to the meaning of information seeking behaviour, and its place within the learning process.

A number of empirical studies focusing on undergraduates’ changing information behaviour in the electronic age have been undertaken. In contrast, with a few, there is very little recent research that has focused specifically on the research students.

In the paper ‘Information-Seeking Behaviour: Pattern and Concepts’ Krikelas (1983) examines the elements of user studies and presents them as unified concepts within a model of information-seeking behaviour. The concept of information-seeking behaviour, information needs, information gathering, information giving and source preference are discussed. The user Information seeking behaviour and the user Characteristics in seeking information are two entities. These two entities are studied and have given emphasis on correlation of these two entities in information seeking by Sridhar (1987) in his study.

The various aspects of information-seeking behaviour examined by Sridhar (1989) include the motives and purposes of seeking information, nature and type of information sought, delegation of information gathering work, and the time spent on in gathering activity.

information needs and information-seeking behaviour. The survey study reveals that in 1950s and 1960s the emphasis was on the needs of scientists and engineers. In 1970s the needs were in the social sciences.

Ellis and Haugan (1997) discuss the different models of information seeking patterns. They explored the role of information and information seeking. Authors identified eight major characteristics in the information seeking patterns; surveying; chaining; monitoring; browsing; distinguishing; filtering; extracting and ending.

Reddy and Karisiddappa (1997) have studied on the information seeking behaviour of the professionals in the field of disabilities. They studied specially on the mentally handicapped professionals in India. The internet is considered as a potentially excellent tool for teaching and learning. Williams (1999) made a pilot study and presented in his article about the children information seeking behaviour on the internet. He says that the students whenever they use internet for their own purpose in library, they browse internet to access textual and graphic information for their project work.

Marcella and Baxter (1999a) report the results of survey of information needs and information seeking behaviour of a national sample of the UK population. The Web is a new communication media for information publishing and information retrieval. It has changed the networked access to information by providing resources and directory services. It provides electronic publications which can be used now and in the future. Titia and Werf-Davelaar (1999) present
view about improved information management and retrieval on the networked environment.

Nicholas and Williams (1999) report the findings of research conducted in UK to establish the impact of the Internet on information seeking behaviour in the media, specifically among journalists. Eskola (1999) made a study to investigate what kind of activating teaching methods are in use in the Finnish Universities and how students' information behaviour is affected by these methods. A model for information behaviour of university students is the result of the study.

Wilson (1999) presents an outline of models of information seeking and other aspects of information behaviour. He shows the relationship between communication and information behaviour in general with the information seeking and information searching in information retrieval systems.

The information seeking is not restricted with the libraries, only but is also seen in the local council offices, professional people, post office, advice agencies, family and friends depending on the information they need to seek. Marcella and Baxter (1999b) report the results of their survey of information needs and information seeking behaviour of a national sample of the UK population. The major findings include that the majority of respondents had sought information in the past and that an even greater number predicted a future need for information. This shows the trend towards the new technology to access the information.

Ross (1999) examines the non-goal oriented information seeking with texts. He found the information seeking methods for non-goal purpose i.e. reading for pleasure. He found that, in order to seek information in most of the cases, the
individuals must experience a ‘problem situation’ and then formally initiate the search process by querying one of our systems: a reference service, an online catalogue, a database, a collection of books.

The World Wide Web is a tool for partial information gathering and learning for students. Fidel et al. (1999) analyze web searching behaviour of students. They point out that, web can be envisioned through user training on web resources and systems design which accommodates users’ information seeking and searching behaviour. Sonnenwald (1999) presents a framework about Human Information Behaviour. The fundamental concepts, such as context and social networks are discussed. Moen and Walker (1999) made an exploratory study of young adults on information seeking behaviour especially in a networked environment.

Brown (1999) has studied the information seeking behaviour of scientists in the electronic information age. He surveyed the scientists who relied greatly on the journal literature to support their research and creative activities. The study was conducted to assist in the development of appropriate information literacy Programmes. Carosella (2000) reviewed contexts of information behaviour.

