CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE PROBLEM

It has been conceded by and large that we have been living in a knowledge society, where information is considered to be power and an asset for the development of the society. Information has played a predominant role in the evolution of the present days’ knowledge based civilization from the past days’ industrial civilization. It is generally viewed that it is the availability of information and its exploitation by its final consumers that drove into the present era of knowledge society, where the management of research and development depends heavily upon the perfection of communicating information. In the present era, with the explosion of information in all walks of life and the information communication revolution, the growth and development of any realm is totally dependent on the availability of proper information and its communication to its final clients. The present generation enjoys the abundance of information in a variety of forms and formats. Searching and transfer of information have become an inseparable part of the research and development. Countries that realized the importance of information and knowledge for the enhancement and effectiveness of scientific and technological endeavours have attained exponential growth in all areas.

As an implication to the information revolution, the field of information management has witnessed tremendous changes over the years. Under the increasing pressure of coping and adapting to the situations in the information society and reaping the advents of the latest technologies, the information professionals have acquired various innovative technical skills for managing information and knowledge in the best possible manners. As a result, innovative models of storage, categorization and dissemination of information have been developed and radical changes are evident in the way information is acquired, stored, arranged and distributed. These developments in the field of information dissemination, in due course, have affected
the speedy and enhanced access to information by its end users and thus catalyzed the scholarly communication.

In the present time, there exist various types of information retrieval systems that facilitate the acquisition of supporting information for research and development also and act as sources of ideas for transferring thoughts into research. All these systems and services have been designed and developed by the untiring efforts of the information professionals including librarians, information scientists, documentalists, etc. for the final users of information. The principal aim of these information systems is to meet the information needs of their users so that they will have the best information without delay and other quandaries. Hence, most of these systems are designed and developed after having an extensive knowledge of the users’ information needs and wants.

The foremost purpose of any information retrieval systems is the ‘use’ and their key and dynamic component is the ‘user’. For this reason, user studies are must at the time of designing such systems and services. Use and user studies are required to be carried out as long as these systems and services are required and exist. The efficient and effective operation of a library and information system also calls for periodic user studies. Such types of studies help to promote new course of action hitherto not considered and hence help efficient and effective operation of the information systems and services (Sridhar, 2002; De Saulles, 2012). One of the primary objectives of user studies on people’s information seeking, gathering and use habits is to establish why, how, how much, and with what effect various information sources, systems and services are made use of. Such types of user studies are potentially valuable in bridging the gap between the kind of required information systems and services and the kind in existence, and between how information systems and services should be used and are used.

The way by which different types of people find and use information in the course of their work and life has become an active area of research among the Library and Information Science scholars for several years. Beginning with the early information seeking studies, mostly on scientists and the practice of science
information seeking, the trend was later applied to the information-seeking behaviours of people in a wide variety of disciplines. By studying information seekers within diverse environments, LIS scholars advanced the theoretical analysis of information-seeking processes. They also seek the answers to questions such as how does the information-seeking behaviour of various types of users resemble or differ from what is already known, when, and for what purpose, do they seek information, how does the need and search for information influence the effectiveness of providing service, what barriers do they perceive in their search for, and use of, necessary information, etc. In the course of information seeking research, information researchers observe the behaviour patterns of information users carefully so that conclusions can be drawn about which services are worthwhile. This practice of recognizing the current information seeking patterns of the user community helps to develop advanced future of library and information services.

Human information behaviour research has been advanced as a highly active area of research within the field of library and information science and a momentous body of research that has been carried out over the years put in greatly to our understanding of the interaction of human beings with information. The intensive researches in the field have generated results that are directly relevant to the design and implementation of effective information systems and services. Clearly, information systems would be most effective if their design is informed by an understanding of the human-information interaction of their intended users. For this reason, it is important to examine how information behaviour research could inform information system design and how results of information behaviour research can enhance their applicability to systems design ((Leckie, Pettigrew & Sylvain, 1996; Fidel & Pejtersen, 2004). It can be brought to a close that information behaviour researches will attend to the concern of bridging the gap between designers and researchers, and increasing the relevance of academic research to the practitioners’ work. Information behaviour researchers carry out highly dynamic and complex researches creating maps guided by methods and approaches that can take on the challenges applicable to the design of information systems and services.
1.2 CURRENT RESEARCH PROBLEM

