CHAPTER - II
CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

The review of literature is an essential component of any research investigation, for it gives necessary input to the investigator to frame the research study on the chosen topic. As far as the field of personality and information seeking behaviour and identifying the information needs of a group in a particular field is concerned, a large number of studies have been conducted and it continues to grow. A number of research reports, articles, books and conference volumes on the subject of personality and information seeking behaviour have been published.

The Annual Review of Information Science and Technology\textsuperscript{1-14} (ARIST) periodically review relevant literature on “Information needs and uses”.

Gupta, B M ed. (1991)\textsuperscript{15} has reviewed the literature of the yester years, which covered more than 140 references on Information Seeking Behaviour published mostly in journals, edited books and conference volumes from India. Perhaps this is the most comprehensive review on the subject of Information Seeking Behaviour.

Since 1996 three International Conferences\textsuperscript{16, 17 and 18} have conducted research in information needs, seeking and use, held at Tampere (Finland), Sheffield (UK) and Gothenburg (Sweden) respectively. These seminar volumes presented a collection of papers, representing a variety of research conducted in this area.

In view of the vast amount of literature available in this field this chapter is an attempt to review only the significant studies and recent literature on the various aspects of personality and Information Seeking Pattern under the following sub-headings:
• Studies related to teaching professions
• Studies related to various professions
• Institutional studies
• National level studies
• Network and IT Environment
• Information Seeking Pattern models
• Other studies related to Information seeking behaviour
• Personality
• Personality and Information seeking behaviour

2.2 STUDIES RELATED TO INFORMATION SEEKING BEHAVIOUR OF TEACHING PROFESSIONS

The literature of information seeking behaviour of faculty members available is broad in range. An attempt has been made to cover a number of works on information seeking behavior. This broad review also includes topics like information seeking by faculty.

Thanuskodi, S. (2010)\textsuperscript{19} in a study, framed the objectives of the information needs and information seeking behaviour of users are vital for developing library collections, services and facilities to meet their information needs effectively. The purpose of the study is to identify the information channels used by the Central Law College, Salem faculty members, information sources preferred by them, methods employed for getting the needed information and their library use pattern. A questionnaire was, distributed to 64 law faculty members and 56 filled in questionnaires were returned, giving an overall response rate of 87.5 percent. It was found that respondents used various sources for acquiring the needed information. Books were ranked as the most important source for teaching and research purposes, followed by law reports and statutes. Respondents preferred to first consult their personal collection before resorting to other information providing sources and agencies. On the whole, respondents perceived the Central Law College library collections, services and facilities as adequate to meet their information needs effectively.
King, Donald W. et al (2009)\textsuperscript{20} Surveys at five US universities show that faculty read articles for research, teaching, writing, and other purposes; the largest number of readings is for research. The time spent reading scholarly articles (an estimated average of 132 hours and 240 articles per year) demonstrates their value to faculty's work; over one-third of readings are reported to be absolutely essential, and to affect the reader's purpose in many ways, including helping to improve results, or to broaden or change the focus. Faculty prefer print for personal subscriptions, although library electronic collections provide a majority of readings, and most readings from library collections are from electronic sources; older articles are also more commonly from electronic library collections. Faculty use a variety of means to find articles, including browsing and searching, the latter particularly for research purposes, and to locate older articles. Faculty members who publish more, or who have won awards, read more articles on average than their less productive or successful colleagues.

Rafiq, Muhammad; Ameen, Kanwal (2009)\textsuperscript{21} discusses the information-seeking behavior and satisfaction of the teachers at the National Textile University (NTU) in Pakistan, the teachers' satisfaction level with NTU Library facilities and services, and of community members engaged in research and development in the field of textiles. According to the article, the term information-seeking behavior means the purposive seeking for information, which is either print information or computer-based such as the Internet, as a consequence of a need to satisfy a goal. The research methodology used in the study is discussed. It was found that respondents used both print and digital information sources to help meet their information needs.

Wong, Shun Han Rebekah (2009)\textsuperscript{22} in an article presents the results of a faculty survey conducted by the Hong Kong Baptist University Library regarding faculty attitudes and comments on the use of audio-visual materials for teaching. Results showed a fairly high level of AV material use for teaching, overall satisfaction regarding material content, and overall dissatisfaction regarding content currency and content variety. The article further discusses the Library's corresponding actions, including VHS conversion and relocation projects, revisiting AV collection development policy and procedures, a video-on-demand service for scholarly events and local TV programs, a new visual and audio search page, and the media consultancy service.
Doraswamy, M. (2009) discusses the relationship between the academic role and information seeking behaviour of engineering faculty members at Acharya Nagarjuna University in Gunter, India. The faculties’ levels of frequency of information use in different forms of their teaching and research purposes are assessed. Several hypotheses about professors using information resources including books, journals, theses and dissertations, government publications, conference proceedings and reference sources in their teaching and research are given. Questionnaires were given and the faculties’ data had been tested with the Wilcoxon Signed Rank Test. It was found that journals, theses and dissertations, and conference proceedings were used for research purposes while books were used most for teaching.

Estelami, Hooman; Greco, Albert N.; Wharton, Robert M. (2008) reports on a national survey of university faculty members in the United States regarding the factors that influence their purchases of scholarly books. In total, 233 faculty members from eleven disciplines in more than fifty universities were surveyed. The survey gauged the impact of a series of factors that influence scholarly book purchases for research and teaching. In addition, sources of information used to locate scholarly books of interest were identified and contrasted across fields of study. The survey also examined trends in the respondents’ book-buying behaviour, their propensity to purchase used books, and the frequency with which they used university library systems to obtain access to scholarly books.

Chang, Shan-Ju L. (2006) study the information need, seeking, and use behavior of middle school teachers of Taiwan historical resources, and to explore the implications of the findings for digital library system design. This research employs multiple methods, first by qualitative approach followed by quantitative approach. The study investigated elementary and high school teachers, and compared the findings with those of the scholar user group, using literature analysis, deep interview, and questionnaire survey as the methods for data collection, and content analysis, case study, and statistic analysis for data analysis. The results lead to (1) a better understanding of information seeking and use behavior of primary and middle school teachers of Taiwan historical archives; (2)
deeper knowledge and empirical data for developing theory on human information behavior of Taiwan local people; (3) identification of important teaching and learning resources on Taiwan and the salient characteristics of those resources; (4) development of information organization guideline for localized digital library and museum systems.

Patitungkho, K. and Deshpande, N. J. (2005)\(^2\) in an article reports the result of a study of the information seeking behavior of faculty members of Rajabhat Universities in Bangkok, Thailand. Data were collected by using a questionnaire from seven faculties in Rajabhat Universities. Results show that most of the respondents (41%) stated their method of seeking information by consulting a knowledgeable person in the field. Two hundred and thirteen respondents (82%) sought information for preparing lectures. Fifty-four percent of faculty members access more documents or references from a book. It is revealed that most of the faculty members (57%) used textbooks. Seventy four percent of respondents read information materials in Thai and twenty four percent read materials in English. The Internet has been almost universally adopted. They trace materials from the library via the Internet. Google.com was used by respondents to search for information. They frequently use e-mail for communication. It is found that 42 percent of respondents use ERIC (Education Resources Information Centre) database. The majority of respondents faced the common problem while seeking information i.e. unavailability of information.

Purnima, T.H., and Vikas, Devichongtham (2005)\(^2\). An attempt has been made to study information needs of college faculties of Higher Education in Manipur. The study reveals that except for a few colleges/universities, most faculties were not aware of IT, due to lack of infrastructure in their libraries. Questionnaires method was used to collect data from the college and university faculties to understand their information needs and thereby suggest application of ICT to all the colleges and University of Manipur.

Suriya, Sangeetha and Namby (2004)\(^2\) carried out a research work on "Information seeking behavior of Faculty Members from Government Arts Colleges in Cuddalore District." The purpose of their study was to investigate how faculty members seek information from a library. It mentions that most of the respondents 61 (61 i.e. 38.12 percent) visited the library several times a week to meet their information needs. Regarding the type of search made by the respondents the majority of the respondents (91 i.e. 56.87 percent) made their search by subject.
Shokeen and Kushik (2002)\textsuperscript{29} studied about information seeking behaviour of social scientists working in the universities located in Haryana. They reported most of the social scientists visit the library daily. The first preferred method of searching the required information by the social scientists is followed by searching through indexing and abstracting periodicals, and citations in articles respectively. The social scientists use current journals followed by books.

Challener (1999)\textsuperscript{30} investigated artists and art historians teaching in five liberal arts colleges and three universities. Results found that they need information for teaching. Almost all the participants subscribe to art journals and many read newspapers. They visit libraries frequently, usually more than one library, and unlike previous reports, the majority is willing to ask the librarian for help. A large percentage of both art historians and artists are using computers for teaching. All 27 participants use slides extensively in the classroom, supplemented in most cases by textbooks.

Reneker (1992)\textsuperscript{31} investigated the information seeking activities of 31 members of the Stanford University academic community were examined over a two-week period during the 1990-91 academic year. She adopted the naturalistic approach and employed qualitative techniques for the data collection using mainly personal interviews. Informants' perception of their information environment is expressed in positive terms, and there is a close relationship between knowledge of the information environment and the sources used. Information seeking is embedded in the day-to-day activities and relationships of the participants and is triggered both by the articulation of need and availability of information. A large number of needs are satisfied by sources the informants created or organized themselves and by interpersonal information sources. The findings of the study indicated that the action of information seeking originated from a wide variety of needs like personal, professional, entertainment, etc.

2.3 STUDIES RELATED TO VARIOUS PROFESSIONS

Kostagiolas, P. A.; Bairaktaris, K. D.; Niakas, D (2010)\textsuperscript{32} In their study investigated information behaviour of community pharmacists in Greece, as well as their
perceptions regarding the contribution of library and information services in their future professional development. Empirical investigation which has been made available regarding the information behaviour of the community pharmacists in Greece. Empirical investigation has been conducted between March and April of 2008 through the development and the distribution of a semi-structured questionnaire. The sample of the respondents consists of 92 community pharmacists from 22 pharmacy associations in Greece. The results are, the community pharmacists have access to the Internet, with limited access to specialized information resources, and they are increasingly utilizing information services in their everyday practices. The pharmaceutical associations (national and local) could play a significant role as information providers and specialized hybrid libraries and information services are required in order to satisfy the current information needs of the community pharmacists and they concluded that, meaningful library and information services depend on setting specifications relevant to the community pharmacists’ information behaviour. Indeed, in the near future, structured information services may come to rescue the role of the community pharmacists and empower their irreplaceable position in serving the local communities.

Olatokun, Wole Michael; Ajagbe, Enitan (2010)33 In their article explores the information-seeking behaviour among traditional healers in Nigeria, with particular focus given to those treating sickle cell anaemia. The use of informal information sources such as colleagues in the traditional medical field is examined and the oral preservation of traditional healing practices is explored. The information-seeking environment of traditional medical practitioners, the methods of diagnosing and treating sickle cell anaemia, and the methods of information communication used by traditional healers are also discussed.