A random sample of the UK veterinary practitioners was surveyed and interviewed on behalf of the Royal College of Veterinary Surgeons Welcome Library by Wales (2000) to identify the key issues in the veterinary information use (IU) and information seeking behaviour (ISB). The observational study of the information seeking behaviour of members of Parliament in UK was made by Orton et al. (2000). The study is undertaken to determine the characteristics of the
parliamentarians and the manner in which information is sourced and used. Conroy et al. (2000) discuss the findings of a survey investigating the European information needs of secondary school teachers in relation to the teaching.

Searching the World Wide Web was the principal Internet activity and use was generally conservative in character. Nicholas et al. (2000) studied on the impact of the Internet on information seeking in the British Media and the focus was largely on the newspapers. They surveyed the Journalists and Media Librarians.

The web publishing has made tremendous change in the information access process. There are two main platforms used for searching the Web – directories and search engines. Green (2000) explored the interrelation between Web publishing and information retrieval technologies. Most of the libraries have their sites to explain about library resources, products and services. Shemberg (2000) searched the web sites of 125 academic libraries in USA to find out information about the libraries. The level of end user satisfaction with information technology (IT) has widely been accepted as an indicator of IT success. Mahmood and Burn (2000) focused on the relationships between end user satisfaction and some of the variables such as perceived usefulness, ease of use, user expectations, user attitude towards information systems (IS) in widely divergent settings and the user skills. All library service providers will need strategies to cope up with this diversity. Eason et al. (2000) discuss the patterns of use of electronic journals.

Marcella and Baxter (2000) report the results of their second survey of information needs and information seeking behaviour of a national sample of the
UK population. Here they found that the public obtained most of their information on current issues via the mass media.

Information is considered as an important resource that contributes towards the development of a nation. It provides the core for the development of knowledge, the basis for innovations, the resources for informed citizenry, and as a result, becomes a key commodity for the progress of a society. Higher Institution teachers are one of the contributors in development of knowledge assets. Majid and Kassim (2000) studied the information seeking behaviour of International Islamic University Malaysia Law Faculty to identify the information channels used by them, information resources preferred by them, methods employed for getting the needed information and their library use pattern. Byron and Young (2000) made a study on information seeking in a virtual environment.

The students consult both the formats i.e. print and electronic formats to create the answers for the test or exam in these days. This trend is because of the change in information format which is available in multi facet forms. Among the electronic forms there are several forms like CD/DVDs, Web resource on Internet etc. Fescemyer (2000) studied the information seeking behaviour of undergraduate geography students. The study reveals that from one semester to other semester there is a shift towards the electronic resource.

The study of communication patterns and information seeking behaviour of users working in ICMR institutes is made by Basimalla (2000). Seeking Information from the Internet often starts from a search engine, using either its organized directory structure or its text query facility. Thelwall et al. (2001) give a
new approach for specific information where a website that enables a user to
search the individual websites.

Herman (2001a) studies the transition to the electronic information era in
the academia. He observes, how researchers have accepted and adapted to the
changes twisted in information activity by seemingly endless technological
developments. Herman (2001b) in his second study elaborately explains about the
change of information formats and knowledge communication in academia in the
changing electronic information environment. Meho and Haas (2001) made a case
study on information seeking behaviour of faculty in University of North Carolina
at Chapel Hill, USA.

Joinson and Banyard (2002) made two studies on information seeking
behaviour on the Internet. Both investigated information seeking on the World
Wide Web. It is tentatively argued that there is a tendency for people to access
information on internet. Psychological processes of Web browsing behaviours are
also discussed.

The 'user-study' on engineering undergraduate students is made by Majid
and Tan (2002). This study investigates the information needs and information
seeking behaviour of computer engineering students of Nanyang Technological
University, Singapore. This study reveals that the types of information sources
used by the students are more in the electronic format. The importance of and
reasons for using certain electronic information sources are investigated by the
authors.
The students are now very comfortable in using web resources and they want more resources through web enabled technology. Bilal (2002) reports the key findings of the information seeking behaviour and success of students in using the web. The students' behaviour and success were compared in his study. The study reveals that the use of search engine and the level of research skills are directly proportional to their success.