Different behavioural patterns through which people belonging to various disciplines interact with information are systematically studied by earlier researchers in the field of information science. The findings of these studies have constructive role in the design and implementation of specific information systems and services. In such a state of affairs, the investigator has selected the problem of the current research as “Information seeking pattern of IT graduates in engineering institutes and universities in Delhi: An evaluative study”. The present investigation is an attempt by the researcher to enable him to make recommendations for the development of information systems and services that could meet the specific information needs of people who are directly or indirectly associated with the Information Technology (IT) based studies and/or research. In view of this rationale, the researcher has undertaken this study to gain a clearer view of the information-seeking behaviour pattern of IT graduates while undertaking their academic assignments. The information seeking patterns of IT graduates including postgraduate students, research scholars and faculty members have been studied.

1.3 DEFINITION OF TERMS

Various terms in the research problem as defined by different researchers are given below.

**Information Seeking**

Krikelas (1983) defined information seeking as “any activity of an individual that is undertaken to identify a message that satisfies a perceived need. Information seeking begins when someone perceives that the current state of processed knowledge is less than that needed to deal with some issue (or problem). The process ends when that perception no longer exists”.

According to Wilson (2000) “information seeking is the purposive seeking for information as a consequence of a need to satisfy some goal. In the course of seeking,
the individual may interact with manual information systems (such as a newspaper or a library), or with computer-based systems (such as World Wide Web)”.

Information seeking, for the present study, is meant by the process of searching and gathering information and information resources for meeting the academic information needs related to the learning, teaching and research activities of the population under study.

Pattern

*Webster’s Third New International Dictionary of English Language* defines the term ‘pattern’ as “a reliable sample of traits, acts or other observable features characterizing an individual” (Gove, 1966).

*Oxford Advanced Learner’s Dictionary of Current English* defines the term ‘pattern’ as “the regular way in which something happens or is done” (Honby, 2000).

In the present study, by the term ‘Pattern’, the researcher means the ways through which the population under study deals with different information intermediaries, sources, systems and services and their behaviours during this process.

Information Technology (IT)

Disouza (2007) defines Information Technology (IT) as “a generic term to cover the acquisition, processing, storage and dissemination of information- textual, numerical, pictorial and vocal. The term is restricted to systems dependent on a microelectronics based combination of computing and telecommunication technology”.

According to Reitz (2004), Information Technology is “a very broad term encompassing all aspects of the management and processing of information by computers, including the hardware and software required to access it”.

In the context of the present study, IT is referred to be the field of Information Technology and all areas of study that are related to Information Technology such as
Computer Science, Computer Engineering, Computer Application and Telecommunication Engineering.

Graduate

Webster’s New International Dictionary of the English Language defines a graduate as “one who has received an academic or professional degree in a college, school or other institution of learning” (Neilson, 1954).

According to Collins English Dictionary and Thesaurus, a graduate is “a person who has been awarded a first degree from a university or college” (Sinclair, 2003).

In this study, a graduate has been considered to be anyone who has received a graduate degree such as B. Sc. (Information Technology), B. Sc. (Computer Science), BCA, B. Tech. (Computer Engineering) and B. Tech. (Telecommunication Engineering) and is presently pursuing higher studies (PG or PhD) or working as a faculty member in the subjects of Information Technology, Computer Science, Computer Engineering, Computer Application and Telecommunication Engineering.

Engineering

According to McGraw-Hill Concise Encyclopedia of Science and Technology, “engineering, most simply, is the art of directing the great sources of power in nature for the use and convenience of people. In its modern form, engineering involves people, money, materials, machines and energy.” (Weil, Blumel, Malmoli & Netting, 2009).

According to Chambers 21st Century Dictionary, engineering is “the application of scientific knowledge especially that concerned with matter and energy to the practical problems of design, construction, operation, and maintenance of devices encountered in everyday life” (Robinson, 1996).

‘Engineering’ for the present study is an area of study that applies scientific theory to design, develop, and analyze technological solutions, covers a wide range of
applications of science and technology and is divided into many branches such as mechanical, chemical, civil, computer, electrical, etc.

**Institute**

*Merriam-Webster’s Collegiate Dictionary* defines an institute as “an educational institution and especially one devoted to technical fields” (Mish, 2000).

