CHAPTER - 3

INFORMATION NEEDS AND SEEKING BEHAVIOUR

3.1 Information Needs and Information Seeking Behaviour: A Theoretical Approach

It is quite evident by now that information is vital to every individual. There is no aspect of a person's life where information is not required. That there is such a thing as 'information need' goes without saying. The problem (as is the case with the term 'information') again lies in the difficulty of finding a proper definition. Crawford (1978) agrees that 'information need' is a difficult concept to define, to isolate and especially to measure. It involves a cognitive process, which may operate on different levels of consciousness, and hence may not be clear even to the inquirer himself. In order to understand the concept of 'information need', one has to first define the term 'need'. But the use of terms like 'want', 'requirement', 'demand' etc. to explain the term 'need' further complicates matters.

3.1.1 Need

i. What person ought to have

ii. Circumstances under which something is lacking therefore requiring some of action.

iii. That which one cannot do without.

iv. That which is necessary for an organism's health and well being.

The Encyclopedia of Psychology has given a comprehensive and clear explanation of the term 'need'—"Need is one of the several English words (the other being drive, motive, want, urge, desire and so on) - each in some respects unsuitable-used by psychologists today to designate an internally or externally aroused, brain-located force (often coupled with an accelerating emotion), subjectively experienced as an impulsion or felt necessity (a mild or intense urge) to act (immediately or later) so as to produce a certain specifiable terminal effect which is ordinarily expected to
be beneficial to the actor, and/or positively hedonic (less painful, more pleasurable) relative to the arousing situation."

Human needs are of two types Physical and Psychological. **Physical needs** are requirements for a healthy body (e.g. food, water, and air). **Psychological needs** are requirements for mental health (e.g. self-esteem, pleasure).

According to **Maslow, (1970)** the different types of human needs are:

- **Self actualizing needs** - formal education, leisure activities, ethics, values, etc.
- **Esteem needs** - multicultural awareness, emotional awareness, social system knowledge (legal economic etc), sex education, ethics, values etc.
- **Love and belonging needs** - multicultural awareness, emotional awareness, leisure activities, interpersonal skills, ethics and values, sex education etc.
- **Safety Needs** - crime avoidance, traffic rules, emergency procedures, basic literacy, sex education etc.
- **Physiological Needs** - personal hygiene, nutrition, general health issues, AIDS prevention, drug, tobacco and alcohol abuse, child abuse, sex education.

**Want** What a person would like to have

**Demand** What a person asks for

**Requirement** This can cover need, want and demand.

### 3.1.2 Difference between 'Need' and 'Want'

One basic difference between need and want is that a person may not need what he wants. **Green (1990)** finds that the element that most clearly distinguishes a need from a want or a demand is that there is no necessary self-awareness of a need. People frequently need things without being aware of the need.

**Line (1972)** is of the opinion that people do not feel a want for all they need to help them in their study or for that matter their gardening; and they sometimes want what they do not need. We all like foods that are not good for us; a drug user needs to
be helped off drugs but rarely wants to. Likewise, people do not always demand what they want. Often because they do not expect to get it.

We now have a fairly good idea as to what the terms 'information' and 'need' mean. The next step is to understand the meaning of the term 'information need'. Some attempts have been made at defining the term-

**Maurice B. Line (1974)** has defined information need as, "what an individual ought to have for his work, his research, his edification, his recreation etc."

According to **Brenda Dervin (1986)** "an information need is an impediment preventing an individual from moving forward in cognitive time and space. The person is faced with a gap that must be bridged by 'asking questions, creating ideas, and/or obtaining resources. Such gaps do not occur in the abstract but arise out of particular critical events and situations".

**Ching-Chih chen** and **Peter Hernon (1982)** stress that an information need is more than a question asked of an information provider. It occurs whenever people find themselves in situations that require some form of knowledge for resolution.

The librarian's Thesaurus defines information need as "that need which library services or materials are intended to satisfy."

### 3.1.3 Methods of Determining Information Needs

According to **Soper, (1990)** community analysis is one method used by librarians to identity characteristics of a target population and to decide what library services and information would be most appropriate for them. The techniques that are used in community analysis include observing environmental characteristics, studying demographics, observing patterns of library use and interviewing key informants.

**Roger Greer** and **Martha Hale (1982)** too support community analysis as the basis for determining a library's role. Their method involves data collection and analysis from four perspectives-demographics, community organizations, service-and-product-providing agencies and lifestyles.
Brenda Dervin's (1986) sense-making methodology is one of the most widely adopted techniques for conducting needs assessments. The researcher tries to find out, with the help of timeline interviews, about the efforts put in by an individual to acquire information in order to bridge a gap in a particular critical incident.

Robert Grover (1982) has presented a conceptual model for diagnosing information needs in the context of a school library media programme. He proposes a two-stage process: systematic analysis of both the school and the community followed by one-on-one interaction with a user at the point when he or she has decided to seek information, i.e. the reference interview. He asserts that the reference interview can become a vehicle for diagnosing information need by applying knowledge of information psychology how individuals seek, acquire, organize, process, utilize and store information.

### 3.1.4 Types of Information Needs

Tague (1976) has presented the following types of information needs (most of which are self explanatory)

i. Social or pragmatic information needs-required for coping with day-to-day life

ii. Recreation information needs.

iii. Professional information needs.

iv. Educational information needs.