In general, the Information and Communication Technology has made its presence in every walk of life. Marcella et al. (2002) investigated the impact of information and communication technologies (ICTs) on the communication of legislative information to the general public or citizen.

Attifield and Dowell (2002) studied have about the information seeking and use by journalists at a national British newspaper. They report the work activity in the content of series of behaviour shaping constraints and external resources. Donald (2002) conducted a survey of research on information seeking, needs and behaviour. He presents a comprehensive survey of information behaviour studies over the last two decades.

The Books and Journals are most important source for the teachers and students in the colleges. The Internet sources satisfy their needs as most of their nascent information is available. Eini and Azarang (2002) conducted the study to determine the information needs of managers, compilers (textbooks) and educational experts of OERP (Organization of Educational Research and Planning).
David Ellis model on information seeking behaviour includes six generic features. Meho and Tibbo (2003) revise Ellis's study and give new model with more features. Heinström (2003) discusses the influence of personality traits and approaches to studying on students' information seeking behaviour, with a specific focus on use of information technology. Findings point to the importance of customizing information services to meet individual needs.

Steffl-Mabry (2003) describes the study of information seeking behaviour among the professional groups for selected information sources and empirically identified individual preference profiles in this study. A study conducted in England by Shenton and Dixon (2003) describes the students' use of CD-ROMs and the Internet to meet their information needs. The author reports on the information needs in conjunction with information seeking behaviour and discusses home access, student attitude and search strategies.

Murphy (2003) has made a study on information-seeking habits of environmental scientists. The survey was conducted by the author to get a clear picture of the scientists and how they seek the information and manage the time in the information-gathering tasks. The result shows that many face a difficulty in keeping up the research in regard to time. As a result, they do information gathering in their off-time or delegate certain research responsibilities to others.

As Murphy, Hallmark (2003) also has made a study on the scientist of a different category. She has studied the information-seeking behaviour of Meteorologists and other Atmospheric Scientists. The scientist has used the traditional (non-electronic) methods for both access and retrieval of the particular
citation. The scientists have pointed out the problems faced in using the electronic journals. They have also a problem in accessing the citation and use of data for their research. The author stresses the information access training for the users (scientists) in the changing environment of the information format and access mode.

The changing user needs and the empower of computer & IT use by users forcing library to deliver the resource in e-form. Therefore instead of delivering the resources by the library, here user can access the desired information directly. There is a need of study on information seeking in changing environment like this. Arabito (2003) has made a case study on this. He has studied user information seeking on library web how the users seek and gather information for their papers and dissertations and how the library web site is becoming more and more stuffed with resources and with instructions on how to use such resources.

Minkel (2004) and Zhang et al. (2004) have studied the information seeking behaviour of users in the web portal environment. Whitmire (2004) has interviewed the undergraduate students about their information seeking behaviour. The results of the study indicate that there is a relationship between the epistemological beliefs and reflective judgment and information seeking behaviour.

The digital libraries can support information seeking, creation and use for wide variety of applications. One of the most promising of which is education. Borgman et al. (2005) have studied the faculty information seeking in teaching and research which influence the design of digital libraries. The research in
information seeking behaviour, motivation, critical thinking, and learning theory is explored by Weiler (2005). The author compare in a search for possible motivating factors behind the students' dependence on television and the internet for their information needs. The research indicates that only a very small percentage of the general population prefers to learn by reading.

Purnima and Vikas (2005) have made a study on information needs of the college faculties of higher education in Manipur. The study reveals that except for few colleges/universities, most of the faculties were not aware of the IT, due to lack of infrastructure in their libraries. They have studied about information needs of the faculties of colleges and universities. They studied on the use of computers, internet, e-journals, and digital resources.

An understanding of human information behaviour is fundamental to the provision of high quality library service. Agosto and Hughes-Hassel (2005) present preliminary findings from a research on the everyday life information seeking behaviour of the urban young adults in USA. Steinerova and Susol (2005) aim to study the human information behaviour as part of the research project on the interaction of man and the information environment.