Younger, Paula. (2010)34 Reviews of how doctors and nurses search for online information are relatively rare, particularly where research examines how they decide whether to use Internet-based resources. Original research into their online searching
behaviour is also rare, particularly in real world clinical settings, as is original research into their online searching behaviour. This review collates some of the existing evidence, from 1995 to 2009. Objectives: To establish whether there are any significant differences in the ways and reasons why doctors and nurses seek out online information; to establish how nurses and doctors locate information online; to establish whether any can be drawn from the existing evidence that might assist health and medical libraries in supporting users. An initial scoping literature search was carried out on PubMed and CINAHL to identify existing reviews of the subject area and relevant original research between 1995 and 2009. Following refinement, further searches were carried out on Embase (Ovid), LISA and LISTA. Following the initial scoping search, two journals were identified as particularly relevant for further table of contents searching. Articles were excluded where the main focus was on patients searching for information or where the focus was the evaluation of online-based educational software or tutorials. Articles were included if they were review or meta-analysis articles, where they reported original research, and where the primary focus of the online search was for participants’ ongoing Continuing Professional Development (CPD). The relevant articles are outlined, with details of numbers of participants, response rates, and the user groups. Results: There appear to be no significant differences between the reasons why doctors and nurses seek online Internet-based evidence, or the ways in which they locate that evidence. Reasons for searching for information online are broadly the same: primarily patient care and CPD (Continuing Professional Development). The perceived barriers to accessing online information are the same in both groups. There is a lack of awareness of the library as a potential online information enabler. Libraries need to examine their policy and practice to ensure that they facilitate access to online evidence-based information, particularly where users are geographically remote or based in the community rather than in a hospital setting. Librarians also need to take into account the fact that medical professionals on duty may not be able to take advantage of the academic model of online information research. Further research is recommended into the difference between the idealised academic model of searching and real world practicalities; and how other user groups search, for example patients.

Jamali, Hamid R and Nicholas, David (2010)\textsuperscript{35} investigate the reading behaviour of scientists from an intradisciplinary perspective. Different aspects of reading behaviour
were studied including the amount of reading, the sources of reading, and the impact of factors such as age, academic status, academic activities and methods used for identifying articles on reading behaviour. The data were collected through a survey of 114 physicists and astronomers (faculty members and PhD students) at University College London. A total of 56 interviews were also conducted with PhD students and faculty members. The results revealed intradisciplinary differences within physics and astronomy in terms of reading behaviour. The study showed that recently published articles account for a large proportion of the readings. Age and academic status have an influence on the age of papers read. The amount of reading is influenced by the type of activities academics conduct, meaning those who spend more time teaching read fewer papers and those who spend more time doing research read more papers. The paper is the first to look at intradisciplinary differences within a single discipline and reveals the impact of some task-related and information-seeking factors on reading behaviour.

Marsalis, Scott. (2010) discussed quantify the transition to electronic communication in information-seeking behaviour of academic scientists. University of North Carolina at Chapel Hill, a large public research university. Nine hundred two faculty, research staff, and graduate students involved in research in basic or medical science departments. Participants self-selected (26%) from 3523 recruited. The sample reflected the larger population in terms of gender, age, university position, and department. The authors developed a web-based survey and delivered it via PHP Survey Tool. They developed the questions to parallel similar earlier studies to allow for comparative analysis. The survey included 28 main questions with some questions including further follow-up questions depending on the initial answer. The instrument included three initial questions designed to reveal the participant's place and role in the university, and further coding classified participants' department as either basic or medical science. The questions included categorical, continuous, and open-ended types. While most questions focused on the scientists' information seeking behaviour, the three final open-ended questions asked about their opinions of the library and ideal searching environment. Answers were transferred into a MySQL database, then imported into SAS to generate simple descriptive statistics. Participants reported easy access to online resources, and a strong preference for conducting research online, even when access to a
physical library is convenient. Infrequent visits to the library predominantly took place to
utilize materials not available online, although the third most common answer for visiting
was to take advantage of the library building as a quiet reading space (14%). Additional
questions revealed both type and specifics of most popular sources for research, preferred
journals, current awareness tools, reasons for choice of journal for publication, and use of
bibliographic management tools. Scientists prefer online tools for conducting library
research, although specific contexts influence the preference, and online articles may be
printed out for reading or annotation. The participants are taking advantage of the
developing online arena, utilizing databases for research, as well as literature searching,
access to journals and conference proceedings, and to keep abreast of current research.

Fourie, Ina. (2009)37 reviewed, focusing on emotion, was conducted of reported
were intended to offer guidelines on information services and information literacy
training, to note gaps in research and to raise research interest. Databases were searched
for literature published from January 2004 to December 2008 and indexed on eeric, Library
and Information Science Abstracts, medline, PsycINFO, Social Services Abstracts,
Sociological Abstracts, Health Source: Nursing/Academic Edition; Library, Information
Science & Technology Abstracts; Psychology and Behavioral Sciences Collection; Social
Work Abstracts; SocINDEX with Full Text; SPORT and the ISI Web of Knowledge
databases. Key journals were manually scanned and citations followed. Literature was
included if reporting on issues concerning emotion. Results: Emotion in information
behaviour in healthcare contexts is scantily addressed. This review, however, offers some
insight into the difficulty in identifying and expressing information needs; sense making
and the need to fill knowledge gaps; uncertainty; personality and coping skills; motivation
to seeking information; emotional experiences during information seeking; self-
confidence and attitude; emotional factors in the selection of information channels; and
seeking information for psychological or emotional reasons. Suggestions following
findings, address information literacy programs, information services and research gaps.

Olander, Brigitte. (2008)38 studied the information behaviour of a group of
Swedish computer scientists has been studied over a period of twenty years (1987-2006).
Five computer scientists have been interviewed and answered individual questionnaires.
Together with four colleagues they were also the subjects of a qualitative study twenty

33
years ago. Data from interviews in 1987-88 and 2006, questionnaires and Websites have been processed and analysed to elucidate information behaviour changes from a socio-cultural perspective. The emphasis lies on careers, information seeking and personal networks. The subjects are now all senior researchers. The tools for information seeking have changed but their needs are still dominated by monitoring. Information seeking remains a social activity, but the close interaction with colleagues in the department has ceased while personal networks are now wider. As expected, print journals and conferences have been replaced by Web access to digital resources. In the process, cognitive authority seems to have been transferred from colleagues to Google, the preferred search tool. The information behaviour of the researchers in this group is firmly rooted in social and professional practices that are very different today compared to 1987.

Davies, Karen. (2007)\textsuperscript{39} provides a narrative review of the available literature from the past 10 years (1996–2006) that focus on the information seeking behaviour of doctors. The review considers the literature in three sub-themes: Theme 1, the Information Needs of Doctors includes information need, frequency of doctors' questions and types of information needs; Theme 2, Information Seeking by Doctors embraces pattern of information resource use, time spent searching, barriers to information searching and information searching skills; Theme 3, Information Sources Utilized by Doctors comprises the number of sources utilized, comparison of information sources consulted, computer usage, ranking of information resources, printed resource use, personal digital assistant (PDA) use, electronic database use and the Internet. The review is wide ranging. It would seem that the traditional methods of face-to-face communication and use of hard-copy evidence still prevail amongst qualified medical staff in the clinical setting. The use of new technologies embracing the new digital age in information provision may influence this in the future. However, for now, it would seem
that there is still research to be undertaken to uncover the most effective methods of encouraging clinicians to use the best evidence in everyday practice.

Cooper, Janet and Urquhart, Christine. (2005)\(^40\) Discusses findings from doctoral research on the information behaviour of home-care workers and their clients. The paper focuses on the findings, which have implications for health library and information services. The qualitative research methods included participant observation in the homes of clients (n = 7), over a period of 18 months, in a city in the UK, complemented by in-depth interviews of home-care staff (n = 47). Home-care staff perceived requests for information on a variety of topics as an indivisible part of their caring role. Clients asked for more information than they had in the past, and home-care workers were expected to respond to a wide variety of enquiries about health, welfare, leisure and domestic concerns. Clients trusted their advice as much as they might have trusted members of the family. Home-care workers from an agency used a variety of resources at the agency office to help them, such as leaflets on welfare benefits, and health conditions. Few had used NHS Direct, and library use (by a third of the home-care workers) was generally associated with course work or training. Some family members and home-care staff used self-help groups, but the research found that family members were sometimes reticent to ask advice on sensitive issues in self-help groups. Home-care workers learnt from each other and shared experience. Libraries and information services need to target provision of formal information carefully, as it is advice and counsel that is required in the home-care setting.

Bryant, Sue Lacey. (2004)\(^41\) explore the information needs and information seeking behaviour of family doctors, identifying any differences in attitudes and behaviours deriving from membership of a training practice and investigating the impact of a practice librarian. A case study of general practitioners (GPs) in Aylesbury Vale incorporated a quantitative study of use of the medical library, and two qualitative techniques, in-depth interviews and group discussions. A total of 58 GPs, almost three quarters of those in the Vale, participated; 19 via individual interviews and a further 39 via two group discussions. Family doctors are prompted to seek information by needs arising from a combination of professional responsibilities and personal characteristics. A
need for problem-orientated information, related to the care of individual patients, was the predominant factor that prompted these GPs to seek information. Personal collections remain the preferred information resource; electronic sources rank second. The study demonstrated low use of the medical library. However, both vocational training and the employment of a practice librarian impacted on library use. The study illuminates the information needs and preferences of GPs and illustrates the contribution that librarians may make at practice level, indicating the importance of outreach work.

Cogdill (2003) surveyed the information seeking behaviour of nurse practitioners, a population of clinicians responsible for an increasing proportion of primary care, which reveals that the respondents most frequently needed information related to drug therapy and diagnosis. Respondents with a Master’s degree were found to perceive information needs more frequently than their colleagues who had not received a Master’s degree. Nurse practitioners used information most frequently in consultations with colleagues, drug reference manuals, textbooks and protocol manuals and more likely to pursue needs related to drug therapy with a print resource and needs related to diagnosis with a colleague. Results of this research underscore the importance of access to information resources in primary care practices. This study's findings also support the development of educational and outreach programs to promote evidence-based decision-making among primary care clinicians.

Owen and Fang (2003) investigated the information seeking behaviour of health professionals seeking complementary and alternative medicine (CAM) affiliated to University of California, San Francisco. The study reveals that there was no correlation between speciality and patterns of information seeking behaviour. Whereas, Bilal (2002) studied the school student’s information seeking behaviour in using the web from the cognitive, affective, and physical perspectives.
Cooper (2002)\textsuperscript{44} examined information seeking behaviour of 7-year-old children in a semi-structured situation in their school library media centre, which focused on how young children cope with searching for information in a largely textual corps.

Padmamma, Vijayakumar and Vasudevan (2002)\textsuperscript{45} conducted a survey on information seeking behaviour of 84 scientists of Vishwesvariah Iron and Steel Limited (VISL) in Bhadravathi, Karnataka, which reveals that, roughly one-third of the scientists visit the information centre to satisfy the information needs of the research activity, while about 31\% scientists opined that education of the dependents is one of the factors which hinders their information seeking behaviour.

Ashill and Jobber (2001)\textsuperscript{46} examined the information needs of senior marketing executives and reviewed a framework for exploring the design of Marketing Information System, which indicated that marketing information needs can be defined by using information characteristics.

Haruna and Mabawonku (2001)\textsuperscript{47} examined the information needs and seeking behaviour of lawyers in Lagos, Nigeria. Results reveal that many lawyers perceived the need to know the latest decisions of superior courts as their greatest professional information need. Other expressed needs include knowing recent legislation, obtaining information on local and international seminars and conferences and on acquisition and application of legal “know-how”. The library has been identified as the most heavily consulted information source for job related information.

Dorsch (2000)\textsuperscript{48} examined the information needs of rural health professionals and relates it to the broader information needs literature to establish whether the information needs of rural health professionals differ from those of other health professionals. The study also indicated that the rural health practitioners appear to have the same basic needs for patient care information as their urban counterparts, and that both groups rely on colleagues and personal libraries as their main sources of information.
Nicholas and Martin (1997)\textsuperscript{49} analysed the information needs of the journalists, which provided an insight into the myriad miens of information seeking behaviour.

Borse (1997)\textsuperscript{50} explored the information seeking methods of Awarded Farmers of Jalgaon district of Maharashtra.

The survey on the information use pattern by the Creative Writers in Oriya, Panda and Swain (1997)\textsuperscript{51} suggested that the libraries serving creative writers should take necessary steps to provide SDI services; acquire and retrieve more information in the fields like social behaviour, nature and literacy criticism.