Another categorization can be the following:

**Success needs** - for employment opportunities, self improvement (dress, speech, personal carriage etc).

**Specialized information needs** - for the physically handicapped emotionally disturbed, geographically isolated, the non-English speaking groups etc.
3.2 Information Seeking Behaviour (ISB): Definition and Concept

If one considers the role of information human development, it is obvious that information plays an indispensable role and relates to the physical, emotional, cognitive and social development of the child. This process of information exchange starts even before the birth. The way in which a child learns to walk, talk, and how he plays and communicates with others is also due to the information he has received. The human values of which parents are aware and which they have integrated into their way of being form the frame of reference for the child in developing his views on the world and himself. When parents encourage asking questions, the child will feel free to inquire and seek information. This process is not unique to children, but is valid for all human beings. Therefore, man can be considered as an information seeker, regardless of age. The information processes related to this developmental task are guaranteed in a right to information. Formulations can be found in the Universal Declaration of Human Rights and in the Convention on the Rights of the Child (Singh; 2003; p. 42).

Information seeking is a process in which humans engage to purposefully change their state of knowledge. The process is inherently interactive as information seekers direct attention, accept and adapt to stimuli, reflect on progress, and evaluate the efficacy of continuing. Information seeking is thus a cybernetic process, in which knowledge state is changed through inputs, purposive outputs, and feedback. Information seeking is, however, a strictly human process that requires adaptive and reflective control over the afferent and efferent actions of the information seeker.

The phrase 'Information seeking Behaviour (ISB) has been defined variously by different authors. The following definitions of ISB will, however, make the concept more clear.

A very practical and broad definition of ISB is given by Auster (1982, p. 178) as "the field composed of studies that are concerned with who needs what kind of information and for what reason; how information is found, evaluated and used; and how these needs can be identified and satisfied."
Chen and Hernon (1982; p. 5) have defined information seeking as, "Information seeking patterns are the paths pursued by the individual in the attempt to resolve a need."

According to Krikelas (1983; p. 7), information seeking behaviour refers to "any activity of an individual that is undertaken to identify a message that satisfied a perceived need".

According to Girja Kumar (1990; p. 257), "Information seeking behaviour is mainly concerned with who needs what kind of information for what reasons; how information found, evaluated and used."

King defined information seeking behaviour "as a manner in which a user conducts himself in relation to a given information environment. It is, therefore, regarded as essentially, a process of interaction between the user and the rest of the information system (Manda; 1991; p 18).

Wilson (1999; p. 249) defines what he calls 'Information Behaviour' as, "those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information."

Thus, it stems from the above definitions that the act of searching or finding information can be ascribed to information seeking. Such an activity begins when the user perceives that the existing knowledge is less than the needed to deal with some problem(s). With the end of that perception, the process of seeking ends. Developing an instinct for information is a sort of behaviour and the process of searching is considered as information-seeking behaviour.

3.2.1 What is Information Seeking Behaviour?

ISB results from the recognition of some need, perceived by the user, who as a consequence makes demand upon formal systems such as libraries, information centre, or some other person in order to satisfy the perceived need. ISB involves gathering and collection of information to solve the problem which initiates the information need (Prasad, 2000, p. 15).
Information seeking behaviour has been linked to problem solving behaviour, which is nothing but information processing. According to Marchionini (1995), “Information seeking is the natural and necessary mechanism of human existence. Information seeking behaviour is the purposive seeking for information as a consequence of a need to satisfy some goal. According to Wilson (2000), in the course of seeking the individual may interact with manual information system such as newspaper or a library, or with computer-based system such as the web.

Information seeking behaviour involves personal reasons for seeking information, the kinds of information which are being sought, and the ways and source with which needed information is being sought (Leckie, Pettigrew and Sylvain; 1996). Information seeking behaviour is expressed in various forms, from reading printed material to research and experimentation. Scholars, faculties and students actively seek information from the various media available in libraries e.g. encyclopedias, journals and more currently electronic media.

Information Seeking Behaviour implies Knowledge of:

- Purpose for which information is required.
- Environment in which users operate.
- User skill in identifying information need and information providers skill in providing information.
- Channel and source for sapping the information, and
- Barriers to information (Prasad; 1992; p. 43).

The term ‘information behaviour’ is used to include all activities comprising information seeking, information-gathering, information-receiving and communication. Information seeking precedes gathering and information gathering most of the times implies seeking. At the outset, information gathering appears more as a physical act than seeking. However, in a broader interpretation, information gathering includes and presuppose information seeking and hence is a broader concept than information seeking behaviour. However, both the terms are quite often used interchangeably in the literature and information behaviour includes both (Krikelas, 1983).
The meaning and scope of Information Seeking Behaviour (ISB) in this study is as follows: the motives and purposes of seeking information, the nature and type of information required, the ways and means of accessing, searching, identifying and acquiring work-related information, degree of dependence on sources of information, communication behaviour, use of library and user interactions with the library.

Information-seeking can be understood in two senses: it is a continuous activity in a generic sense, in that we make sense of the world around us by gathering information, but, for specific purposes it is, for the typical organizational member, a highly spasmodic, event-driven phenomenon. And, often, the driving event is a crisis – either for the individual or for the organization. We cannot assume, therefore, that people have well-developed formal information-seeking skills. It is more likely that the process has to be re-learnt on each occasion – particularly if those occasions are widely spaced.

Information need and information seeking behaviour, two of the most important research areas of the user studies, are two complementary concepts, which are affected by many factors. Research results in these areas of user studies indicate that the type of information need and information seeking behaviour of scholars are dependent on their community and area of living, and very from one discipline to another.

Users and their information-use studies perhaps form the largest single body of research literature in librarianship. Crawford estimates that well over 1,000 user-behaviour and information system user studies have appeared in print (Krikelas, 1983: p. 5). The recent developments in the field have added new dimensions to the research literature. It can be expanded by new approaches to citation studies, automated searching, text-retrieval and scaling of bibliographical databases. The body of literature on 'user-behaviour' within the framework of librarianship is increasing day-by-day.

This incessant growth of various aspects of the subject has led the researchers to concentrate more on service aspects in order to refine the services or redesign the information system. To crystallize the situation, different roles played by the users appear to be essential for an early assessment. Because, such an assessment would
result in improving the existing system and generating new ideas and thoughts related to information products and services.