*The New Oxford American Dictionary* defines an institute as “a society or organization having a particular object or common factor, especially a scientific, educational or social one” (Jewell & Abate, 2001).

By an ‘Institute’ in the present study, the researchers means an educational institution meant for higher education and research in technical fields, offering at least one postgraduate course in any areas related to Information Technology.

**University**

According *The New Oxford American Dictionary*, a university is “an educational institution designed for instruction, examination or both of students in many branches of advanced learning, conferring degrees in various faculties and often embodying colleges and similar institutions” (Jewell & Abate, 2001).

*Webster’s Third New International Dictionary of the English Language* defines ‘university’ as “an institution of higher learning providing facilities for teaching and research and is authorized to grant academic degrees” (Gove, 1966).

For this study, a university means a full-fledged institution of higher education located in Delhi which offers and confers academic degrees at graduate, postgraduate and research levels on a regular pattern.

**Delhi**

Delhi, officially the National Capital Territory of Delhi, is the Capital territory of India. It has a population of about 11 million and a metropolitan population of about 16.3 million, making it the second most populous
city and second most populous urban agglomeration in India. Such is the nature of urban expansion in Delhi that its growth has expanded beyond the NCT to incorporate towns in neighbouring states and at its largest extent can count a population of about 25 million residents as of 2014 (Delhi, n.d.).

**Evaluative Study**

Powell (2006) defines ‘evaluative study’ as “a type of research that uses standard social research methods for evaluative purposes, as a specific research methodology, and as an assessment process that employs special techniques unique to the evaluation of social programs”.

According to Trochim (2006), “an evaluative study is the systematic acquisition and assessment of information to provide useful feedback about some object”.

By the evaluative study, here the researcher means to collecting data from the population under study to explore the ways of seeking and gathering of information and to assess what methods they employ to seek and gather information, what type of information sources and services they make use of, how seriously they use various information sources and services, how skilled and able they are in their information seeking abilities, etc.

**1.4 AIM AND OBJECTIVES OF THE STUDY**

Earlier investigations focusing on the information-seeking behaviour of various types of users including general public, professional users, academic users, etc. are carried out to answer different questions like why and how people look for and use information, why they prefer to use particular information sources rather than others, and what the problematic issues are in this process, etc. These types of studies are necessary to discover the information needs of specific user communities and provide them with the necessary support. By undertaking the present study, the researcher aim to gain an in-depth understanding of the information seeking patterns of IT graduates by exploring the information needs and information searching,
gathering and use behaviour of the academic community in Delhi in the field of IT. The following explicit objectives guided the study:

- To determine the needs, methods and mostly preferred types of information sources in the information seeking activities of the IT graduates including PG students, research scholars and faculty members in engineering institutes and universities in Delhi.
- To assess the level of importance on libraries and information centers in the information seeking process of the IT graduates under study and to study their satisfaction level on various sources and services provided by the library for fulfilling their information requirements.
- To seek the opinion of the respondents regarding the necessity and importance of libraries in their physical form and printed information sources for meeting their information requirements in the era of ICT and digital technologies driven world.
- To find out the preference of the PG students, research scholars and faculty members in IT on the printed and electronic resources in their information seeking activities.
- To explore the respondents’ familiarity and usage of various electronic information resources and to identify their skill and ability in searching and locating right and useful information in the electronic environment.
- To examine the IT graduates’ familiarity and usage of the latest IT based library and information services during their information seeking activities.
- To inspect the role of social networking sites, news resources, conferences, seminars, etc. in the respondents’ information seeking procedures.
- To understand the differences in the information seeking patterns of IT graduates.
- To identify the problems and barriers faced by the IT graduates while seeking and gathering information and to suggest remedial measures for improving the quality of information services in the field of IT and enhanced access to qualitative information.
1.5 HYPOTHESES

Based on the findings of the earlier research studies conducted on the information seeking pattern of people from different contexts, the following hypotheses were formulated by the investigator:

Hypothesis 1

All the IT graduates in engineering institutes and universities in Delhi, irrespective of their different educational levels, give priority to the Internet over other information intermediaries including libraries to meet their information requirements.

Hypothesis 2

There exists no significant difference among PG students, research scholars and faculty members in the field of IT regarding their preference to electronic information resources over the printed resources.