Gravois, et al (1996)\textsuperscript{52} indicate that dental hygienists depended on discussions with colleagues, continuing education courses, journals and newsletters that were the sources used most frequently for professional development and information retrieval. Meanwhile, family physicians used colleagues most often as information sources followed by journals and books as stated by Verhoeven, Boerma and Jong (1995)\textsuperscript{37}.

Tejomurthy (1992)\textsuperscript{53} analyses the information requirements and information services to the engineers in Dewas. An attempt is made to know the interests of respondents about new developments in their field of work. Various aspects of users needs and services, awarness about knowledge, sources of information required and so on were taken into consideration.

Sridhar (1989)\textsuperscript{54} surveyed the information seeking behaviour, characteristics and correlation on information seeking behaviour with characteristics of the space technologists. Factors of information seeking behaviour examined include motives and purposes of seeking information, nature and type of information sought, sources of bibliographic information used, delegation of information gathering work, time spent on information activities, dependence on different sources of information, inter-personal
information sharing, intra and inter organisational communication, informal and formal communication behaviour, use of and user interactions with the 'primary library'.

2.4 INSTITUTIONAL STUDIES

Gowda, Vasappa; ShiZvalingaiah, D (2010)\textsuperscript{35} discussed that the university libraries play an important role in providing information to the researchers. The researchers seek for information in different patterns. In the present study the authors have made an attempt to know the information seeking patterns of the researchers of various disciplines in the university libraries in Karnataka State. The questionnaire method was adopted to collect data. 59.98\% responses have been received. The study identified the preferences of the researchers over channels of information, various modes of literature search, purpose of visit, type of information gathered, frequency of library visit and time spent in the library. The chi-square test was applied to find out the significant relationships on the opinion of the researchers among the disciplines. The results show that there is 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 time spent in the library and modes of communication.

Mahajan, Preeti (2009)\textsuperscript{36} discusses the information-seeking behavior of undergraduates, postgraduate students, and researchers in sciences, social sciences, and the humanities at the Panjab University in Chandigarh, India. The collection at the Panjab University Library, which includes books, journals, online journals, and a digital library portal, is explored. The kinds of academic information needed by the respondents, the types of resources they prefer, whether or not they are satisfied with the library collections and the general pattern of information-seeking are examined, a descriptive survey method was used and a questionnaire gathered data. It was found that users were satisfied with the library collections and services but would like training in using online information.

Singh, K. P and Satija, M. P (2008)\textsuperscript{37} reports of the findings of a study of the information seeking behaviour of agricultural scientists working in the Indian Council of Agriculture Research (ICAR) institutions of Delhi, and Punjab Agricultural University,
Ludhiana. Also findings of various strategies and procedures adopted by the agricultural scientists in meeting their information requirement. The agricultural scientists were asked to rank the information sources indicating their order of priority while seeking information. They were asked to use a scale in order to their priority on the basis of I, II and III. The results show that agricultural scientists have expressed great dependence in meeting their information requirement on their institutional library/information centre. Seventy-two per cent of the respondents for all categories of agricultural scientists preferred their library/information centre as the most preferred source. For accessing information agricultural scientists highly depend on the library collection, followed by the personal collection, collection of their supervisor and of colleagues in order of decreasing priority.

Nicholas, David; Huntington, Paul and Jamali, Hamid R (2007)\(^5\) in their article evaluates the logs of four universities using the OhioLINK journal system for a period of fifteen months using deep log analysis methods in order to compare and contrast the information seeking behaviour of their users in the U.S. The author discusses the difference between the research and teaching universities. They have also discussed the methodological problems associated with making the comparisons in terms of defining online sessions. Information about the costs and benefits of various methods of usage data collection and analysis in selected libraries are also discussed.

Whitmire (2003)\(^5\) explores the relationship between undergraduates' epistemological beliefs and their information-seeking behaviour. Twenty undergraduates attending an Ivy League University were interviewed about their search process as they completed a major research paper during their senior year. Epistemological beliefs affected topic, the use of mediators, search techniques, the evaluation of information, and the ability to recognise authority. Epistemological beliefs also affected several stages of the Information Seeking Pattern model: topic selection, pre-focus formulation, focus formulation, and collection. These findings provide a rich theoretical foundation for future information seeking behaviour research and will assist academic reference librarians by providing insights into the impact of undergraduates' epistemological beliefs on their information seeking behaviour.
While Ashu Shokeen and Kaushik (2002)\(^6\) investigated social scientists working in the universities located in Haryana, Manorama Tripathi and Prasad (2001)\(^5\) analysed the information seeking behaviour of scientist in physical and social sciences, and found that the qualification, teaching experience and status do not have any effect on the visits to the library.

Similarly Tadasad and Metesheela (2001)\(^6\) examined the use pattern of information sources of Gulbarga University PG Students. The studies revealed that books, newspapers, popular magazines, class notes, notes of seniors are the most useful sources of information and concluded that the personal attributes viz., gender, year of study, medium of instruction, area of habitation, stay at hostels, marital status and frequency of visits to the university library have no bearing on the use of specific sources of information.

Garg (2000)\(^6\) study reveals the information seeking patterns of users of engineering institutions in Rajasthan. The study purports to determine the information seeking patterns of users of engineering institutions in Rajasthan, employing multi-method approach. It also identifies in terms of relative importance, various aspects of information seeking such as motives of seeking information, use of formal, informal and electronic information sources for generation of ideas, interpersonal sharing of information, information sources instantly turned to, for the needed information.

Ammini (1999)\(^4\) surveyed the information needs of the students of Ship Technology of the University of Science and Technology, Kochi.

Fidzani (1998)\(^5\) studies the use of information resources by graduate students at the University of Botswana and found that journals and textbooks are the most popular sources of information for course work and research. Further, it is suggested that students need to be taught on the use of available library resources and services.
Siatri (1998)\textsuperscript{66} investigated the different practices and methods used by the computer scientists in British and Greek Universities in retrieving information from electronic media.

Ucak and Kurbanoğlu (1998)\textsuperscript{67} surveyed scholars in science, engineering, social sciences and humanities at Hacettepe University, Turkey, which reveals that the information need and information seeking behaviour of scholars are dependent on their field of research and vary from one discipline to another. Whereas, Adedibu and Adio (1997)\textsuperscript{68} investigated the information needs and information seeking patterns of medical students at Ladoke Akintola University of Technology, Nigeria, which revealed that 70\% of the respondents spent 3 to 8 hours in the library to consult books and 68\% of the respondents needed the assistance of the library staff for searching information.

While Curtis, Weller and Hurd (1997)\textsuperscript{69} investigated the Health Science faculty of the University of Illinois at Chicago, while Ellis and Haugan (1997)\textsuperscript{70} studies conducted on information needs of engineers and research scientists in the Research and Development Department of an International Oil and Gas Company at Statoil’s Research Centre in Trondheim, Norway.

Kanungo (1997)\textsuperscript{71} made an attempt to investigate the methods of seeking information by the women researchers in the disciplines of history and political science in the University of Delhi and Jawaharlal Nehru University. The study makes a comparative analysis of the methods adopted by these researchers in finding, accessing and acquiring information.

While Swarnalata Devi and Lahiri (1997)\textsuperscript{72} surveyed the information seeking behaviour of the Agricultural Scientists from Manipur University. A similar study was conducted by Liu and Redfern (1997)\textsuperscript{73} at San Jose State University found that students who use English as their primary language are usually more successful in using the library than those who use English as a second language.
Ocholla (1996)\textsuperscript{74} examined the information seeking behaviour of academics from Health Sciences, Information Sciences, Environmental Studies and Education at MOI University, Kenya. In the study of information seeking habits of medical and engineering personnel Lalitha (1995)\textsuperscript{75} found that both formal and informal approaches were adopted for collecting their information. The information seeking skills of physicians and Biomedical Scientists in India has been studied by Schwartz (1995)\textsuperscript{76} through focus group sessions conducted at All India Institute of Medical Sciences, New Delhi and the Tata Memorial Cancer Centre / Cancer Research Institute, Bombay. Cameron, et al (1994)\textsuperscript{77} analysed the information needs and satisfaction levels of patients in UK hospitals.

The information seeking behaviour of managers in industrial organisations in Andhra Pradesh was examined by Sasikala (1994)\textsuperscript{78} and revealed that managers occasionally visit libraries and collect information to keep abreast of current knowledge.


Curtis; Weller and Hurd (1993)\textsuperscript{80} investigated information seeking behaviour including the use of major bibliographic tools by medical, pharmacy, nursing and science faculty at the University of Illinois at Chicago and assessed the impact of availability of locally mounted databases, and determined the need for modification of instructional programs, also identifying the need for promotional material which acts as a baseline for subsequent studies.

Ellis, Cox and Hall (1993)\textsuperscript{81} examined the information seeking pattern of the physicists at Manchester University and Chemists at the University of Sheffield in UK through interviews and analysed them on the basis of “grounded theory approach”.
Reneker (1993)\textsuperscript{82} studied the information seeking activities of academic community of the Stanford University, which revealed that information seeking is to be embedded in day-to-day tasks and relationships.

The information needs and the sources utilised by the persons engaged in cottage industries of earthen products at the rural areas on Burdwan district in West Bengal were surveyed by Musib (1991)\textsuperscript{83} and reveals that the main sources of information are the self, family members, fellow professionals, friends, neighbours, relatives, shopkeepers, and market interactions in addition to Public Library Services. A similar study was conducted by Korah and Devarajan (1991)\textsuperscript{84} on scientists at the Rubber Research Institute in India.

Gruppen (1990)\textsuperscript{85} identified the context in which physicians seek information and advice from external sources. The results indicate that physicians vary in their information needs, preferences, motivations and strategies for seeking information.

Premsmit (1990)\textsuperscript{86} studied the information needs of academic medical scientists at Chulalongkorn University in Bangkok, Thailand and identified three types of information needs namely identifying up-to-date information, obtaining relevant studies and developing research topics.

Buru and Tripathi (1988)\textsuperscript{87} have given an overview of the information products in the form of sources and services that are being marketed by the Burdwan University library to its target consumers, particularly to research scholars. The authors explain the various strategies that were adopted by the library in order to affect better marketing of its products, resources and services to its consumers.
2.5 NATIONAL LEVEL STUDIES

Barbosa Tavares, Rosemeire; Hepworth, Mark; De Souza Costa, Sely Maria (2011) reports on a pilot investigation in Candangolândia, near Brasilia, in Brazil in 2010. The purpose of the investigation was to determine the efficacy of a participative research methodology for investigating: people's information needs; developing an information literate approach to problem solving; fostering problem solving and collaborative capabilities and enhancing a sense of citizenship. The research applied techniques that enabled people to collaborate and identify their information needs, as well as information solutions, through the exploration of a social problem that they had identified. Participatory Research and Action (PRA) was the chosen methodology. Nineteen techniques were applied. The findings indicated that it was possible to use PRA to explore information needs. Participants were able to identify, classify and prioritize information needs and use information in order to suggest solutions for the selected social problem. The intervention helped develop collaborative problem solving skills and a heightened sense of citizenship.

Bigdeli, Zahed (2007) attempted to investigate the information seeking behaviour of engineers at Khuzestan Sugar-Cane and By-Product Company in Iran. Method. To collect the data, a questionnaire was distributed using Likert-type questions with six points ranging from 'never use' to 'very useful'. Of the 250 questionnaires distributed, 158 (63.2%) were used in the data analyses. The reliability coefficient was measured by the Cronbach Alpha which was 0.81. Analysis of variance and the Tukey test were used to test the sole hypothesis of the research and to see if engineers who worked in various sites were different in their information-seeking behaviour. To answer the research questions, descriptive statistics were employed. The results showed that the engineers in different work areas were significantly different in terms of information-seeking behaviour. The most important motivations for seeking information were: to develop their knowledge and expertise; to be able to use new job-related technologies and
to be up-to-date in their specialty. Concludes the distance appears to have impact on information use and information-seeking behaviour of engineers. Thus, librarians must consider the Zipf's 'principle of least effort' in serving their clients.