Information environment primarily appears to be critical as it involves users of information, organizations, information mediators, library and information centers, publishers, and producers of information. In this complicated situation, the role of the information intermediary assumes greater importance due to the fact that the intermediary bases the whole system upon the effective retrieval of information.

The present scene has given birth to the deluge of information and the complexity of centres or storehouses in such a manner that the role and responsibility of the intermediaries have been very much ambiguous and varied in nature. One can term the intermediary as 'information specialist' who helps people to find information they are looking for. Every activity related to information acquisition and dissemination is more or less an event that implies an information system finding out about, and producing the information required in that particular case. The intermediaries help the users to build up this system not only with their knowledge about storehouses of information, but also with the knowledge about the information-seeking behaviour of the user.

Normally, all library activities are designed to develop a system based on a string of services to be provided to the users up-to their utmost satisfaction. In this connection, it can be summed up that "satisfaction out of services is the end and the library and information system is the means". On this premise, it can further be argued that the intermediary is more concerned with the provision of satisfaction of the users. Because he/she is directly dealing with the users to develop the system and it is essential to know the users and their information privations before information rendered to them and new services are designed.

Current research on information retrieval and dissemination pays greater attention to the study of information habits and needs of users about myriad information systems. It has also been said that the user should be viewed more broadly as existing within interacting cognitive, emotional and social systems while considering the user as the central focus of 'information needs', the emphasis is shifted on the personal and psychological attributes of the users that would provide a good
understanding of the dimensions of the study (Summers, Mathews and Conry, 1982: p. 75). Hence, the emerging concept of information-seeking behaviour, the focus of the question, needs a detailed emphasis.

The actual application of collected information, either to solve a specific problem on hand or for furthering understanding or for knowledge in the area, is also equally important in understanding the information-seeking behaviour.

Today's complex world has made information seeking as complex subject of study and research. Human beings are of as different levels as can be imagined and thus the ISB differs from individual to individual.

3.2.2 Why Information Seeking Behaviour?

Individuals seek information 'for sheer curiosity', 'for new knowledge', 'for solving problem', 'for decision making', and 'for survival' in a meaningful way.

Human being is involved in certain social activities that are complex and interdependent. This phenomenon gives rise to increasing need for information from some potential sources that are not known to them. Moreover, the needs are myriad, and the variations among people are of different nature with regard to context, intellectual level, frequency, and volume of information sources required. Besides these, there are a number of institutions, organizations, and learned societies, industrial firms, government, and non-government agencies dealing with a variety of information in acquiring and disseminating.

According to Line (1998; p. 223), all people are individuals and will seek and use information in different ways. Much of our daily life is spent in information gathering and sifting of one kind or another – merely looking at people involved in an information process, since we notice things about them and do a rapid assessment. Most of this information gathering is carried out automatically, and is not perceived as such; it is an integral part of our personalities and we all do it differently. There is no such thing as a homogeneous body of information users. A group of people with the same level of education may be working on the same subject at the same time; but they will use information in different ways. Some information will obviously be
relevant to all of them, some to only one or two. Some of the group will scan and absorb vast quantities of material, others will read much less. Some will be content with abstracts of many articles, some will not. Some will prefer oral channels, some will prefer to see information in print so that they can pore over it; some always prefer to ask other people; some prefer to avoid people whenever they can. Some like browsing some find it a waste of time and energy. Some enjoy computer searching, some have techno phobia; and when people do search – they use the internet in very different ways.

Also, with the growth of information deluge, each one needs information of increasing variety and diversity of level, frequency, volume, and use. This complex situation appears to be ambiguous and heterogeneous in character so that information needs of a particular group of users and information-flow from a specific situation/organization are difficult to determine. Again, the use of information is so complex that there cannot be a simple system to cope up with the task of effective retrieval without assessing their specific needs. This situation has given rise to the growing concept of information searching and the manner of determining the pattern of searching is said to be considered as information-seeking behaviour.

The work of Donohew et al (1990; p. 11) 'knowledge gap' contended that what motivates individuals to seek information is the relevance of such information to individual situations. Persons having higher social status or educational attainments are better equipped with information, but those who actually obtain from an information seeking environments are seldom considered the least knowledgeable. In the context of information retrieval, the individual seeks the required knowledge from the vast store of a knowledge-base 'to find some kind of dynamic equilibrium in the knowledge state'. If the state of mind and the process human mind goes through or the way in which it gathers the required information can be identified, the professionals can organize the information and information sources in conducive manner.

One thing, however, must be noted that 'individuals and their environment, and their interaction keep changing and therefore, ISB process always might not follow any standard approach.
In this backdrop, what is needed is to examine the system (i.e. information retrieval process) frequently for better information organization and information retrieval. There is also a need to study the information seeking behaviour of the library users in order to reorganize and remodel the information process meant for the users (Devi & Lahiri; 1997; pp. 60-67). Knowledge generated by user studies can help to develop information systems and information services.

3.2.3 How ISB: Information Seeking Process

When a need is felt for anything, more often than not, people take action in order to satisfy that need. Different strategies or modes of action are resorted to. The same applies for the satisfaction of information needs. An individual realizes that he needs information, he knows that in all probability the information will not come to him on its own, therefore, he has to go about seeking it. What strategies or processes he resorts to, in order to satisfy the need for information, are the focus of study here.

Identified by Gary as problem, task, search system, domain setting and outcomes.

Information Seeking Process is delineated in eight steps (Gary; 1995):

1. Recognize and accept an information problem,
2. Define and understand the problem,
3. Choose a search system,
4. Formulate a query,
5. Execute search
6. Examine results,
7. Extract information, and
8. Reflect/iterate/stop.