Hypothesis 3

Innovative online information services are heavily used by the IT graduates irrespective of their different educational levels.

Hypothesis 4

There is no significant difference among the IT graduates in the use of various search techniques during their search for information in the electronic media.

Hypothesis 5

There exists no significant difference among PG students, research scholars and faculty members in the field of IT regarding use of social networking sites for seeking academic information.
1.6 NEED AND SIGNIFICANCE OF THE STUDY

From the earliest days, the profession of librarianship has shown the dedication to care the needs of library users and serve them unconditionally. Library and information professionals have also been active with conducting use and user studies for better serving the information users. The information seeking and using behaviours of people in various settings have always attracted the interest of researchers in the field of Library and Information Science dating back to the early decades of the twentieth century. Early studies have usually focused on the information-related habits of scientists and scholars. However, later studies began paying attention to information behaviour of other user groups as well including people working in business, labor, biomedicine, the arts, social services, children, the geographically remote, the economically and socially deprived, the institutionalized, and the mentally and physically disabled, among others. Information behaviour studies articulating the importance of placing a specific user group at the center of research, and paying close attention to their internal motivations and needs help the information professionals for providing better library and information services, designing new information systems and enhance the existing systems for the particular community.

One important among the different user communities on which information behaviour researches are carried out is the academic community including students, researchers and faculty members affiliated with colleges, institutes or universities. Academic populace including the students, researchers and faculty members are meticulous information users for various purposes related with their teaching, learning and research activities. They make use of a variety of information services provided by the academic libraries and other information intermediaries. India is considered as one of the emerging superpowers of the world and one of the biggest factors that helped India to make its mark on the global economy is its booming Information Technology (IT) industrial sector. As the IT industry has also created significant demand in the Indian education sector, academic community in the field of IT must have been focused by the information behaviour researchers.
However, a careful examination of the literature on the information seeking behaviour of academic community in India exposed that no comprehensive study focusing on the information seeking pattern of academic community specializing the field of Information Technology has been taken up by any researcher. Hence the present study was undertaken to investigate thoroughly the information seeking pattern of IT graduates in Delhi, the capital of India, and the researcher has studied the information seeking pattern of graduates including postgraduate students, research scholars and faculty members who study, carry out research and/or teach various disciplines of Information Technology in various institutes and universities in Delhi.

In the present time the innovative technologies are resulting in the provision of a variety and abundance of information available to information users and as a result competitive pressures are persisting on libraries and library professionals of academic institutes. Today’s academic libraries deal with many challenges for providing relevant and easy to use information to their users without wasting their time. Consequently, academic libraries have to adopt innovative and strategic services for the satisfactions for their users. At a time when Indian academic libraries are facing a significant shortfall in their budget allocation by the government, the present study will definitely help the librarians of the engineering institutes and universities in India to ascertain the information needs and wants of the IT based academic community and will help in the design of effective information systems and services that could meet the information needs of the IT community.

This study provides unique insights into the information seeking pattern of Indian IT based academic community from their own perspectives expressed in their own words. In light of limited access to international information sources and many difficult conditions faced by the academic community in developing countries, this study’s findings add to the body of knowledge in information science by documenting how the IT based academics in India experience various barriers, and how in spite of them, they accomplish their information needs. Library professionals dealing with the IT community in developing nations in general and in India in particular could use the
study as an additional informative source for the design and implementation of their information policies.

1.7 RESEARCH DESIGN

The present study is a survey based investigation of information seeking patterns of IT graduates in engineering institutes and universities in Delhi. Information seeking behaviours of a variety of populations have been extensively studied by many researchers in the field ranging from simple users studies to complex studies. On considering and comparing various methods used in different studies, the investigator felt that survey method is the best and most feasible choice as the research method to understand methods and patterns being used by IT graduates while interacting with information sources. Generally, survey based investigations are one of the popularly used descriptive research methods for user studies and are characterized by selection of samples of the population under study to obtain empirical knowledge of contemporary nature. On the basis of this knowledge, generalizations about the characteristics, opinions, beliefs, attitudes, etc. of the entire population being studied are made.