Pezeshki-Rad, Gholamreza; Zamani, Naser (2005) explore the information-seeking behaviour of extension managers and specialists in Iran, and to identify the factors that correlate with this behaviour. A questionnaire was developed to explore information-seeking behaviour of extension managers and specialists. The questionnaire was distributed to thirty-eight public extension managers and 175 public extension specialists who work for Deputy of Extension and Farming System of Iran's Ministry of Agriculture. Data collected were analyzed using the statistical package for the social sciences (SPSS). Appropriate statistical procedures for description (frequencies, percent, means, and standard deviations) were used. The main motivation for seeking job-related information by both public extension managers and specialists was interest in developing their own job-related information. The top three mostly used information sources by extension managers and specialists were Persian books, Persian scientific magazines, and scientific-technical reports. Concerning communication channels, interpersonal communication with colleagues, in-service training courses and scientific-technical conventions were ranked respectively as the three top communication channels used by respondents. There was a negative correlation between managers' years of extension work and their information-seeking behaviour. For specialists, a significant positive correlation was found between years of education, level of job satisfaction and information-seeking behaviour. Providing valuable information sources, and removing information seeking barriers, can improve information-seeking behaviour of extension specialists and managers.

Salajegheh, Mozhdeh; Hayati, Zouhayr (2009) investigate the information-seeking behaviour of academic staff in the schools of medical sciences of Iran and to draw up a model of their information-seeking behaviour. A qualitative research method --
Grounded Theory -- was employed to carry out this research, analyze the data, and data were collected through interviews. Data analysis showed that the information-seeking behaviour of these Iranian Medical Schools' academic staff has seven stages: selecting subjects, searching information, retrieving information, browsing, gathering information sources, using information, and transferring information to others.

Ikojo-Odongo and Ocholla (2003) examines the information needs, information seeking behaviour and the impact of information use on artisan fisher folk and extension agents at three major lakes in Uganda. The findings reveal that fisher folk require different kinds of information to carry out fishing activities effectively and the methods adopted to accessing information.

Davies and Bath (2002) identifies the use of maternity information sources by Somali women living in a northern city in the UK through exploratory focus group and semi structured interviews and found that they seek and use information from several interpersonal sources, from friends and neighbours.

Given (2002) explores the complex interweaving of the students' everyday and academic information needs in light of the Reijo Savoainen's framework for the study of everyday life information seeking. Findings include the role of social and cultural capital in the students' information seeking, the diverse ways in which everyday and academic contexts inform one another, and the importance of not separating the everyday from other life situations in studies of individuals' information seeking behaviours.

Heperuma (2002) studied the information gathering habits of art scholars in Sri Lankan universities and found that the art scholars gather information for three basic types of activities viz., teaching, research and administration.

Singh; Satija and Sandhu (2002) conducted a survey of information seeking behaviour of the farmers of Punjab, which reveals that farmers are progressive and they
adopted new technology relating to agriculture, comparatively earlier and faster than their counterparts in other states.

The pattern of information seeking by Women in the European Union has been investigated by Marcella (2001)\(^97\), reveals that women value information and use a wide range of categories of information in relation to their educational, professional and personal life.

While Rowland and Rubbert (2001)\(^98\) studied the information needs and practices of part-time and distance learning students of higher education in the UK and outside the Open University, Thorsteinsdottir (2001)\(^99\) surveyed the information seeking behaviour of distance learning students in Library and Information Science in Sweden.

Banwell and Gannon-Leary (2000)\(^100\) investigated the information seeking behaviour of UK students and academics in relation to electronic information services. This study provides illuminative and conceptualised pictures built up over a time and in different disciplines.

Popoola (2000)\(^101\) analysed information needs and services of health consumers in Nigeria and found that there was a significant relationship between the levels of education of the health consumers and sources of information used. Books / reports, medical laboratories, film houses and medical library records office were rarely used for searching pertinent information on health care services.

In a surveys conducted by Marcella and Baxter (1999)\(^102\) on the information needs of people in the UK, it was found that a majority of the respondents depended on public libraries for government information and mass media for current information.

The impact of the use of library services and information by Physiotherapists on their decision-making for patient care has been examined by Ashcroft (1998)\(^103\) through questionnaire from 37 National Health Service Trust hospitals in the Northern Yorkshire
region. The “Critical Incident” technique was used to pinpoint a particular situation when a need for information connected with patient care.

Hari Krishna Reddy and Karisiddappa (1997)\textsuperscript{104} studied the information seeking behaviour of 160 professionals in the field of disabilities in India, which reveals that informal channels are used more for information gathering. Journals are preferred as formal source of information and books are used more for providing consultation and offering therapeutic/diagnostic services.

Spink; Kaeckel and Sidberry (1997)\textsuperscript{105} investigated the information needs of low-income African-American households at Wynnewood in Dallas, Texas, in relation to employment, health, news and security issues. On the other hand, Gollop (1997)\textsuperscript{106} explored the ways in which urban, older African-American women obtained health information.

Lee and Pow (1996)\textsuperscript{107} examined the two non-functional aspects of user requirements viz., information channel disposition and information demand characteristics in the hospital information systems of 66 Clinical Physicians in Hong Kong and compared it to groups of 51 Finance Professionals and identified significant differences between the profiles of these two groups.

While Nicholas and Colgrave (1996)\textsuperscript{108} analysed the information use pattern by the local authority councillors in Britain, Thapisa (1996)\textsuperscript{109} conducted a similar study of Parliamentarians in Botswana.

Abifarin (1994)\textsuperscript{110} examined the information seeking behaviour of agricultural students in selected Nigerian universities. The analysis of the study shows that students make less use of the library than expected. Thus the study corroborates the general finding that the library shelves are disorganised because users have little idea about the systematic library usage. The author also recommends library orientation strongly
focused on information gathering be established where they are non-existent, and intensified where they are already in place.

Lundeen, Tenopir, Wermager (1994)\textsuperscript{111} studied the information needs of Hawaii's rural health care practitioners and their methods of accessing through interviews and mailed questionnaires and identified the barriers to information access.

In the study of information use pattern among Indian historians, Karisiddappa; Sangam and Maheswarappa (1989)\textsuperscript{112} identified difficulties they experienced in the use of information; its awareness and usefulness of information services in NASSDOC, New Delhi.

Strother; Lancaster and Gardiner (1986)\textsuperscript{113} surveyed five hundred randomly selected dentists in Louisiana and determined the nature and types of information sought by dentists.

\textbf{2.6 NETWORK AND IT ENVIRONMENT}

In the recent years, the impact of Information and Communication Technology (ICT) in library environment influenced the Information Seeking Pattern by the users. Few studies have been identified in this direction and are as follows:

Chunke Su; Contractor, Noshir. (2011)\textsuperscript{114} study aim is to understand how consultants' information seeking from human and digital knowledge sources is influenced by their relationships with both types of knowledge sources and the characteristics of the knowledge domain in which information seeking takes place. Grounded on and extending transactive memory theory, this study takes a multidimensional approach to predict consultants' information seeking based on expertise recognition, source accessibility, peer information-seeking behaviors, knowledge complexity, and codifiability. Using data collected from 110 consultants across 9 project teams from 2 multinational consulting firms, this study found that consultants' information seeking from human knowledge sources was mostly driven by the expertise and accessibility level of their team members,
whereas their information seeking from digital knowledge repositories was strongly influenced by how much information the digital knowledge source had and whether colleagues with whom they had strong social communication ties were seeking information from the digital source. Finally, knowledge complexity had a negative influence on consultants' information seeking from digital knowledge repositories, but knowledge codifiability had no significant effects on information seeking from either knowledge source. This study demonstrates the importance and viability of using a multidimensional network approach to advancing transactive memory theory to study consultants' information-seeking practices.

Finn, Jeanine. (2011) How individuals share information with respect to politics and policy in networked research environments is an area ripe for interdisciplinary study. In this analysis, I explore some of the more current and salient research findings from several disciplinary literatures (communications, computer science, organizational behavior, information science, and public policy) to examine how current research perceives the influence of technology-aided communications on policy-making conversations. I suggest that a community-centric view, which takes into account online and offline group affiliations and their related power dynamics, is just as important as an individual-based unit of analysis. This understanding points to directions for the thoughtful creation of digital resources that appropriately reflect and support inter- and intra-group knowledge-sharing behavior.

Hahn, Jim. (2013) present the results of a usability study which inquired into undergraduate student information seeking with Wikipedia on the iPod touch. Data are drawn from iPod search logs and student survey responses. Search log data are coded with FRBR subject entities (group 3 entity sets) for analysis. Students characterize the overall nature of information searched for with the Wikipedia app to be for recreational and for short factual information. Recreational searching as a way in which undergraduate students utilize mobile technology is an earlier finding of Wikipedia iPod usage, and is verified as a trend of undergraduate student search using the iPod. All undergraduate student participants of the Wikipedia app on a mobile interface report this tool as helping to become more efficient in their research. Students viewed Wikipedia articles about
people and concepts more so than other article types. Undergraduate student mobile search log analysis over a specific type of information resource on the iPod Touch is an original usability project. Previous mobile search log analysis analyzes thousands of unknown users and millions of anonymous queries, where the devices used for searching are not always identifiable and trends about touch screens cannot be ascertained.

Kellar, Melanie; Watters, Carolyn; Shepherd, Michael (2007)\textsuperscript{117} examined various aspects of user behavior on the Web, including general information-seeking patterns, search engine use, and revisitation habits. Little research has been conducted to study how users navigate and interact with their Web browser across different information-seeking tasks. We have conducted a field study of 21 participants, in which we logged detailed Web usage and asked participants to provide task categorizations of their Web usage based on the following categories: Fact Finding, Information Gathering, Browsing, and Transactions. We used implicit measures logged during each task session to provide usage measures such as dwell time, number of pages viewed, and the use of specific browser navigation mechanisms. We also report on differences in how participants interacted with their Web browser across the range of information-seeking tasks. Within each type of task, we found several distinguishing characteristics. In particular, Information Gathering tasks were the most complex; participants spent more time completing this task, viewed more pages, and used the Web browser functions most heavily during this task. The results of this analysis have been used to provide implications for future support of information seeking on the Web as well as direction for future research in this area.

Cunningham, Reeves and Britland (2003)\textsuperscript{118} conducted an ethnographic study of music information seeking strategy and identified the implications for the design of a music digital library. The authors argued that the insights provided by this type of study can inform the development of searching / browsing support for music digital library.
Detlor and Arsenault (2002)\textsuperscript{149} proposed a model on the role of intelligent agents in facilitating the seeking and retrieval of information in Web-based library environments. The model suggests that Web-based information seeking and retrieval in library contexts could be enhanced through a collaborating network of interface and information agents.

Giannini (2002)\textsuperscript{120} conducted a comparative study on information seeking behaviour in real and virtual environment and measured quantitatively and qualitatively the ways in which user’s online search strategies and outcomes are impacted by differences in information environments, and is designed to compare a user’s information seeking behaviour in the real (library) and virtual (home or work).

Heidorn; Mehra and Lokhaiser (2002)\textsuperscript{121} developed complimentary, socially grounded, user-centred methodology for information seeking and designed information system to support bio-diversity informatics in the Biological Information Browsing Environment (BIBE).

Martey (2002)\textsuperscript{122} discusses the management issues involved in library networking, using GILLDDNET, the DANIDA/IFLA sponsored Ghana Inter-library Lending and Document Delivery Trial Project as a reference point in the discussion.