According to Girja Kumar (1990; p. 257), "Information seeking behaviour is mainly concerned with who needs what kind of information for what reasons; how information is found, evaluated and used." His presentation of information seeking process is as follows:

1. Identifying objective
2. Defining need
3. Assessing information systems
4. Establishing sources of information
5. Information acquisition
6. Use of information
7. Satisfaction/Dissatisfaction

Any information seeker normally proceeds in a state of hazy connotation about his requirement. He moves in an innovative process towards his expression of information needs. He needs some intellectual clues/hints, indication for his expression. Each searcher represents a unique combination of characteristics and purpose. To prepare an effective set of clues, it is therefore necessary to analyze searchers' behaviour and style of searching (MLIS-IGNOU; p. 7).

Following aspect/factors are taken into account to study the ISB of the searcher:

1. Analysis of searchers' needs according to their level of technical Knowledge (expert, semi-expert, and non-expert), position in the organization, attitudes, reading/searching styles, and position as primary and secondary searchers.
2. Searchers generally have one of three levels of technical knowledge (expert, semi-expert and non expert).
3. A searcher's position in the organization may be as the information officer's superior, subordinate, or peer.
4. A searcher's response to information searching and access may be influenced by emotions, motivation, and preferences.
5. Searchers may differ in their searching styles. Some may search only abstract, or introduction; others may look for specific section or topics; other wants whole text search; and some other would like to review or evaluate the information available on the field. They need a claim of documents.
6. When a set of documents have multiple searchers, there is need to develop content, organization, and style to serve both primary and secondary searchers.
Information searching and organization has to be constantly tuned to the needs of the searchers. Therefore, it is necessary to have informal and formal interviewing of searchers and other clientele of information centers.

3.2.4 Elements of Information Seeking Behaviour

Information-seeking is a matter more or less related to the sense making, in which the individual chooses an item of information that best fits to his needs and purposes.

Making an in-depth study of information needs, Dervin and Nalin (1986; p. 12) have proposed a paradigm shift for information-seeking behaviour. They have identified an automative set of premises and assumptions, the essence of an alternative paradigm in a set of six elements. They are:

1. the conception of information as objective versus subjective;
2. information-users as passive recipient or objective information versus purposive, self-controlling, and sense making beings;
3. user of information on behavior applied across situations versus behavior understood as the result of dialogue between system and user, in which need articulation goes through situationally bound interaction;
4. the study of user-behavior primarily in the context of user-interaction with the system versus holistic approaches that focus on the whole social interaction;
5. focus on external behavior internal cognition; and
6. concerns that a focus on individual behavior yields too much variation for system to integrate versus the need with individuality in user-behavior. They, however, conclude that traditional approaches have aspired to sophisticated quantitative techniques...yet in the context of the impetus of the paradigm shifts, scholars are now calling for supplementing quantitative approaches with inductive and qualitative approaches.
3.2.5 Factors affecting Information Seeking Behaviour

The means that an individual resorts to in order to satisfy an information need will depend on certain factors. Certain points will have to be considered when an individual decides on a certain course of action, they include:

1. Whether the source is within reach
2. Whether money will be involved - if so, how much money
3. Whether time will be involved, if so, how much time
4. Whether the source will have the answer to their problem
5. Whether they will understand what the source provides as answer.

Other factors include social, political, geographical, educational etc.

1. Social factors- for example, a desire for information on such topics as sex education, fashion, music, (openly available in other societies), may not be looked upon kindly in certain societies (read 'closed' societies) as a result of which an individual may have to resort to secret means for acquiring the information.

2. Political factors- The political system (particularly those under dictatorship) may define certain types of information (defence, freedom-of speech, expression, rights, etc) as forbidden to particular groups or to the public as a whole, consequently, the non-availability of such information may motivate a person to resort to 'underground' (in the govt.'s opinion) means.

3. Geographical factors- The geographical location of an individual also decides how he goes about seeking information. Geographical isolation may lead a person to resort to uncommon means of seeking information.

4. Educational factors- The educated and uneducated may have differing methods of seeking information, the educated person resorting to more formal means(information system) while the uneducated one depending more on informal methods (i.e. other people) (Laloo; 2002; pp. 20-21).
3.2.5.1 Factors of Motivation in Information Seeking

There is a varying degree of motivation to seek information. It primarily depends upon the work situations or level of requirements or organizational factors. Individuals with this motivation to seek information on politics may not have the same degree of interest to seek information on scientific research/or on investigative law.

Goldhaber, et al (1978: P. 82) suggest that persons are interested to seek information concerning their work environment. The motivation to seek information lies in information itself. Persons seeking information about job-related matters are very often motivated by the desires to get rewards for successful performance. Individuals will not be motivated to seek such information because of the same is perceived, that being reinforced.

Individual's referent criterion or past experience also contributes to his/her information-seeking behaviour. The presence of a referent criterion would reduce the degree of probability of individual's seeking information, because the need for new information is minimized (Grunig and Dibrows, 1977: p. 145). They contend that the stronger the involvement, the higher the probability that individual would seek information about the situation.

On a study of a health information system, Etteme, et al (1983: p. 525) find that circumstantial factors as predictors of information-seeking would not be powerful enough to generate active search for information, when such information is not readily available. In situations, where information related to the specific issue is readily available, individual situational factors would again emerge as better predictor of information-seeking.

Individuals in the course of time may exhibit different information-seeking behaviour, because of a significant difference in the nature of the problem. Certain jobs and lifestyles may be characterized by the degree of constraints they happen to face. There can be two types of situations in which information is consulted: (i) continuous, and (ii) discrete. Bureaucrats, for example, while dealing with specific issues face discrete problems. But journalists whose responsibility is to report in a
daily manner need information continuously. The distinction is in the predominant nature, and this predominance may manifest itself in a general pattern of information-seeking.