Callinan (2005) has made a study to examine the student's awareness and use of different sources of information for their course-work, their use of E-library, why they visit the library, the type of assistance they had received in using the library.

The information seeking behaviour of human being changes from one environment to the other. The academic environment differs from that
software company. There is work-task framework for the software engineers. What is the information behaviour of these software engineers is a unique study made by Freund and Toms (2005).

The Information seeking behaviour of faculty members changes as compared with those of the students. This is because; the purpose is entirely different from one another. Patitungkho and Deshpande (2005) report the result of their study of the information seeking behaviour of faculty members of the Universities in Bangkok.

The Information-seeking behaviour changes or improves generally with human experience in his/her particular work environment. It is applicable to all sorts of working people. It is rare to see the inverse of this in any work environment. Pezeshki-Rad and Zamani (2005) explore the information-seeking behaviour of extension managers and specialists in Iran and report the identified factors that correlate with this behaviour. At the end, the authors give suggestions to remove the barriers of information-seeking.

The fundamental provision of high quality library services depends on understanding of human information seeking nature. Stenmark (2005) has made a study on the information seeking on intranet. He has studied the time taken in seeking information, query construction and result page viewing for their further use.

The Liew and Ng (2006) study investigate the information seeking behaviour of ethnomusicologists via interviews. The findings shed light on what information these users seek, the sources and services they use, and the barriers
they face in information seeking and use. The Information seeking activity helps in assessing users' needs which leads to improve the services of any library. Bartley et al. (2006) study the information seeking activities of MIT students in the library to assess the needs of the users. They focus on the aspects of the students' work related to online tools which helps to improve the library services.

Nicholas et al. (2006) have employed deep log analysis (DLA) techniques to demonstrate what usage data can disclose about information seeking behaviour of virtual scholars - academics and researchers. They have studied the information seeking behaviour of the faculty from those digital scholarly journals. This study is mainly to find information seeking behaviour of users in digital environment.

Information Architecture for the World Wide Web is very important for the information seekers. Maurer (2006) highlights designing of web sites for users. He observes how the users approach information, consider what it means, and design to allow them to achieve what they need.

Butterworth (2006) argues that typically Information seeking and retrieval behaviour is a strongly social, but weakly collaborative leisure activity. He discusses how these assumptions fit with the existing information seeking and retrieval (IS&R) models and proposes path for future work. The author touches on the browsing behaviour and searching behaviour and has made a sketch of the characteristics of 'personal history' researchers.

Abdullah and Zainab (2006) in their paper describe the framework used in a study to formulate the requirements for the design and implementation of a collaborative digital library (CDL) for project based learning. Bakkalbasi et al.
(2006) have made a citation analysis in an observational study, examining the three databases namely Google Scholar, Scopus and Web of Science.

Safahieh and Singh (2006) investigate the information needs of international students at the University of Malaya. They have studied the barriers in the information seeking and also the role of library in this process. They have also studied how the computer and internet literates meeting their information needs.

Today’s knowledge workers rely increasingly on information to get their job done, and the availability of search engines to locate relevant information is thus essential. Stenmark and Jadaan (2006) discuss their study on intranet users’ information seeking behaviour by analyzing search log files. They have found the shifting trends in the intranet search behaviour.

Thompson (2007) has made a study on the information seeking behaviour of distance education students. The author infer in his article that the distinction in information needs and use by the students over the years is not be due to a generation divide, as previously reported in the studies, but it is due to technological immersion.

Gonzalez-Teruel and Abad-Garcia (2007) present a descriptive analysis of works published in Spanish journals and of the papers of conferences held in Spain in the field of information needs and uses in the period 1990-2004 in order to determine the change in approach occurred outside the English speaking world.

Over the last several years, the number of information resources has increased considerably. The emergence of new information environments,
sources, and channels, especially the World Wide Web, regardless of the advantages, has brought new challenges and problems. On the one hand, the retrieval of information in response to users’ real needs has become ever more complex and on the other hand, assessing the validity and reliability of retrieved information is a considerable problem. Yousefi and Yousefi (2007) have studied the information seeking behaviour and needs to examine the professional factors in information behaviours. They have also examined the role of new information environments in the information seeking process. In their paper they also suggested to fix the gap in information need and information seeking behaviour.