Msuya (2002)\textsuperscript{123} has examined the information seeking behaviour of faculty of Law in the University of Dar Es Salaam, Africa with an objective to find out how the faculty seek information in the light of changes introduced in the library, particularly the introduction of Information and Communication Technology (ICT) and reorganisation of library. This study recommends an increased sensitisation of library users on the range of new services offered by the library and intensification of user training, including outreaches programs.

Ng (2002)\textsuperscript{124} designed a model for information seeking behaviour with Human Computer Interaction (HCI). It was found that when the searcher’s situation changed
from problematic to non-problematic, the degree of plan deviation decreased significantly to treat information seeking behaviour as a special type of social action.

Pettigrew; Durrance and Unruh (2002)\textsuperscript{125} conducted a study of how public libraries use online community networks to facilitate public’s information seeking and use in everyday situations. These networks have been lauded for their potential to strengthen physical communities through increasing information flow about local services and events, and through facilitating civic interaction. The authors further discussed (1) how the public is using networked community information systems and the Internet for daily problem solving, (2) the types of barriers users encounter, and (3) the benefits for individuals and physical communities from public library-community networking initiatives and the emergence of “information communities”.

Spink; Ozmutlu and Ozmutlu (2002)\textsuperscript{126} conducted studies, which reveal that humans engage in multi-tasking behaviours as they seek and search Information Retrieval (IR) systems for information on more than one topic at the same time. Incidence of multi-tasking identified in the four different studies included: (1) users of the Excite Web search engine who completed a survey form, (2) Excite Web search engine users filtered from an Excite transaction log from 20 December; 1999, (3) mediated on-line databases searches, and (4) academic library users. Findings include multi-tasking information seeking and searching a common human behaviour; users may conduct information seeking and searching on related or unrelated topics; Web or IR multi-tasking search sessions are longer than single topic sessions; mean number of topics per Web search ranged of 1 to more than 10 topics with a mean of 2.11 topic changes per search session; and many Web Search topic changes ranged from hobbies to shopping and vice-versa. A more complex model of human seeking and searching levels that incorporates multi-tasking information behaviours is presented, and a theoretical framework for Human Information Coordinating Behaviour (HICB) is proposed.
Herman (2001)\textsuperscript{127} examined the transition to the electronic information era in academia and seeks to establish from the published literature as to what extent university researchers have accepted and adapted to the changes in information activity by seemingly endless technological developments. Within the wider context of the impact of the changing information environment on each of three clearly discernible components of academic research (the creation of knowledge and standards, the preservation of information, and the communication of knowledge and information to others) disciplinary rooted differences in the conduct of research and their influence on information needs are identified and the resulting inter and intra individual variations in researchers' information seeking behaviour are explored. Reviewing a large number of studies investigating the integration of electronic media into academic work, an attempt is made to paint the picture of academics progressively harnessing the new technologies to scholarly information gathering endeavours, with the expressed hope of affording some insight into the directions and basic trends characterising information activity of university faculty in an increasingly electronic environment.

Subba Rao (2001)\textsuperscript{128} identified the changes that libraries and information centres need to undergo for networking and lists the existing communication networks (INDONET, ERNET, NICNET, INET and so on) and library and information networks (INFLIBNET, DELNET, SIRNET, BONET, MYLIBNET, CALIBNET, MALIBNET and so on) in India. It also discusses the various governmental policies that led to the development of national information infrastructure, the inadequacies of the infrastructure, the status of IT application in government and the challenges in converting library contents into computer readable form.

Vagiswari and Louis (1998)\textsuperscript{129} proposed networking of astronomy libraries and resource sharing in India. The study has identified three models such as inter-connecting all astronomy library homepages, creating an integrated library database and establishing

55
connectivity using search-engine architecture. The study also identified the sources to share in the networking of astronomy libraries.

Seiden; Szymborski and Norelli (1997)\textsuperscript{130} surveyed in a heterogeneous environment studying the information seeking behaviour of the undergraduate students in the digital library at Skidmore College, New York. The study was designed to assess students’ information seeking behaviour in general; elicit information about the search process; and discern how students had acquired their knowledge of online searching and their level of expertise with online searching, computer applications and libraries. The results indicate that most undergraduates have a relatively poor understanding of the information environment and that the “digital library” exaggerates and magnify these problems.

2.7 INFORMATION SEEKING PATTERN MODELS

Al-Suqri, Mohammed Nasser (2011)\textsuperscript{131} explained that the models of information-seeking behavior are based almost entirely on research conducted in Western countries, and were generated at a time when electronic methods of information-seeking were still uncommon. This study develops an integrated model of social science information-seeking behavior based on a synthesis of established models and tests the ability of this integrated model to describe present-day information-seeking among social science scholars in a Middle Eastern university. The research was based on e-mail interviews, face-to-face interviews and focus groups conducted with social science faculty at Sultan Qaboos University in Oman. At the time of data collection in June–July 2007, there were approximately 367 social science faculty at this University, distributed throughout the College of Arts and Social Sciences, the College of Education, the College of Commerce and Economics, and the Law College, including both men and women and representing a range of academic ranks. The data from the e-mail interviews, face-to-face interviews, and focus groups are analyzed using qualitative content analysis. The researcher used a qualitative analysis software program, NVIVO, to facilitate the process of analysis. Initially, the responses are examined and a preliminary set of themes created. Then, the responses are re-examined and coded according to the preliminary themes, with
additional themes added as necessary. It was found that the information-seeking practices of the study sample could be readily matched to the stages of the model, suggesting that, in general terms, information-seeking behavior follows universally applicable stages, and that the model can be applied to current-day information-seeking despite changes in the information environment. The findings also provided support for the inclusion in the model of additional dimensions relating to the format and location of information resources, since these contextual factors were found to have an important influence on the process of information-seeking among the study participants. It is hoped that this study will make a contribution to the future development of an expanded knowledge base which will underpin library and information science in the 21st century.

Fainburg, Linda Isabella (2009) explained that the how the users' information need could be compared with a learning, knowledge and research need where the purpose of information seeking is to find relevant information in relation to the fulfilment of a specific goal and information need in order to become information literate. By theoretical considerations and studies of research literature an analysis and comparison of Kuhlthau's ISP-model and Dewey's problem solving model are presented. According to epistemological pragmatism information seeking is primarily a process of finding relevant and useful information in relation to the fulfilment of a specific research need. This can be accomplished by a combination between rationalistic thinking and action. Therefore the paper states that pragmatism is a fruitful epistemological view for library and information science research and practice. This paper presents, compares, and discusses Kuhlthau's ISP-model and Dewey's problem solving model. First, it is clear that both Kuhlthau and Dewey are focusing on the close relationship between thinking and action where both information seeking and problem solving is considered a learning process. Second, both Kuhlthau and Dewey find that information seeking is easier when the problem is more focused or the hypothesis more verified. However, when Kuhlthau rather extensively pays attention to the feelings of uncertainty during the ISP, Dewey finds only that problem solving initiates uncertainty and perplexity. The paper may provide guidelines for academic libraries interested in developing their information literacy program. Originality/value-This paper points out that further epistemological, theoretical and empirical investigations of the relationship between Kuhlthau's ISP-model and Dewey's problem solving model are necessary. In particular, further investigations of
specific user groups of Research Libraries and their information seeking and problem solving are important in order to optimize Research Libraries' educational programmes.

Ansari, Muneera Nasreen (2008) Information need arises in the mind of any individual. It is a mental process, which occurs in the mind of the use, or he/she perceives in his mind to satisfy their needs. They search information through information channel such as library, information centre, on line service or some other persons. This pattern is called "information seeking behavior". It means seeking information to fulfill the need for some purpose or to accomplish a task. The study of information seeking behavior is essential for development of information system and designing of library services. Some of them are general and are for specialized user. The article presents a brief sketch of information seeking models and review these models in which interaction of different components are studied.

Mansourian, Yazdan; Ford, Nigel; Webber, Sheila; Madden, Andrew (2008) This paper aims to encapsulate the main procedure and key findings of a qualitative research on end-users' interactions with web-based search tools in order to demonstrate how the concept of "information visibility" emerged and how an integrative model of information visibility and information seeking on the web was constructed. The study was formed of three parts. The first looked at conceptions of the Invisible Web; the second explored conceptualisations of the causes of search success/failure; the third organised the findings of parts 1 and 2 into a series of theoretical frameworks. Data collection was carried out in three phases based on interviews with a sample of biologists. The first part led to the development of a model of information visibility which suggests a complementary definition for the Invisible Web. The results also showed the participants were aware of the possibility that they had missed some relevant information in their searches. However, perceptions of the importance and the volume of missed information varied, so users reacted differently to the possibility that they were missing information. The third part indicated the "Locus of Control" and "Attribution Theory" that can help us to better understand web-based information seeking patterns. Moreover, "Bounded Rationality" and "Satisficing Theory" supported the inductive findings and showed that
users' estimates of the likely volume and importance of missed information affect their decision to persist in searching. Research limitations/implications - The study creates new understanding of web users' information seeking behaviour which contributes to the theoretical basis of web search research. It also raises various questions within the context of library and information science practice to know whether, and if so how, we can assist end-users to develop more efficient search strategies and satisfactory approaches. Originality/value - The research adopted a combination of inductive-deductive methods with a qualitative approach in the area of information seeking on the web which is mainly dominated by quantitative studies.

Beverley, C. A.; Bath, P. A.; Barber, R (2007)\textsuperscript{135} Purpose of their study was to determine the extent to which two existing models of information behaviour explained the information behaviour of visually impaired people seeking health and social care information. Methodology in the research was conducted within a constructivist paradigm. A total of 28 semi-structured interviews (face-to-face or telephone) with 31 visually impaired people were conducted. Framework analysis was used to analyse the results. Findings — the study identified several factors that may affect a visually impaired person's information behaviour. These related to the presence of other health conditions or disabilities, participants' understanding of the word 'information', their interactions with information providers, their degree of independence, the support they received from friends and family, their acceptance of their own visual impairment, as well as their awareness of other visual impairments, their registration status and their willingness and ability to pay for aids, adaptations and equipment and the study provides a new and valuable insight into the information behaviour of visually impaired people, as well as testing the applicability of a specific and generic information model to the information behaviour of visually impaired people seeking health and social care information.

Godbold, Natalya (2006)\textsuperscript{136} in a paper is to propose new models of information behaviour that extend the concept beyond simply information seeking to consider other
modes of behaviour. The models chiefly explored are those of Wilson and Dervin. Argument A shortcoming of some models of information behaviour is that they present a sequence of stages where it is evident that actual behaviour is not always sequential. In addition, information behaviour models tend to confine themselves to depictions of information seeking. Development. A model of ‘multi-directionality’ is explored, to overcome the notion of sequential stages. Inspired by authors such as Chatman, Krikelas, and Savolainen, modes of information behaviour such as creating, destroying and avoiding information are included. New models of information behaviour are presented that replace the notion of ‘barriers’ with the concept of ‘gap’, as a means of integrating the views of Wilson and Dervin. The proposed models incorporate the notion of multi-directionality and identify ways in which an individual may navigate ‘gap’ using modes of information behaviour beyond information seeking.

Ikoja-Odongo, Robert; Mostert, Janneke (2006)\textsuperscript{137} defining information, information needs, information seeking and information use have undergone significant evolution since they were first introduced. A number of information seeking and retrieval studies seem to focus on these concepts, albeit in different ways. It is widely understood that concepts form the basis for describing and explaining phenomena and processes in a field of study. Within the field of Information Science, many of the concepts used need to be understood in terms of research context, as a variety of meanings can be attached to most concepts. The article specifically aims to review major studies (e.g. Wilson 1981, 1996; Krikelas 1983; Ellis 1989; Kuhlthau 1991) and information searching and retrieval (Ingwersen 1996: Choo, Detlor and Turnbull 1999, 2000) that focus on these concepts for greater clarity and an understanding of their relationship and application in LIS research. This in turn may be of interest to researchers and students within this field. The article concludes that context should be the foundation for any research within this field, with the observation that many of the models discussed describe general information seeking behavior, without catering for variations.