The present study has been carried out in three research phases. In the preliminary phase of the investigation, the researcher has tried to build a framework for the study. During this phase the researcher conducted thorough review of literature in the information seeking behaviour research, identified various areas of investigation and the research approach, developed the research design and research instruments and determined where, when and who for collecting appropriate data for the study and the tools and techniques for analyzing the collected data. In the secondary phase, the data regarding the information seeking patterns of the population under study was collected, coded and analyzed. In the third and final phase of the research, the investigator reported the findings and inferences drawn from the study, discussed them and also presented some suggestions and recommendations for further research. The following sections of the chapter briefly explain the research activities of the current research.
1.7.1 Literature Review

Review of literature has a predominant role in the research process as the practice helps the researcher to recognize the stated as well as unstated assumptions underlied by previous researchers in the areas of the problem under study and also to become the researcher a master of the theories and principles applicable to the phenomenon of the study. In the very earlier stage of the research, the investigator undertook an extensive literature review on theoretical and empirical research findings of the information needs and information-seeking behaviour of different populations in the country and abroad. With his experiential knowledge in the area of study, the researcher could locate and examine a number of appropriate literatures in the area of information seeking behaviour published in various scholarly information sources and partitioning the area into various subsections, the literature review was performed.

The review contributed to have a general understanding of the information needs and information seeking behaviour of people in different contexts and also helped to identify the research approach that could be used for this study. The extensive review of literature revealed that no study focusing on information seeking pattern of IT graduates in engineering institutes and universities in Delhi has been taken up by any previous researchers. The in-depth review performed during the research, oriented towards the information seeking behaviour of a variety of information user populations, has been presented in the Chapter 2 of this thesis.

1.7.2 Population and Selection of Sample

Selection of an appropriate sample which can represent the whole population under study is an important task in research. In the survey based investigations of a bigger group, collecting data from each and every subjects of the group on different variables under study is very difficult and not feasible. In the survey based researches of bigger population, an appropriate sample is drawn to gain in-depth knowledge of the situation of the sample on the assumption that the sample will provide insight into the whole group. Hence, such studies always use various non-probability sampling
designs for drawing samples (Kumar, 2011). Therefore, in the present study, which is an attempt to study the information seeking pattern of IT graduates, the sample has been drawn using some sampling techniques.

The present study was taken up to study the information seeking pattern of IT graduates in engineering institutes and universities in Delhi. In Delhi, there are 12 universities and 32 engineering institutes, including both in the government and private sector, as given in Appendix III. For the purpose of drawing sample, the purposive and census sampling techniques were used. As the present investigation attempts to study the behaviour IT graduates only, the researcher selected a sample of engineering institutes and universities which offer at least a postgraduate course in any disciplines of Information Technology such as Information Technology, Computer Engineering, Computer Science, Computer Application and Telecommunication Technology. Consequently, nine universities and five engineering institutes in Delhi offering above mentioned PG courses were considered. Out of these, five universities were using purposive sampling and five engineering institutes as census method for collecting data. Following are the institutes and universities selected for collecting data.

1. Delhi Technological University (DTU), Delhi
2. Guru Govind Singh Indraprastha University (GGSIPU), Delhi
3. Indira Gandhi Delhi Technical University for Women (IGDTUW), New Delhi
4. Jawaharlal Nehru University (JNU), New Delhi
5. University of Delhi (DU), Delhi
6. Ambedkar Institute of Advanced Communication Technologies and Research (AIACTR), Delhi
7. Indian Institute of Technology-Delhi (IITD), New Delhi
8. Indraprastha Institute of Information Technology (IIITD), New Delhi
9. National Institute of Technology-Delhi (NITD), Delhi
10. Netaji Subhas Institute of Technology (NSIT), Delhi
Selection of respondents was done by the Stratified Random Sampling technique. Respondents were divided into three strata as PG Students, Research Scholars and Faculty Members. The selection of respondents was also driven by some judgments based on research questions and conceptual frameworks and thus it was also decided to collect data from the academics only including the students, researchers and faculty members. Hence for the sample, the researcher selected only those subjects who, in his judgment, were likely to provide required information for the current study.

The subjects for the study were recruited using the incidental sampling technique. In the incidental sampling method, the primary concern is the convenience of the researcher in accessing the sample population. It was decided to carry out the collection of data among the students, researchers and faculty members incidentally without making any attempt to include participants possessing some visible characteristics.