How the users, especially the scholars, use the resources and that is their usual habit of seeking information has been the concern of information intermediary. The same is being studied from a variety of perspectives. It is the responsibility of not only library and information science, but also the sociology, psychology, and cognitive science and communication studies. Increasingly, ethnography documenting the behaviour of individual scholars in their teaching and research environments will provide needed context for such work. Limited progress in explaining and predicting human information-seeking, retrieval and use, however, may be attributed to a lack of agreement about whether appropriate goal is to develop general or restrict investigations to descriptions of specific cases (Sandstorm, 1971: p. 418).

There are different dimensions of behavioural assessment, while some emphasize the sociological approach as the appropriate one, others prefer psychology or cognitive science that leads the behavioural patterns. Some still say communication system to be the mainstay in shaping the behavioural designs, while others consider observable behaviour or actions of the information-user that mould the human information-seeking behaviour.

3.2.6 Information Seeking Behaviour : Classification

People seek information in different ways and for different purposes. Thus the method of information-seeking varies form person to person and situation to situation. Lonnqvist (1990: p. 200) has identified the existence of two types of information-seeking:

1. Specific information-seeking with subject acquaintance of the scholar.
2. Dependent information-seeking when the subject is new and the scholar is not aware.

While the scholar is well aware of the subject, one can undertake information-seeking in a specific way that suits his/her needs. That is to say, one can gather
reference to literature on the subject in a specific time frame. One can also use the method of chain searching to choose the right track. This can be considered as the greatest skill in information-seeking which is normally practiced by the experienced scholars.

The second type is confined to either scholars started to work on a new subject or new research project which is not known to him, or the user is not mature enough in terms of use of information sources.

The above two types of information-seeking do not always occur in their present form. Individual variations could be seen, but it is fair to say that these two main types crystallized.

While studying on reading phenomenon of secondary-school students, Harwood (1973) identifies seven main categories of information-seeking (Christie, 1981: p. 249). These are: (1) reading; (2) consultation: personal contact with the authority; (3) consultation: personal contact with non-authority; (4) thinking: vigorous; (5) thinking: intuitive; (6) systematic observation; and (7) casual observation.

The basic behavioural pattern is to begin with uncertainty, not logic, and built on a sense of discovery and surprise (Schwartz; 1992, p. 137). The method of seeking information by the users varies considerably. Studies of the information seeking behaviour of faculty in humanities, social sciences and sciences reveal some distinct differences (Leckies, 1996, p. 202). It is an established practice that the humanities scholars for their research work depend heavily on the library resources. There is a slight different modus operandi of social scientists who primarily use field survey to support their research work. But, after obtaining data, they focus their main concern of research on the library as the only resource for furtherance of their research work. The matter of information seeking by the scientists appears to be something different since scientific studies are primarily fragmented into micro areas and highly specialized in nature. The seeking of information by the scientists is different from that point of view from that of the above two categories of users. The above phenomena depict that researchers in different disciplines have different patterns of library use and at the same time they have also certain striking similarities.
in information seeking. Although the pattern of information seeking differs, the process of information seeking provides a strong academic and research support for accomplishing the tasks.

3.2.7 Information Seeking Behaviour (ISB): Theoretical Framework

A librarian's major task is to satisfy the users. In order to undertake such a critical task that involves a clear understanding of the psychological and social factors of the human being/ nature, one has to develop a deep understanding of user-librarian interaction based on human behaviour, which often remains unpredictable and complex.

If one looks deeper into the information sphere, the understanding of human involvement is more a factor that contributes to the existence of the system. In that, the attribute, personality and motivational structures that constitute an overall 'Behaviour' of the human being is seen. A person needing information develops certain behavioural options. There are five main classes of these options: i) to wait; ii) to act; iii) to generate information; iv) to seek information; and v) to opt out of situation (Charistie; 1981; p. 150). Each of these classes is broken down into fixed groups and eventually into the specific concrete options available at given point of time. But the general classes apply at the points of the behavioural structure. The user can wait before deciding what to do, can act on the information retrieved so far, can generate information, can seek information, or opt out of the situation, if the same does/does not suit to his taste of need, or interest.

Human being acts as a processor of information. Zweizing in his work utilized the model of the individual as an information processor. Bell's (1991;p 8) study analyses many information processing mechanisms in animals which are applicable to the human being and provides a foundation for understanding searching strategies and techniques, patterns of resource distribution, and trade-off between competition and risk on the time minimization and energy maximization. Charg and Rice (1993; p. 250) have further clarified that Bell's model of ecology influencing animal's searching behaviour providing some insights for the development of human theories.
Researchers in communication psychology have shifted their move to view 'persons' as active and purposeful assets. As a result, human cognition and behaviour have become increasingly a matter to be discussed and applied as mechanism of information processing. Social and cognitive psychologists have developed a number of common concerns within this type of information processing framework regarding such issues as the nature of cognitive structure, verbal memory, the processing of movies and visual information, impression formation, and stereo-typing (*Sypher and Applegate*; 1984 p. 310).

The cognitive dissonance theory of *Fertinger* has clarified that users seek certain information that confirm their pre-existing opinions, attitudes and favours their predisposition. According to the above theory, it is estimated that user's information seeking behavior is guided by their pre-existing attitudes towards an issue, rather than the relative importance and relevance of an issue. This theory is also not free from comments and there has been a second look at the selectivity process of dissonance theory.

What motivates users to seek information is a question of great importance. The motivation to seek information should vary as individuals move from one knowledge area to another. Individuals with high motivation to seek information on handicraft policy would not have the same degree of motivation to seek information in subject such as agricultural policy. *Etteme* (1983; p. 525) while making a study on health information campaign claims that situational factors as predictors of information seeking would not be powerful enough to generate active search for information when such information is not readily available. In situations where information related to the specific issue is readily available, individual situational factors would again emerge as better predictors if information seeking.