The George et al. (2007) study explores the graduate students’ information behaviour and scholarly activities. They point out that, the information seeking often begins with a meeting with the professors and library personnel who provide guidance in finding resources. Makri, Blandford and Cox (2007) argue that developing better information seeking skills goes hand-in-hand with developing an understanding of electronic environments in which these skills must be practiced.

Turner (2007) studied on information seeking, retrieval, reading and storing behaviour of library users. He advises the digital library designers to be aware of the behaviour of the users of such system in the best interest of the digital libraries. He gives the guidelines to better understanding of users for designers of digital libraries. Farhadpoor (2007) explains this process and the way of information gathering.
Internet is the information tool for all the age groups for information seeking in the ICT environment. Salman and Hasim (2008) report the descriptive findings of the study on internet usage by Malays living in Kota Bharu, Kelantana, a semi-urban town in the North East of peninsular Malaysia. Their findings highlight that the nature of use of internet differs from younger to the older.

Various factors may determine the information seeking behaviour of an individual or a group of individuals. Fatima and Ahmad (2008) have investigated the information seeking behaviour of the college students. They study the purpose, for which information is required, the environment in which the user operates users’ skill in identifying the needed information, channels and sources preferred for getting information, and barriers to information. The same type of study in India has been done by Mahajan (2009) and Ahmad (2009).

Ansari and Kumar (2010) have observed the information seeking behaviour of college faculty in Uttar Pradesh. They study on the type of information sources used, preference of information formats, importance and reasons for using certain information sources. Gowda and Shivalingaiah (2010) have made similar study on the researchers in the University Libraries in Karnataka. The results show that there is a significant difference among the research scholars of various disciplines in the preferences of various channels of information, modes of literature search, purpose of visit to the library and time spent.
Kacherki and Thombare (2010) discuss on a case study of Management College to find out information seeking patterns of the library users. The study also covers print and e-journals and their advantages & disadvantages. The format preference, information seeking patterns, frequency of use of print and e-journals discussed in detail. Similar study was done by Halder et al. (2010).

2.5 Models of Information Seeking Behaviour

The Information behaviour is sub-discipline within the field of library and information science. It describes how people need, seek, manage, give and use information in different contexts. It may also be described as information-seeking behaviour or human information behaviour. By the strict definition of the word theory, scholars of information behaviour acknowledge that there is no single theory of information seeking per se. The Information behaviour approaches are typically regarded as models because they focus on specific problems.

The literature on information seeking behaviour has been, and remains, a hot topic for research within various disciplines, but has been limited for review in this research to the field of library and information science, which is where many of the key articles are to be found. Many researchers in this field have developed various models based on the ISB and information-needs studies of various groups. The Information carriers may include a variety of channels, a variety of sources within the channels, and a variety of messages contained within these sources Johnson et al. (2006).
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Wilson (1981) has noted that the information seeking results from the recognition of some need perceived by the user. The behaviour may take several forms such as demanding information from the library or from other people who know. The approach has however been criticized because of insufficient theories, concepts and research methods, and because it has not taken into consideration the needs of the information seekers Dervin and Nilan (1986); Wilson (1994).

At the end of 1970's and in the beginning of 1980's researchers began to realize that the questions on information needs, seeking and use could not be seen only from the systems point of view. As Dervin has pointed out, information seeking is situational bound and constructed by the individual. Librarians and researchers should, therefore, move away from the system-centered approach to a more user-centered approach Dervin and Nilan (1986).

Ellis et al. (1993), and Ellis and Haugan (1997) have attempted to propose and describe the characteristics of a general model of information seeking behaviours based on the studies of the information seeking patterns of social scientists, research physicists and chemists, engineers and research scientists in an industrial firm. Ellis's elaboration model describes the features of information seeking activities as generic. These features are: Starting, Chaining, Browsing, Differentiating, Monitoring, Extracting, Verifying and Ending.