1.7.3 Data Collection Methods

One of the most methodologically challenging tasks in the survey based research endeavours is the process of collecting appropriate data for the research. The quality of the data and consequently the research results depend profoundly on the selection of the appropriate method for collecting data. A number of data collection methods are prevalent in the information seeking behaviour studies including questionnaires, interviews, observation, etc. An overview of the information seeking behaviour research studies indicated that more in-depth qualitative investigation was necessary to understand the IT academics’ unique, dynamic, and complex information practices and information behaviours. From a methodological point of view, assessing various tools used by those studies for collecting data and also considering various financial, geographical, temporal and methodological constraints, the questionnaire was deemed as the best fit research instrument for the present study to collect primary data from the population under study to gain a better and fuller understanding of their information needs and capturing their information seeking patterns.
1.7.3.1 Questionnaire Method

Questionnaire is one of the most popular and predominant research instruments in the survey based qualitative studies for obtaining data directly from the geographically scattered and diverse large population. For the present study, the investigator designed a questionnaire consisting of 36 questions, mainly closed end questions, to gather the necessary and accurate data regarding the information needs and seeking pattern of IT academics.

i) Development of the Research Instrument

After identifying questionnaire as the research instrument for the present study, concrete decision regarding the design of an effective questionnaire was taken as the questionnaire becomes effective only when it is designed with complimentary research questions. Based on the researcher’s research experience in the field, prior assumptions and beliefs about information seeking behaviour of academic community in India and from the outputs gained from the extensive literature review carried out earlier, the investigator designed a questionnaire to collect data from the academic community including students, researchers and faculty members in the field of IT. The online version of the same questionnaire was also designed using the ‘Google Form’ keeping in mind the fact that in this day and age most of the people, especially those associated with the field of IT, prefer to fill the survey online.

Enough care was given to develop a questionnaire which contains very clear and easy to understand questions to accurately capture various information seeking patterns of the population under study. Ample attention was also paid to keep the questionnaire interactive such that its layout was pleasant to the eye and the order and sequence of the questions was easy to follow. The questionnaire consisted of mainly closed end questions expecting the respondents to select answer(s) from a list of possible options provided. In addition, an extra category for “Other” was also included in closed end questions to include for all possible results. Some open-ended questions were also included to give respondents their own answer and their opinions about their views to the question.
ii) Structure of Questionnaire

A brief explanation of the aim of the survey was given in the very beginning of the questionnaire as an introduction and the other section of the questionnaire was composed of five parts.

- The first part of the questionnaire was aimed at collecting some basic information of the respondents such as their name, gender, age group, designation, educational background and field of research, etc.

- The second part consisted questions regarding some general aspects of information needs and seeking

- The third part was aimed at obtaining data about role of libraries in information seeking.

- The fourth and fifth parts of the questionnaire were designed to obtain information regarding the electronic/online resources use pattern and role of other aspects like news resources, conference seminars, social networks, etc. respectively.

The detailed questionnaire which was administered among the respondents has been given in the Appendix I of this thesis. The online version of the questionnaire developed using Google Form has been given in the Appendix II.

iii) Pre-testing of the Research Instrument

A pretesting of the research instrument, before using it for actual data collection, is very necessary for the critical examination of the understanding of each questions and its meaning as understood by respondents. A pilot study was conducted by the investigator to identify problems that the population under study might have to understand and interpret the questions and to test the validity of the questionnaire, which was used as the primary research instrument for data collection in the present study. The pilot study for the pre-test was conducted under the actual field conditions on a small number people supposed for conducting the actual data collection. During
this survey, which was conducted in the month of August, 2014, 100 questionnaires each were administered among PG students, research scholars and faculty members from Delhi Technological University and Indian Institute of Technology Delhi. The difficulties faced by the respondents while filling-up the questionnaire and their suggestions were noted down.

The pilot study was found to be very helpful as a number of suggestions were recorded by the respondents, especially research scholars and faculty members, and based on their feedback and the suggestions the investigator could enhance the quality of the questionnaire and make it more clear and structured. All the suggestions were critically analyzed and needful modification were made in the questionnaire wherever found necessary. Some questions which were felt irrelevant were removed and the sequence of questions was improved by inserting some questions at suitable places. After editing the questionnaires, the investigator observed that the modified questionnaire could now be used to draw out more consistent data to fulfill the objectives of the study.

iv) Administration of the Questionnaire

After modifying the research instrument conducting the pilot study, researcher thoroughly examined various methods of administering questionnaires in survey based studies in India. From the experiences gained by the researcher during the pilot study, the researcher felt that the personal approach would yield more data for the present study and thus it was decided to meet the respondents personally to get the questionnaires filled. For administering the questionnaires, the researcher personally visited all the 10 institutes/universities selected for the study in different months of the academic session 2014-15.