Individual's past experience or referent criterion also influences their information seeking behavioural (*Gruning & Disbrow*; 1977). According to their observation, past knowledge reduces the probability of individuals seeking of information, because the need for new information is minimized. They again suggest that the individuals who perceive themselves involved in a situation would be more motivated to communicate about the problem. As a result, the stronger the involvement, the higher the probability of information seeking from a situation.
In certain work setting, employees of organizations seek information related to their work environment. Here, the motivation lies in the information itself. Individuals who seek information on the job and related matters are motivated by the desire for successful performance. Information perceived is connected to performance standards.

### 3.2.8 Information Seeking Behaviour (ISB) Vrs Theory of Cognition

The term 'cognition' is an ambiguous term. It has meant different things to different people at different times. The Oxford English Dictionary lists several meanings of cognition including the action of faculty of knowing. Some other concepts, with which cognition is associated, include awareness, comprehension, skill and, understanding (Benjafield, 1993: p. 3). Cognition has a place of prominence in psychology and it has got a branch called 'cognitive psychology'.

Cognitive psychologists have propounded some theories related to cognition. Among these, Peak's theory of psychological structure is used in a very common sense approach to refer to a system of relationship between identifiable episodes. The organs of the structure may be psychological traits, complex concepts having different characteristics, speech, symbols, etc. These components of psychological structure are located in a spatiotemporal manifold, and are related to each other in many different ways. Behaviour appears to be the phenomenon that leads to a change within or between structures. Peak's analysis emphasizes the condition that influences the probability of activation and the psychological structures (Lindzey and Aronson, 1968: p. 321).

One can ask what the basis of seeking is. Seeking arises when there is some perceived need. It is required to determine why individuals selectively see certain kinds of information while they ignore or reject others. Based on Festinger's cognitive theory, it was suggested that individuals seek information that confirms their pre-existing opinions, attitudes and favours their predisposition (Rahim; 1990; p. 100). In the same work, it is noted that individual's information seeking behaviour is not guided by the relative importance of relevance of an issue, but rather by their pre-existing attitudes towards the issue.
On the other hand, **Hawkins and Daly** (1988; p. 202) have added selectivity process of dissonance theory. They have viewed that the selectivity process is not only a cognitive phenomenon, but it should be viewed interactively with other variables such as emotion, availability of information and specific domain of information.

The implicative and international character of cognitive theory has been developed by **Ablesen and Rosenberg** (1958). They considered the elementary units of cognitive organization to be cognitive representation of this concrete and abstract and to which individuals can attach verbal levels. They proposed a three-fold classification of element types:

1. Actors: one-self, other people, groups, etc.
2. Means: actions, instrumental responses, etc.
3. Ends: outcomes (final products).

These elements can be connected by four types of relations, namely, positive, negative, null, and ambivalent. The elements and their relationship form the cognitive units that help people in knowing, perceiving for conceiving a particular thing through the development of a faculty at the mental stature distinct from emotions and volition.

Since a library is designed to provide services to multifarious users, it is essential to know the different personality traits of the users so as to determine their behaviour patterns. Cognition plays a vital role that influences the user's attitude towards the use of library materials. Again, it effects the information needs and information-seeking behaviour of the users to a great extent.

Thus, it is imperative on the part of the researchers of LIS to depict a thorough view of the cognition and its different aspects that have different direct bearing on the human being in using resources of libraries.

### 3.2.8.1 Information Seeking Behaviour (ISB): Behavioural Approaches

The term 'behaviour' refers to any activity of a living organism, human or subhuman. It may consists of a simple overt or covert responses. **Runkel and McGrawth** (1972: p. 174) define behaviour as a real world event involving overt and
covert responses by one or more actors to a task and situation. It is said that a child knows how to walk, or ride a tricycle. The evidence is simply that the baby and child exhibit the behaviour specified. Moving from verb to noun, one can say that they possess knowledge, and the evidence is that they possess behaviour (Skinner, 1974: p. 151).

Behaviour exists only when it is being executed. Its execution requires a psychological system, including effectors and receptors, nerve and brain. The system was changed when the behaviour was acquired, and this is the chain system which is 'possessed'. The behaviour it mediates may or may not be visible at any given moment. There are parallel in other parts of biology.

Knowledge is associated with behaviour, be it verbal or non-verbal behaviour. The concept of information theory is applied wherein a message is sent through the form of sound stream between the speaker and the listener. The transmission of information from one person to another has been used metaphorically to represent the transmission of input into output. As a form of knowledge, information can be treated more effectively as behavioural repertoire.

Hence, the term behaviour stems out from the internal need for information that corresponds to the external environment of the human being. Here, it is apparent that behaviour towards information becomes an essential element that constitutes one of the major ingredients in the study of information needs and information-seeking behaviour of the user-community.

A library, which is very often described as the storehouse of knowledge and information, deals with users of various kinds. It moulds the behaviour of the users at different points of time depending upon the available resources, technology and expertise of the professional intermediary. The physical environment of a library attracts the users and repels too. While users are the central focus of the library and information system, their attitude and behavioural aspects appear to be not only interesting but also essential in determining their specific needs and in designing a suitable information system and services. Hence, it is imperative on the part of library intermediary to render adequate importance to the cognitive and behavioural aspects of its clientele so as to put its resources to optimal use.
3.2.8.2 Theory of Cognition and Behaviour in LIS Research

While the physical sciences deal with matter and property of various kinds within the confines of a laboratory, social sciences primarily consider human being and its surrounding as its field of study and research. The LIS users are considered as one of the most vital elements for the research work, because the interaction of the users with library and information system is the key issue that helps the system to grow and work effectively. In this connection, it can be discerned that the attitude and researcher's knowledge on cognition and behaviour to LIS research becomes crucial.