Shin-Jeng Lin; Belkin, Nick (2005)\textsuperscript{138} The article develops and validates a theoretical model that explains successive search experience for essentially the same
information problem. The proposed model is called Multiple Information Seeking Episodes, which consists of four dimensions: problematic situation, information problem, information seeking process, episodes. Successive searches over multiple sessions are common among many users in organizations. However, traditional Information Retrieval systems provide very little support for the successive search behavior because they assume either that an information seeker must resolve his/her information problems in a single search episode and/or that information seeking activities in different episodes are unrelated. The continuity and accumulation of knowledge states of information seekers are not accounted for in these information systems. As a consequence, each search episode within the same information system is independent from others, starting with a brand new state. The search efforts of the users are not preserved in these systems, and the opportunities for assisting the continuous development of information problems over time and for making overall search more efficient and effective are lost.

The concepts of interaction and interactivity presented in different theoretical models in the fields of human-computer interaction and information seeking / searching behaviour has been explored by Beaulieu (2000) and related to information retrieval research.

Nicholas and Martin (1998) outlined a structure for analysing information needs. The purpose of the structure is to enable data on users to be collected in a systematic and routine manner. The form of analysis is demonstrated through a consideration of the information needs of newspaper journalists. Aspects of information need considered are: subject, nature, function, viewpoint, authority, quantity, quality, and place of origin, speed of delivery and processing / packaging. The study considers the barriers in meeting information needs and training, time, resources, access and information overload. It also assesses the library's role in meeting information needs.

Wilson (1997) reviewed the literature of information seeking behaviour in a variety of disciplines, other than Information Science and presented a general model of information seeking behaviour.

Leckie; Pettigrew and Sylvain (1996) developed a general model of information seeking and practices of three groups such as engineers, health care professionals and
lawyers based on the six components such as work roles, associated tasks, characteristics of information needs, awareness, sources and outcomes.

Bystrom and Jarvel (1995)\(^{143}\) revealed that a person's information seeking depends purely on task complexity, and further indicated the systematic and logical relationships among task complexity, types of information, information channels and sources.

Ellis (1993)\(^{144}\) focused on the employment of the grounded theory approach to derive models of the information seeking patterns of academic researchers.

Kuhlthau (1991)\(^{145}\) described the user's perspective of information seeking and derived a model of the information search process.

2.8 OTHER STUDIES RELATED TO INFORMATION SEEKING BEHAVIOUR

Wellstead, Peta (2011)\(^{146}\) in a paper discusses the findings of a qualitative study into the information behaviour of a group of Australian men who had experienced a stressful life event. It examined sources of information and the gaps and barriers experienced in the information search. The information value of social networks and confidants was explored. The Methodology followed was the Sense-making interviews were conducted with fifteen men who had experienced a period of significant life stress. A self-report sheet was used to collect additional data from the help-seeking men. A semi-structured interview was held with six professionals who offer information and help to members of the community. Interview transcripts were examined for themes within the help-seeking episode. A thematic analysis was also undertaken in the interviews with the professionals. Results indicate the use of a variety of information behaviour strategies, including avoidance, during stressful life events. A key finding is the important role of women in assisting men's information behaviour both in terms of facilitating help-seeking, and assisting men to stay on task during help-seeking. These findings indicate the need for greater understanding of the information behaviour of men experiencing
stressful life events. The findings have implications for health policy, particularly the development of support services for men.

Connaway, Lynn Sillipigni; Dickey, Timothy J.; Radford, Marie L (2011)\textsuperscript{147} In today's fast-paced world, anecdotal evidence suggests that information tends to inundate people, and users of information systems want to find information quickly and conveniently. Empirical evidence for convenience as a critical factor is explored in the data from two multi-year, user study projects funded by the Institute of Museum and Library Services. The theoretical framework for this understanding is founded in the concepts of bounded rationality and rational choice theory, with Savolainen's (2006) concept of time as a context in information seeking, as well as gratification theory, informing the emphasis on the seekers' time horizons. Convenience is a situational criterion in peoples' choices and actions during all stages of the information-seeking process. The concept of convenience can include their choice of an information source, their satisfaction with the source and its ease of use, and their time horizon in information seeking. The centrality of convenience is especially prevalent among the younger subjects ("millennials") in both studies, but also holds across all demographic categories—age, gender, academic role, or user or non-user of virtual reference services. These two studies further indicate that convenience is a factor for making choices in a variety of situations, including both academic information seeking and everyday-life information seeking, although it plays different roles in different situations.

Thivant, Eric; Douzidi, Laïd (2008)\textsuperscript{148} Introduction. Information sources play a key role for information seeking and use behaviour. We analyse the relationship between information sources and information seeking and use behaviour. Method. Within a social psychology framework, we use social representation method and have interviewed seventeen financiers, using a qualitative method that underlines the relationship between information sources, professional contexts and strategies. Analysis. The data were analysed using the APRIL resemblance analysis software package to establish the linkages between information sources in the perceptions of the financiers. Results. Thus, this study demonstrates that the analysis of information sources in details with the professional context can help us to explain information specific practices. These findings have implications for developing new information systems and better understanding information seeking and use behaviour.
Nicholas, David et al (2009)\textsuperscript{149} in the study showed a distinctive form of information-seeking behaviour associated with students and differences between them and other members of the academic community. For example, students constituted the biggest users in terms of sessions and pages viewed, and they were more likely to undertake longer online sessions. Undergraduates and postgraduates were the most likely users of library links to access scholarly databases, suggesting an important "hot link" role for libraries.

Vessosi, Monica (2009)\textsuperscript{150} found that the doctoral students rely heavily on the internet for their research work. They appreciate simple and easy research tools and their use of the library is limited to a few services, such as document delivery and inter-library loan. People play a crucial role in doctoral students' information behaviour mainly in terms of suggesting relevant documents. Students demonstrate progress throughout the years of their doctorate course in terms of awareness and information competence.

Savolainen, Reijo (2009)\textsuperscript{151} found that both research approaches share the assumption that interpreting, relating and comparing qualities of things is fundamental to the information use process.

Jamali, Hamid R. and Nicholas, David (2008)\textsuperscript{152} in the study reveals differences among subfields of physics and astronomy in terms of information-seeking behaviour, highlighting the need for and the value of looking at narrower subject communities within disciplines for a deeper understanding of the information behaviour of scientists.

Ostrander, Margaret (2008)\textsuperscript{153} found that the Information seeking behaviours within the virtual world of Second Life were found to be rich, complex interaction with multiple facets. Five themes emerged to illuminate how users seek information.

Sundin, Olof (2008)\textsuperscript{154} found the four approaches to information literacy emerge in the results: a source approach, a behaviour approach, a process approach, and a communication approach. The approaches entail different perspectives on information literacy. They impart diverging understandings of key concepts such as "information", "information seeking" and the "user".
Harland, Juliet and Bath, Peter (2008) \(^{155}\) in their study found that two dominant paradigms in information science research that were identified involved system-centre and user-centre approaches. System-centred approaches and studies are limited in that they have made assumptions on the types of information that people may require, the way in which information should be provided, the timing of information provision and have homogenous treated groups, failing to take account of individual preferences. In contrast, user-centred approaches recognise the unique needs of individuals and that information needs are subjective and affected by a variety of factors. User-centred models of information behaviour, particularly Dervin's sense-making theory and Wilson's Information Seeking Behaviour Models, could be useful in developing a better understanding of the information behaviours of careers of people with dementia and concluded that adopting a user-centred approach to study the information behaviours of careers of people with dementia will take account of individual needs. Testing existing models of information behaviour within this group may help develop interventions to meet the needs of individual careers and people with dementia.

Shenton, Andrew K (2008) \(^{156}\) found that the inductive coding of the data revealed that over 20 individual problems were apparent. The most frequently mentioned was an inability to locate the desired information. Some of the other issues related to information use rather than information-seeking.

Mansourian, Yazdan et al (2008) \(^{157}\) discussed the first part led to the development of a model of information visibility which suggests a complementary definition for the Invisible Web. The results also showed the participants were aware of the possibility that they had missed some relevant information in their searches. However, perceptions of the importance and the volume of missed information varied, so users reacted differently to the possibility that they were missing information. The third part indicated the "Locus of Control" and "Attribution Theory" that can help us understand web-based information seeking patterns better. Moreover, "Bounded Rationality" and "Satisficing Theory" supported the inductive findings and showed that users' estimates of the likely volume and importance of missed information affect their decision to persist in searching.

Porter, Maureen and Bhattacharya, Siladitya. (2008) \(^{158}\) in their study of twenty-seven couples who agreed to participate 25 couples were followed up, of whom 11 were
diagnosed with unexplained infertility. The women were aged between 22 to 41 years. All hoped to be given information on helping themselves to achieve pregnancy, spontaneous or assisted, and 19 of the 25 couples became pregnant. Most couples were dissatisfied with the written and verbal information routinely provided by the fertility clinic because it suggested lifestyle changes they had already attempted to adopt. They sought additional information from the internet, books and magazines. Those who became pregnant were generally empowered by the experience and thought that it had helped them to conceive. Women who were still undergoing treatment however, sometimes became distressed, blaming themselves for failing to follow the lifestyle advice provided and concluded that, couples, especially those diagnosed with unexplained infertility, seek information to help themselves conceive, but only those who succeed find it an empowering experience.

Phua, Jason and Lim, T. K. (2007)\textsuperscript{159} found the following results in the in study. In total of 134 doctors who returned the completed questionnaires (response rate 79.8\%) spent most of their time using traditional resources like teaching sessions and print textbooks, rating them as most useful. However, electronic resources like MEDLINE, UpToDate, and online review articles also ranked highly. Original-research articles were less popular and concluded that residents and interns prefer traditional sources of medical information. Meanwhile, though some electronic resources are rated highly, more work is required to remove the barriers to evidence-based medicine.

Marcella, Rita et al (2007)\textsuperscript{160} studied the information-seeking behaviour and skills of the PDC clients are discussed, as are the criteria by which they assess information quality. The study revealed that users were frequently uncritical and pragmatic in use of the most readily available information, sacrificing quality in favour of ease to access.

McCaughan, Eilis and McKenna, Hugh (2007)\textsuperscript{161} in their study discussed the results that a substantive theory describing the transitions from 'being traumatized' by the diagnosis, through a phase of trying to 'take it on', to 'taking control'. It provides a theoretical framework to understand newly diagnosed cancer patients' change, varied and continuing needs and their efforts to regain some control of their lives. Their information-seeking behaviour seemed a journey of 'never-ending making sense' with ongoing discovery and new information needs as they struggled with the effects of the disease and treatments and they concluded that the processes and stages identified in this study
provide nurses with a framework to assess the readiness of patients to receive information and to assist them in their efforts to regain some degree of control over their disease and their lives.

McCaughan, Eilis and McKenna, Hugh (2007)\textsuperscript{162} found that the five themes emerged from the data. These were: 'experiencing discomfort in the health care setting', 'reliance on partners as information gatherers', 'reluctance to explore a range of information sources and support', 'unmet information needs' and 'getting back to normal'. Together, they provide a perspective on men's information needs and information-seeking behaviour and concluded that, the healthcare professionals should be aware that there may be gender differences in how patients cope with their cancer, how they seek information and what information needs they have. Further training and preparation in 'men's health' is recommended for all those working with men in cancer care.