As the incidental sampling technique was used for recruiting the subjects for the study, the researcher visited the respondents in various places in the institutes such as their offices, class rooms, practical laboratories, research laboratories, libraries, etc. with the permission of head of the institutes/departments. The researcher first introduced himself and about the study to the respondents and requested to fill up the
questionnaire. They were also assured that the information provided by them would be used for research work only and the confidentiality of the information provided by them would be kept. Many of the respondents were pleased to participate in the survey and accepted the questionnaire with the promise of returning the filled in questionnaire later, while some others were reluctant to involve themselves in the survey for some reasons and refused to accept the questionnaire outright. Some of the respondents were ready to participate in the survey but were hesitant to fill the printed questionnaire. The researcher collected the email address of such respondents and emailed them the online version of the questionnaire.

During the administration of the questionnaire, the researcher felt that 30 percentage of the sample population would be enough to ensure a sample which will represent the whole population of the academic community under study. Accordingly, a total number of 946 questionnaires were administered among the participants, which included 701 Postgraduate students, 136 Research scholars and 109 faculty members. Among the administered questionnaires, 80 was administered online; 11 to Postgraduate students, 29 to Research scholars and 40 to faculty members. The number of questionnaires administered in each institute under study are; 99 in DU, 98 in JNU, 111 in DTU, 152 in IGDTUW, 154 in GGSIPU, 76 in IITD, 27 in NITD, 91 in IIITD, 75 in NSIT, and 63 in AIACTR. Among the 946 questionnaires distributed some of the respondents failed to return the filled in questionnaires and some of the returned questionnaires were found incomplete. Considering both cases, the researcher received back 743 completely filled questionnaires giving an overall response rate of 78.5 percentages. The complete details of the administration of the questionnaire and response in selected institutes are summarized below.
### Table 1.1: Administration of questionnaire and response rate

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>University/Institute</th>
<th>Questionnaire Administered</th>
<th>Questionnaire Received</th>
<th>Questionnaire Analyzed</th>
<th>Response Rate</th>
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<td>Online</td>
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<td><strong>Total</strong></td>
<td><strong>946</strong></td>
<td><strong>781</strong></td>
<td><strong>743</strong></td>
<td><strong>78.5 %</strong></td>
</tr>
</tbody>
</table>

1.7.3.2 Document Review

Apart from making use of questionnaire for collecting primary data, the investigator also checked with various printed as well as electronic resources such as annual reports, pamphlets, brochures, concerned websites and other records for collecting secondary data to obtain historical and other types of information required for the study.

1.7.4 Analysis and Interpretation of Data

The second methodologically challenging task faced by the investigator during the present research endeavor was the analysis of the collected data and its interpretation to find the answers to the research questions and to prove the hypotheses. The data collected from the respondents through questionnaire was scrutinized by comparing
answers to one question with answers to related questions so as to check consistency and compatibility. The filled-in questionnaires were made more or less uniform and responses were quoted and classification was done by reducing data into homogeneous groups for getting meaningful relationships. The researcher divided data from the questionnaire into different theme categories in relation to the research questions. Using a self-designed coding sheet, statistical counting was done for each response. Finally the data were organized, analyzed, compared, consolidated, tabulated and interpreted by using statistical techniques, tables, percentages. The statistical techniques such as Chi-Square test, Weighted Arithmetic Mean (WAM) and Arithmetic Mode analysis were used to get the results. With the help of above mentioned statistical tools, findings and conclusions were drawn and hypotheses were tested. A detailed analysis and interpretation of the information seeking patterns of the population under study has been given in the Chapter 4.