3.2.8.3 Human as Information Processor

Human being has sensory receptors like eyes, nose, ears, etc., that pick up signals of different kinds at different circumstances. These signals are information that are transmitted to the processing unit called, brain. The result of the processing is output/responses in the form of physical, spoken, written, etc. Although the capacity of processing information in human is limited, it produces effective solution to problems. Information processing in human being is being catalyzed by the concept 'cognition' whereby; the output appears to be highly purposive, effective and refined.

3.2.9 Information Seeking Behaviour (ISB): Models

A social researcher, before making an in-depth progress on the problem in hand, usually demonstrates his curiosity in order to ascertain whether any of his predecessors had carried out research similar to his problem, and if so, any model or theory to that effect has been established. This curiosity not only helps the scholar to conceive an idea during his initial stages of research, but also cautions him about the expected problems, which this scholar might encounter during the course of his investigation. Besides, such models sometimes act as path-finders. Thus, a question is frequently cropped up in the mind of a researcher as to why do people prefer particular source than others. Although there needs research into the matter to explore the truth, still it can be a common reply that the individuals select the sources that would be possibly a relevant material that contain required information with ease of access. People have several preferences for seeking information. Even if, it is very often based upon certain hierarchies. One can presume that given a choice, individuals
prefer to get their information from a knowledgeable and perceptive source (i.e., one that knows the subject and understands the situation.

Users seek information at different situations on difference circumstances. What is the behavioural implication related to information-seeking is matter that needs detail discussion.

It can best be illustrated and examined by a couple of models developed by experts on user studies and information seeking behaviour.

Early models of information-use were more conveyed with document-seeking or library-use than with the characteristics of behaviour. These works are confined to the use of the library system and use of various types of documents. Very little is known about developing dynamic models of behavioural patterns of the information-user. As a result, adequate coverage and direction could not be established on the development of information system.

However, a change was witnessed in which researchers have sought to use models based on the information-user as an organizational member and as a performance of different kind of tasks, with different kinds of needs. With the advancement of library techniques, use, development of information system and services, a close was given to the information needs and information seeking behaviour. In spite of the narrowness of the research base, several in-depth studies were conducted in a specific subject areas to determine the users, their information needs and specific traits of information-seeking behavior of the user through development of suitable models.

During the early 1900, an economist, George stigler, had developed optimizing models of information seeking, in which he proposed the use of concept of utility maximizing behaviour to assess the quantity of information people would acquire at different levels of cost and effort: "the optimum amount of search will be such that the marginal cost of search equals the expected increase in receipt, strictly parallel to the analysis of buyers (Schwartz, 1992: p. 129). Stigler's theory, the "law of diminishing returns in information market", among other things is primary considered as a significant contribution for which he was awarded Noble Prize in
1982. Many social science researchers and authors have utilized his idea in their research work.

Similarly, satisfying models concerning to information-seeking designed by Simon in the 1970s emphasizes the extant, to which individuals and groups simplify and terminate their work on a problem, not for reason inherent in the logic of the problem, but for practical constraints (for example, time, money and patience). Simon was also awarded Noble Prize in Economics in 1978 for innovating such approach to decision-modeling.

None of the above two models seem to hold any real prospect for generating a cumulative, theoretical framework about information-seeking behaviour. This is, economic models are rarely, if ever focus on psychological principles of optimal effort in information-seeking for which a paradigm shift on developing behavioural models are found.

Krikelas (1983: p. 17) has presented "the alternative model" to information-seeking behaviour. Though his model does not elaborately or specifically discuss information-seeking behaviour, its ultimate value lies in its utility in the design and analysis of future empirical studies.

However, the models developed by Mick et al (1980: p. 348-351) on management-oriented information research appears as very pragmatic towards describing and studying information behaviour. In their description of 'individual behaviour model', they observed individual information behaviour in a corporate environment, where they could identify factors affecting individual information behaviour into a form for suitable policy-oriented approach to user studies. The individual behavioural model assumes that there is an internal, consistent logic, which governs information behaviour. That logic is the product of task requirements and constraints, perceived utility of various information sources, and the criteria for successful accomplishment of the task.

This model provides a perceived list of potential actions in response to a task, a style function, on evaluation function that provides feedback to the style sub-programmer based on the response to behaviour.
In their attempt to develop a new model for information behaviour, they found a generalized model of scientific and technological information-seeking. The conceptual version of this model shows that a stimulus generated within the context of a particular situation, which occurs within an environment and a set of attitudes that generate an information need. A general plan of action is generated in response to this need resulting in a specific action. Once the specific action is performed, its results are evaluated and results of the evaluation provide feedback to attitude and need. This model is used to guide the exploration of the relationships among variables affecting information behaviour.

Robert’s (1993: p. 472) 'information man' model is more applied in classical economics, where it predominantly plays a major role in economics than on information studies. As he pointed out typically, information man does not have an analytical role, even within limited information environments. His functions are as implicit as his presence. Assumptions about what constitutes behaviour have influenced both the direction and the kind of research undertaken; the problems studies in effect, are indirect reflection of information man. They are no less substantial for being unacknowledged. It is unusual to discover data being explained by resource to behavioural interpretation derived from assumptions held about such behaviour.

Although 'information man' is simple and conservative for the purpose of study, it shows an epitome of conceptual sophistication compared to major extent models of information-seeking behaviour used for information retrieval research.

In the grounded theory approach, Ellis (1993: p. 473) has propounded a behavioural model of the information-seeking patterns of academic social scientists. This model was employed to recommend for information retrieval system design. Further studies were also concluded modeling the information-seeking patterns of academic and researchers in science and literature at the University of Sheffield.