Cowan C and Hoskins R (2007)\textsuperscript{163} in their study took a cross-sectional survey to identify a possible relationship between the information-seeking behaviour of patients receiving chemotherapy for breast cancer with source, type, amount and satisfaction of health information accessed. The sample (n=36) was drawn from the medical oncology department of a large city centre teaching hospital. Participants were recruited through consecutive attendance to the medical oncology department. Eighty-six patients were invited to participate (response rate 42%). An anonymous self-report questionnaire and the Miller Behavioural Style Scale were used to measure attitudes towards 10 different sources of information and identify the information-seeking behaviour. The study found that high information-seeking behaviour influenced the type of information sources used to find out about chemotherapy, but did not influence the level of satisfaction with the information sources used. Healthcare professionals were the most frequently used sources of information, but the majority of the samples used a variety of information sources. The Internet was the most frequently used mass media source of information (50% of the sample), especially by those under 50 years old (\(P=0.033\)). Patients' behavioural signature needs to be considered when addressing their information needs. Oncology services need to provide patients with details of high-quality recommended websites to access information regarding chemotherapy.

Prigoda, Elena and McKenzie, Pamela J (2007)\textsuperscript{164} found that the information practices and contextual factors are mutually constitutive. The location of the circle in a
public library, the physical characteristics of the act of knitting, and the social meanings of the activities taking place within the group, including the significance of gender and caring, are integrally linked to HIB in this setting. Findings are described verbally and illustrated through a model.

Beverley, C.A., Bath, P.A. and Barber, R (2007) in their study identified several factors that may affect a visually impaired person's information behaviour. These related to the presence of other health conditions or disabilities, participants' understanding of the word "information", their interactions with information providers, their degree of independence, the support they received from friends and family, their acceptance of their own visual impairment, as well as their awareness of other visual impairments, their registration status and their willingness and ability to pay for aids, adaptations and equipment.

Tilburt, Jon C et al (2007) in the study found the four themes of information exchange behaviour emerged: (i) questioning behaviours that were used as part of the communication process in which the resident and attending doctor could reason together; (ii) searching behaviour of non-human knowledge sources occurred in a minority of perception interactions; (iii) unsolicited knowledge offering and (iv) answering behaviours were important means of exchanging information and concluded that the most clinic interactions between resident and attending doctors relied heavily on spoken deliberation without resorting to the scientific literature or other published information resources. These observations suggest a range of factors that may moderate information exchange behaviour in the perception context including relationships, space and efficiency. Future research should aim to more readily adapt information resources to the relationships and practice context of perception.

Timmins, Fiona (2006) in the study identifying information needs is frequently espoused in textbooks, policy documents and reports of research studies; provision of health-care is also now described as 'needs-based', rather than 'service-based'. Yet, there is little understanding or clear definitions of this construct in the literature on the topic. The purpose of this paper is to explore the concept of information need using concept analysis with the aim of providing greater clarity. Rodgers' evolutionary approach to concept analysis was used to identify common attributes, antecedents and consequences,
of the term 'information need': Information need emerged as a want or desire for information to be shared by professionals using appropriate communication skills. Information-seeking behaviour manifests in individuals as a response to a stimulus that is perceived as either a challenge or a threat. This attempt to provide a greater clarification of the term was prompted by the ubiquitous use of the term with little consistent definition. It is hoped that this conceptual clarification will help guide further study in this area, particularly in relation to the subjective nature of contemporary information needs and its role in coping with behaviours of individuals and groups.

Wilson, T. D. (2006)\(^{168}\) in his paper explores the nature of information-seeking behaviour, showing how behaviour in relation to electronic databases and the World Wide Web may be formed through previous experience of non-electronic sources, such as the telephone directory and the book index. Models of information-seeking behaviour are presented and the difficulties experienced by people in discovering how to search for information are explored with reference to research in information science.

Wilson, T. D. (2006)\(^{169}\) in his paper finds that the problem seems to lie, not so much with the lack of a single definition, as with a failure to use a definition appropriate to the level and purpose of the investigation.

Pors, Niels Ole (2006)\(^{170}\) found was evidence from the research that students do not bypass the physical library and it is also evident that the use of physical libraries and digital resources complement each other. The place of Google in the students' information behaviour is prominent and positively correlated to use of traditional library resources. Nearly 60 per cent of all students use the local public library for study purposes. Small groups consisting of 7 per cent of the students use the public library as their only information source for study purposes. One of the more striking findings is that the service level of public libraries in relation to study topics appears to be very uneven, which means that different groups of students have very varied probabilities of success using the public library. The data also indicates that students tend to look at libraries as a whole and do not make clear distinctions between different types of libraries, expecting the whole system to be seamless. The paper also relates to the findings to the general body of literature on students' information seeking behaviour.
Callianan, Joanne E (2005)\textsuperscript{171} in the study, highlights the positive aspects of seeking information from the student's perspective as well as the barriers they encountered when seeking course-related information. The findings show that there are differences in the extent to which sources of information are used by students in different years of their studies. Apart from web sites and web-based lecture notes, lack of awareness is the primary reason why undergraduate biology students did not use the library's electronic databases.

Boissin, F G (2005)\textsuperscript{172} in the study revealed that most of the GPs interviewed were equipped with a computer. The policies of the government were supposed to give financial incentives for GPs to start using computers for the management of administrative procedures, but many physicians do not know how to use the new tools properly. Their computers are, in most cases, underused for searching medical information. Most of the time, the Internet sources are thought to be unreliable and concluded that the study sheds light on the use of computers and the preferences of GPs in searching for medical information.

Lee, Shu-Shing, Theng, Yin-Leng and Goh, Dion Hoe-Lian (2005)\textsuperscript{173} in their study stated the evidence gathered from the scenarios seemed to indicate that the type of information seeking task may have an impact on the extent to which an information seeker exhibits all stages in the framework. This is an on-going research. Part II of this paper aims to conduct empirical studies and gather evidence to verify the framework and examine this observation in more detail.

Sangam (1989)\textsuperscript{174} studied the information use pattern of researchers in the field of Psychology as indicated by citations in the doctoral theses submitted to the Karnataka University, Dharwad, 1982-84. The study also identified the use of different sources of information, important journals and their availability of Karnataka University Library, the obsolescence of literature and applied the Bradford's Law of Scattering.

Ngah and Sze (1997)\textsuperscript{175} presents a quantitative analysis of 100 references retrieved on the information use and needs of humanities researchers, consisting of
journal articles (57%), dissertations (26%), conference proceedings (11%) and books (6%). Three journal titles were found to contribute more than one third of the articles on this subject. About 88% of the dissertations are doctoral theses submitted to universities in USA. About 15% of the retrieved items were published between 1980-89 which form the peak of studies in this area and the situation stabilises to an average of about 2 studies a year in the post 1990. The bulk of the studies are about characteristics of information sources used and of these citation studies are predominant. The review studies fall under 3 categories namely the library and humanities scholars; research and information seeking behaviour of the humanities researchers and the characteristics of sources used.

2.9 STUDIES RELATED TO PERSONALITY

Pickering and Gray (2001)\textsuperscript{176} No clear neurological ground can be found for it, although attempts have been made to describe the basis of personality in terms of neurophysiology or cortical dopamine activity.

Neyer (2000)\textsuperscript{177} Personality, furthermore, changes over lifetime, until after the age of 50, remains fairly stable.

Neyer, (2000)\textsuperscript{178} Neuroticism and openness to experience tend to decrease over time, while self-esteem, conscientiousness and agreeableness tend to increase. Extraversion and sociability are likely to stay the same.

Fisher and Kent (1998)\textsuperscript{179} found significant associations between teacher personality type and perceptions of classroom environment. For example, both students and teachers perceived greater student cohesiveness in classes taught by extraverted teachers.

Costa and McCrae, (1992)\textsuperscript{180} Changes in personality are usually consequences of major life changes or deliberate effort.
Barrett (1991)\textsuperscript{181} shows that certain personality types have a positive relationship to a number of important teaching effectiveness competencies and that certain styles have greater ease or difficulty in achieving high effectiveness scores.

Goldsmith (1989)\textsuperscript{182} Most personality theories agree that personality traits are consistent patterns of behaviour over time and across situations

Rowe (1989)\textsuperscript{183} Research has shown that personality traits are likely to remain stable over the course of time and cannot be said to be only situation or construction-bound.

Kagan and Grandgenett (1987)\textsuperscript{184} observe that a sizeable body of empirical research reveals consistent relationships between teachers' personality traits and their preferred instructional style.

Ryckman (1982)\textsuperscript{185} The concept of personality must be hypothetically understood.

Tonelson (1981)\textsuperscript{186} suggest that teacher personality can affect student learning outcomes via the psychological environment of the classroom.

Costa and McCrae (1980)\textsuperscript{187} the changes which reflect events and feelings during the lifespan only affect the surface and not the core character. The expressions of personality also vary according to age. The same activity level may enhance an interest for football at a young age and gardening in the later days.

Costa and McCrae (1980)\textsuperscript{188} at every point in life there arises a certain challenge in one's personality development. This development is individual and depends on the environment and personal interests. It is important that the individual adapts to his circumstances in life at the same time retain his feelings of a solid inner core. Some adaptations seek to be general and follow a certain pattern. Sensation seeking is one example of characteristics which diminish over time from adolescence to middle age in all cultures.
Lorentz and Coker (1977)\(^{189}\) found significant relationships between teachers' scores on the MBTI and the behaviour of their students, concluding that teacher personality influenced the way in which students reacted in class.

Cattell (1950)\(^{190}\) states that there are personality traits of different depths. The innermost layer is the basis and is hard to change, while the outermost layer is situation-bound and influenced by, for example, tiredness. A tired person might accordingly heave in a way that is not like his true self.

2.10 STUDIES RELATED TO PERSONALITY AND INFORMATION SEEKING BEHAVIOUR

Each theory of human information processing should account for differences in personality and motivation since they influence individual differences in information behaviour. Personality traits, as well as emotional states, have a direct impact on the storage of information in the brain. They influence the detection, encoding, storage, retrieval as well as the integration of information (Revelle, 1995)\(^{203}\). Even though the concept of information in the sense of perception and processes in the brain is interesting, this perspective falls outside the focus of the present study, which is limited to information in a broader and more visible sense.

Kwon, Nahyun and Song, Hana (2011)\(^{191}\) in their research examined the influence of personality traits on information competency. Furthermore, it seeks to determine whether or not gender moderates the relationship between personality traits and information competency. Data was collected using standardized survey instruments, including Costa and McCrae's NEO-Five Factor Inventory. The surveys were administered to a convenient sample of 185 college students at a large public university in the south eastern United States. The study results show that three of the five personality traits were significant determinants of information competency among the population sample. Those students, who are more conscientious, openness to experience, and extroverted tended to report greater information competency than students who are not. Neither neuroticism nor agreeableness was identified as determinants. Revealing the moderating role of gender, the study uncovers gender-specific personality traits that affect information competency. Specifically, the study finds extroversion to be a male-specific
trait and openness to experience a female-specific trait. The results identify conscientiousness as the most consistent and robust determinant of information competency across both genders. The concluding analysis relates the findings’ implications to information literacy.

Tech, Pei-Lee et al (2011)\(^ {192}\) in their study aims to develop an integrative understanding of the Big Five Personality (BFP) factors supporting or inhibiting individuals’ online entertainment knowledge sharing behaviours. Survey data are collected from 255 university students from two Malaysian universities. As hypothesized, structural equation modeling shows that extraversion and neuroticism are positively related to the attitude towards knowledge sharing. Openness to experience is found to have an inverse relationship with the attitude towards knowledge sharing. Subjective norm is positively related to the attitude towards knowledge sharing. Both attitude towards knowledge sharing and subjective norm are found to be independently and significantly related to the intention to share knowledge, which significantly influences the knowledge sharing behaviour. The research model proposed in the present study is useful to other researchers seeking to understand the personality factors that influence the knowledge sharing behaviour among the organizational communities. The results of this study provide empirical evidence for a new model that shows that the BFP factors are implicated in individuals’ knowledge sharing behaviour. This study and its findings have filled the research gap in the literature of the BFP factors and knowledge sharing behaviours. Furthermore, the inclusion of the BFP factors in the Theory of Reasoned Action framework is an important distinction that other studies have not established.