1.8 SCOPE, LIMITATIONS AND DELIMITATIONS OF THE STUDY

The present study entitled “Information seeking pattern of IT graduates in engineering institutes and universities in Delhi: An evaluitive study” was taken up by the investigator with an aim to gain in-depth knowledge and understanding of the information seeking behaviour of people specializing in the field of Information Technology. It was decided to select the population under study from engineering institutes and universities because of the fact that such institutes offer a number of courses in various disciplines of IT and thus a large number of IT graduates could be found in such institutes. It was also observed that the best input in this regard would be available if the study concentrate on the academic community. Hence, Postgraduate students, Research Scholars and Faculty Members were included as the target population to be studied and IT graduates working as non-teaching staff were omitted from the study. Accordingly, it was also decided to conduct the study at institutes which were offering at least one PG course in the fields of Information Technology. After thorough investigation to identify such type of institutes and universities, it was found that in Delhi there are nine universities and 13 engineering institute offering at least one PG course in IT. From these institutes, five each
universities and institutes were chosen to collect data for the study using the purposive sampling method considering the researcher’s judgment as from whom the best information to accomplish the objectives of the research can be obtained.

The major limitations of the study are:

i. The study includes the information seeking patterns of graduates in the fields related to Information Technology (IT) only.

ii. IT graduates studying in engineering institutes and universities during the academic session 2014-15 only have been considered for the study.

iii. The geographical area of the study is limited to Delhi only.

The researcher has also made following delimitations in the study so that the study can be conducted easily without much difficulties.

i. IT graduates from only five universities and five engineering institutes have been included in the study. Therefore it may not be accurate if we generalize the findings of this study.

ii. Only academic users including PG students, research scholars and faculty members have been included in the study. Non-teaching staff have been omitted.

1.9 STYLE OF REFERENCING

The investigator has followed the American Psychological Association (APA) style of citation and referencing (6th edition, 2009) for citing the bibliographic references in the thesis. For citing within the text as well as giving references at the end of each chapter, the prescribed standard of APA has been followed. Examples of different authorships are as follows:
i) Book (Single Author)


ii) Chapters of Edited Book (Single Author)


iii) Dictionary (Single Editor)


iv) Dictionary (Multiple Editors)


v) Journal Article (Single Author)


vi) Online Journal Article (Single Author)

vii) Thesis


viii) Website


1.10 OVERVIEW OF THE THESIS

The thesis documenting the present study has been organized in five chapters as given below.

**Chapter 1: Introduction**, is aimed at providing a brief introduction to the subject of the whole study undertaken by the researcher. It begins with the background of the research giving basic concept of information seeking behaviour research. It includes statement of the problem, definition of terms, objectives, and hypotheses of the study. Further, the chapter also presents the research design briefing the population and sample, techniques used for collecting data, procedures employed for data analysis and interpretation, scope and limitations of the study and standards used for bibliographic references.

**Chapter 2: Review of Related Literature**, presents the extensive review of literature in the information seeking behaviour research. A thorough literature review was taken up in earlier stage of the study critically analyzing a large number of investigations directly or indirectly related to the area of information seeking behaviour published in research journals of both national and international repute. Various aspects of information seeking in different contexts were reviewed and presented in the chapter under different sub areas.

**Chapter 3: Information Seeking Behaviour and IT Graduates: A Theoretical Outline** provides a background about theory and research on information
Chapter 1

Introduction

seeking behaviour. It presents a theoretical outline to information seeking behaviour in general as well as that of IT graduates and provides a background about theory, research on information seeking behaviour. It gives a description about various concepts related to information seeking behaviour of IT graduates too. It also explains some important models of information seeking behaviour developed by illustrious information seeking behaviour researchers and discusses the modeling of IT graduates information seeking pattern.

Chapter 4: Data Analysis and Interpretation, deals with the analysis and interpretation of the data collected on the information seeking patterns of the population under study. The data collected from the respondents through questionnaires were tabulated, analyzed and interpreted using different statistical tools and the results have been presented in the chapter in tabular, pictorial and graphical forms. Based on the analysis, this chapter also presents the tenability of the formulated hypotheses at the end.

Chapter 5: Findings, Suggestions and Conclusion, briefs the findings and suggestions of the present study. It explains various information seeking patterns of IT graduates in engineering institutes in Delhi. The future area of research has also been provided in the chapter.

The final part of the thesis contains Bibliography and Appendices. In the bibliography part, all the references and literature used for the present study have been included. The questionnaire administered to the population under study, both offline and online versions, and the list of engineering institutes and universities in Delhi have been provided in Appendices.

REFERENCES