Among the researchers, Kuhlthau (1993) has conducted empirical research about students' information seeking behaviour and developed a general model of the information search process (ISP). The ISP consists of 6 stages as: initiation
stage, selection stage, exploration stage, formulation stage, collection stage and presentation stage.

Wilson (1999) believes the strength of Ellis' and Kuhlthau's models as they are based on empirical research and have been tested in subsequent studies. It is important to examine the information seeking models as what students actually do when searching for information may be very different from what the librarians think the students do. Hayden (1999) has studied the different information seeking models like Wilson's model of 1981, Krikelas model of 1983, Kuhlthau model of 1992, Big Six Skills model of 1992 proposed by Eisenberg and Berkowitz. The author says that we need to question who the library community is; we also need to question how we can provide information skills that leads the students towards information literacy.

Borgman (2000) defines information seeking as a continuous process, involving active and passive behaviours, and formal and informal communication. She points out the cycle of creating, using and seeking information which can be viewed as series of stages which people move back and forth, and they may be actively, creating, using and seeking information concurrently. Therefore, information seeking behaviour refers to the pattern of response to the information need by person or group of persons.

Loeber and Cristea (2003) have made an attempt at investigating, analyzing and modelling the visitor and website.

Weiler (2004) observes that the first model for study of information-seeking behaviour in the general population was developed by James Krikelas in
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1983. This model suggests the steps of information seeking as follows: (1) perceiving a need, (2) the search itself, (3) finding the information, and (4) using the information, which results in either satisfaction or dissatisfaction. Based on Krikelas' model, people begin to seek for information when they perceive that the current state of knowledge is less than that needed to deal with some issue (or problem).

Shah (2008) proposes a model that helps us to understand the requirements for a successful collaboration. The author attempts to formalize the notion of collaboration and proposes a model of Collaboration Information Seeking (CIS) that puts collaboration in perspective. His model consists of four layers such as information, tools, user and results.

2.6 Observations based on the Review of Literature

1. The relevant literature has been examined, reviewed and processed in five sub-headings, viz., Commerce Education in India; Changing Information Environment; Library Resources and Services in ICT Environment; Information Seeking Behaviour; Models of Information Seeking.

2. The search of literature was made by using books, LISA on CD-ROM, E-prints in Library and Information Science, online databases, reports, manuals, guides, theses and dissertations, articles from journals and works of T.D. Wilson, David Ellis, Kuhlthau, Levi and Gary Marchionini.

3. Most of the studies are conducted by foreign authors and Indian studies are to some extent minimum.
4. The study covers all types of libraries but concentrate more on academic library users.

5. A few case studies are noticed in the literature.

6. Majority of the studies represent recent decade only.

7. Indian studies are based on the theoretical foundations. They do not focus on the electronic information sources.

8. The Indian study on information seeking behaviour in electronic environment is not in depth as compare to western countries. Instead, the study in India focuses on the Internet.

9. In the Indian context, hardly any study on the information seeking behaviour of users in electronic environment or technological change is found.

10. It is possible that by combining the previous studies (found in review of literature) with new data collection methods and accounting for newer information seeking technologies such as the Web.

2.7 Summing Up

The studies cited in the literature review indicate that considerable work has been done in studying the information seeking behaviour of students and faculty in the Indian educational environment in general. However, there is a dearth of literature that deals specifically on the information seeking behaviour of students and faculty in commerce colleges in Mumbai. The increasing importance of commerce education and the necessity for librarians to understand the information seeking behaviour of faculty and students for providing effective
information services is the order of the day. However, the research is still in formative stage and it needs to be taken further to raise the libraries to the level of matching the information seeking expectations of users.

A significant amount of the contribution of information seeking theory and models are based on the assumptions or smaller-scale studies of user information needs and searching. With the more recent focus on World Wide Web browsing and search a new set of data collection and user modeling studies are possible. While these new Web-based models can be preliminarily based on detectable patterns in either individual interest (content) or situational activity (context), it is hoped that it may be possible to generalize a set of habits from these patterns that can be either integrated with existing information seeking models or to form a new information seeking studies.
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