Santoshi Halder, Anjali Roy and Chakraborty, P K (2010)\(^ {193}\) in their study undertook with the objective to explore the influence of the five personality dimensions on the information seeking behaviour of the students in higher educational institutions. Information seeking behaviour is defined as the sum total of all those activities that are usually undertaken by the students of higher education to collect, utilize and process any kind of information needed for their studies. Data collected was from 600 university students of the three broad disciplines of studies from the Universities of Eastern part of India (West Bengal). The tools used for the study were General information schedule (GIS), Information Seeking Behaviour Inventory (ISBI) and NEO-FFI Personality Inventory. A product moment correlation was worked out between the scores in ISBI and
those in NEO-FFI Personality Inventory. The findings indicated in the study that five personality traits are significantly correlated to all the dimensions of information seeking behaviour of the university students.

Fidel (1991)\textsuperscript{212} has in the Library and Information Science (LIS) context called for more research into the influence of personality on information seeking behaviour. One tradition, which has studied personality within LIS, has focused on the personality of librarians. Goulding et al. (2000)\textsuperscript{194} showed that LIS students tend to be dominant, relaxed, sensitive and insecure to their personality, whereas Afolabi (1996)\textsuperscript{201} described librarians as social, investigative and enterprising. Webreck, Fine and Wools (1985)\textsuperscript{228} showed librarians as introverter and judgements. The age, length of employment and position of the librarians were however more decisive to their information richness than their personality.

Kernan and Mojena (1973)\textsuperscript{232} studied university students’ information utilization in a problem solving process. The results showed that the participants’ utilization of information could be grouped into three groups according to their information behaviour and personality. The ritualistic group used a considerable amount of information in their problem solving. They were responsible and persistent but lacked confidence in themselves and others. Their persistent character and doubt of own abilities made them exaggerate the information seeking. The efficacious group obtained average results on both information seeking amount and personality trait scores. The venturesome group used only 15\% of the available information, which is about a third of the amount used by the ritualistic group. These students were risk-taking, self-confident, dominant and social to their personality. They had a great distaste for routines.

The influence of personality on information seeking has mainly been studied in a database search context, where personality has been shown to influence search styles. Some people start their searches by developing a search strategy, while others browse known sources (Bruce, 1994)\textsuperscript{208}. Personality and cognitive style may moreover, influence preference for certain search keys. The selection of search keys is usually due to a combination of a particular search situation with its specific needs and the seeker’s personal search style (Fidel, 1991)\textsuperscript{213}. Personality type may also influence preference for interface type. Graphic interfaces are generally preferred over character interfaces, but
those who find character interfaces rewarding can be described by the Jung (1941)\textsuperscript{333} as introverted, sensing, thinking and judging (Gaff, 1994)\textsuperscript{209}.

Bellardo (1985)\textsuperscript{229} has compared personality as measured by the Interpersonal Disposition Inventory to the way students searched the DIALOG database. She found that the longer be the experience of the searcher, the lesser it influenced his personality was on his database searches. The differences would probably have been more evident at an earlier stage of database searching, where shyness and weak self-esteem may influence database searching negatively. There are, though, some characteristics, like verbal, creative and critical thinking which seek to influence search performance regardless of experience or training. These abilities form a good base but are not necessities for well performed database searches (Bellardo, 1985)\textsuperscript{230}. A weakness of research where personality is related to search behaviour is that the scope is only the actual database search. The impact of personality is more likely to be evident in other types of information seeking behaviour.

Palmer (1991)\textsuperscript{214} took on a broader perspective of information seeking and showed that information behaviour of scientists could be related to different needs of control. She grouped their information behaviour according to effort in information seeking, relaxation or anxiety related to information under- or oversupply, need of control over information supply and broadness of information seeking. Information overload described active, organized but were also flexible searchers with a large number of contacts and broader interests. They used many information seeking strategies and searched in many sources. The Information entrepreneurs felt less control and did not use any particular search strategy. Their personal contracts were their major sources of information. The Information hunters were active and needed to feel in control. They were well-organized with predictable patterns of information seeking. The Information pragmatists searched information only occasionally when they had a specific need for it. They were not worried about control and had no regular patterns of information seeking. The Information plodder spent little time on information seeking. They relied on their own knowledge and resources or those of others. They were not worried about information supply and did not need it in order to feel in control. The Information derelicts had no systems for searching or organizing information. They did not feel they
needed information. When they were confronted with new information, they felt overwhelmed and gave up.

The inner locus of control, the belief that we have control over and can influence our lives, leads to problem-focused coping and an active search for information. Active information seeking can besides this be a means to reduce feelings of insecurity in threatening situations (van Zuuren and Wolfs, 1991)^215. The inner locus of control has been assumed to be related to library use, which can be an expression of active information seeking. The connection between library use and inner locus of control has however, not been found (Powell, 1984)^211. On the contrary, Hatchard and Crooker (1990)^218 have shown a relationship between the outer locus of control, the belief that forces beyond our control are the most influential factors in our lives, and library use.

Critical information judgment is an increasingly important ability in the information society. Creativity is the base for the exploration of alternatives, whereas the evaluation of the alternatives requires critical thinking. The creative thinker can see beyond the obvious and produce new ideas. The critical thinker reviews and evaluates the already existing. Critical and creative thinking should be combined to guarantee optimal thinking skills (Callison, 1998)^196.

Personality traits that can be related to critical thinking are inquisitiveness, systematical thinking, analyticity, truth seeking, self-confidence and maturity (Facione et al., 1995)^204. Skills like detecting structure and questioning have been related to low neurotism, inner security and high academic confidence (Schouwenburg and Kossowska, 1999)^195. Critical thinkers usually see the opportunities and choices in life and rely on their own ability to influence things (Brookfield, 1987)^224. A condition for critical and creative thinking is that the person is open-minded and able to reflect on other opinions than his/her own (Callison, 1998)^197. Critical thinkers are often innovators who try to think of new alternatives to old ways (Brookfield, 1987)^225. The five-factor model personality trait Openness to experience is linked to critical evaluation, questioning and analysing arguments (Blickle, 1996)^202. Five of seven scales, truth seeking, open-mindedness, self-confidence, inquisitiveness and cognitive maturity, of the California Critical Thinking Disposition Inventory (CCTDI) have shown significant correlation with
the openness to experience scale. The CCTDI as well as openness to experience measure how intellectually involved a person is in his environment (Facione et al., 1995)²⁰⁵.

Kirton (1989)²²⁰ has described two opposite modes of problem solving, decision-making and creativity; the adaptors and the innovators. The adaptors are prone to accept generally recognized theories, policies and paradigms whereas the innovators want to construct their own models and question the present paradigms. The adaptors want to do things better while the innovators want to do things differently. The adaptors tend to be dogmatic, introverted, conscientious and more anxious than innovators (Kirton, 1989)²²¹. Adaptors are more guided by their left brain hemisphere whereas the more creative innovators are guided by their right hemisphere. Habitual innovators are open to new influences, extraverted and more confident than the adaptors (Kirton, 1989)²²². One may assume that innovators consequently are more open to new information whereas adaptors prefer the old and known theories.

The ‘diffusion of innovation’ theory has shown that while innovators are eager to become acquainted with new ideas and practices, the large majority is skeptical and cautious of novelties. The eagerness to adapt an innovation can be described on a continuum with new ideas and practices; the large majority is skeptical and cautious of novelties. The eagerness to adapt an innovation can be described on a continuum from innovators to laggards (Rogers and Scott, 1997)¹⁹⁹. Risk-taking, charismatic, achievement oriented, enduring, dedicated and confident persons have dispositions which make them likely to be innovators (Howell and Higgings, 1990)²¹⁹. Conferences, workshops and web sites are essential information sources for innovators in their quest for the latest breakthrough (Jacobsen, 1998)¹⁹⁸.

Palmer (1991)²¹⁶ tested the influence of personality as measured by the Kirton Adaptation Innovation Inventory (Kirton, 1989)²²³ on the information seeking behaviour of scientists. She found that innovators usually sought information widely, enthusiastically and used many different sources of information. They were in addition more controlled, methodical and systematic in their information seeking (Palmer, 1991)²¹⁷.

In the following we will see how the five-factor model personality traits of extraversion and neuroticism can be related to information seeking behaviour.
Introversion contra extraversion and stability contra neuroticism are important indicators for performance level. Extraversion tends to lead to declining performance over time and neuroticism to weaker performance following stress. The effect of personality on performance is naturally not a cause and affect relationship, but instead the sum of many variables (Revelle, 1995).²⁰⁶

In problem solving there is a difference between extravert and introvert individuals. The extraverts tend to rely on the context and are more guided by feedback from others. It is important for them to be aware of other people’s opinions of the problems, whereas the introverts are more prone to reflect on the theoretical framework surrounding the problems (McCaulley, 1987).²²⁶ This may influence information seeking and use. Extraverts usually want quick information and become frustrated if the situation is a standstill (Moreland, 1993).²¹⁰

The estimation and expectations of one’s own capacities is more influential on performance than the actual skills one possesses. Explanatory style (Bandura, 1986)²²⁷ can, for example, have an impact on information search behaviour. If searchers consider it likely that they will fail in the search task, this affects their further actions. They might abandon the search task; They might abandon the search too soon, fail to take notes or key in inaccurately. Those who expect to be successful at a search task are more efficient and adaptive than those who doubt their ability to complete the task.

Secure persons have a constructive and positive attitude towards information and appreciate a large recall. The more secure people are, the more actively they seek information. They are more accepting of new information and prepared to possible changes. They have a flexible cognitive structure and are more adjusted to a changing world (Mculincer, 1997).²⁰⁰ Finley and Finley noted 1996 that a positive attitude towards novelty correlates with a positive attitude towards and usage of the Internet. Insecure persons have more difficulties in coping with unpredictability, disorder and ambiguity in the search systems. They have a tendency to finish the search process as soon as possible, which can result in premature decisions based on insufficient information. Insecure persons are less likely to change their views and accept new information. This insecurity could be linked to neuroticism (Schouwenburg, 1995).²⁰⁷ Nervousness can indeed be a barrier to information. One study has, for instance, shown that nervousness formed an
obstacle for seeking information for 20% of cancer patients, who would have been in need of information (Borgers et al., 1993)\textsuperscript{211}.

2.11 INFERENCES

From the review of literature, the following inferences could be draws:

i. A total of 233 references were reviewed covering the last five decades period.

ii. These studies have been grouped as: Studies related to teaching professions; Studies related to various professions; Institutional studies; National level studies; Network and IT Environment; Information Seeking Pattern models; Other studies related to Information seeking behaviour; Personality; Personality and Information seeking behaviour.

iii. The reviews represent both Indian as well as other countries.

iv. The literature has been drafted from LISTA, Theses and Dissertations submitted to Indian Universities, Indian journals, conference proceedings, workshops and symposia proceedings.

v. The review also identified the general, conceptual models and comparison of models of information seeking behaviour and etc.

vi. Studies were also conducted on personality and five personality traits such as neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness.

vii. From this study, it seems there is no study on the personality and information seeking behaviour of university faculty members.
REFERENCES


16. Proceedings of an International Conference on Research in Information needs, seeking and use in different contexts held at Tampere, Finland, 1996.

17. Proceedings of the Second International Conference on Research in Information needs, seeking and use in different contexts held at Sheffield, UK, 1998.


98. Rowland, Fytton and Rubbert, Iris. (2001). An evaluation of the information needs and practices of part-time and distance learning studies in the context of