Wilson (1981: p. 9), however, has a different but pragmatic view on discussing a model. In his opinion, human personal needs are at the root of motivation towards information-seeking behaviour. These needs emerge due to different roles an individual plays in social life. The 'work role' is most important, which is applied in
different activities, responsibilities and achievements of an individual, especially in an organizational setting. The work role generates some cognitive needs, which again leads to affective needs. The ultimate result is the emergence of a pattern of information-seeking behaviour.

Ellis, (1989: p. 171) and Ellis, Cox and Hall (1993: p. 356) use the term 'features' rather than 'stages' in information seeking. The features according to them are:

Starting: The means employed by the user to begin information seeking, for example, asking a knowledgeable colleague.

Chaining: Following footnotes and citations in known material or 'forward' chaining from known items through citation indexes.

Browsing: Semi-directed or semi-structured searching.

Differentiating: Using known differences in information sources as a way of filtering the amount of information obtained.

Monitoring: Keeping up-to-date or current awareness searching.

Extracting: Selectively identifying relevant material in an information source.

Verifying: Checking the accuracy of the information.

Ending: The tying up of loose ends through a final search.

![Fig.1 A Stage Process Version of Ellis's Behavioural Framework](image-url)
According to Wilson (1981; pp. 3-15), many models have been framed in order to explain the information seeking process. A model is framework for thinking about a problem and may evolve into a statement of the relationships among theoretical propositions- or put more simply, models are statements, often in the form of diagrams, the causes and consequences of that activity, or the relationships among stages in information seeking behaviour. Some of the models that have been developed so far are given below:

![Diagram of Wilson's 1981 Model of Information Behaviour](image)

**Fig.2 Wilson's 1981 Model of Information Behaviour**
The model suggests that information-seeking behaviour arises as a consequence of a need perceived by an information user, who in order to satisfy that need, makes demands upon formal or informal information sources or services, which results in success or failure to find relevant information. If successful, the individual then makes use of the information found any may either fully or partially satisfy the perceived need- if he fails to satisfy the need, he will have to start searching again. The model also shows that part of the information-seeking behaviour may involve other people through information exchange and the information perceived as useful may be passed to other people as well as being used by the person himself or herself.

In 1996, Wilson revised his earlier model after drawing upon research from a variety of fields other than information science, including decision making, psychology, innovation, health communication and consumer research. While the basic framework of the 1981 model remains, the revised model had a few additions as follows:

![Fig.3 Wilson's 1996 Model of Information Behaviour](image-url)
3.2.10 New Trends in Information Seeking Behaviour (ISB) Studies

With the growth of information deluge, each one needs information in increasing variety and diversity of level, frequency, volume and use. This complex situation appears to be ambiguous and heterogeneous in character so that information needs of a particular group of users and information flow from a specific situation/organization are difficult to determine. Again the use of information is so complex that there cannot be single system to cope up with the task of effective retrieval without assessing their specific needs. This concept has given rise to the growing concept of information searching and the manner of determining the pattern of search is said to be considered information-seeking behaviour (ISB).

With the advent and use of information and communication technologies in libraries, the patterns of ISB appear to have experienced a changed phenomenon. The users of traditional libraries and their methods of information searching are different from the digital libraries. The range of satisfying information needs varies from traditional library to an electronic library. The succeeding discussion gives a complete analysis on the shape of ISB in a digital information environment.

When a user comes to a library, he has a narrow ideas of information sources and marginal behavioral approaches. While he establishes an interaction with the information intermediary he gets the knowledge of several pertinent sources and his attitudes develop into a very good pattern of seeking behaviour. Similar is the situation in the web-based information seeking.

The growing popularity of Internet has given ample opportunity to the user to browse a large number of sources. While surfing the net, users find several digital information objects of their choice, whether directly or indirectly useful to them. This pattern of viewing the net is developed into a behavioural model of information seeking on the web as combined by Augilar's modes of scanning and Elli's seeking behaviours. They have identified mainly four modes of information seeking, as such, indirect viewing, conditioning viewing, informal search, and formal search.

The study made by Cateleige and Pitkow (1995) on web browsing behaviour found that the web pages tat the users bookmarked did not match the most popular
sites, visited as whole from the group. Only 2% of web pages were either saved or locally printed. They hypnotized that users in their study categorized as browser spend less time on a web page than searchers.

Web information seeking may be influenced by web browser functionality that makes it easy to go back to recently viewed pages. Tauscher and Greenberg showed that overall users only access a few pages frequently (60 once, and 19 twice) and browse in very small cluster of pages. It is interesting to note that web browsing activity is a recurring system, where users predominantly repeat activities they had invoked before, while still selecting new actions from the many that are possible.

In a recent study, Huberman et al (1998) identified several strong regularities of web user surfing patterns and developed a mathematical 'law of surfing' that determines the probability distribution of the depth that is, the number of pages a user visits within the web site (p.95). They developed a 'strong fit' model that predicted the number of requests for each web page on a website by which a more robust understanding of information seeking patterns on the web. The model finally proposes to the existence of utility maximizing behaviour underlying surfing.

Several research studies have addressed how electronic mail affects communication behaviour. It is identified that the e-mail leads to overly emotional message and position. Use of e-mail affects profitability, productivity of even communication effectiveness, which in turn improves the behavioural approach to right decision making for the management. Other studies of information behaviour within the ambit of technology relate to narrow area show a particular system's user interface affects the time users devote to system use. Until a concrete research is conducted the assumption about how information technology affects behaviour can be intuitive (Devenport, 1997).

People use the web as information to support their research activities and to meet day to day information needs. The mode of information seeking on the Web depends on the nature of information needs, information seeking tactics, and the purpose of information use. The most important factors determining the behavioural framework are the motivation and the methods of information seeking. The behavioural patterns of information seeking are guided by the availability of Web-
based information resources and successful operation of search engines. Users find it quite interesting and useful to browse the Web than to search the library documents. Hence, it can be concluded that the Web-based information search has influenced the users since it is congenial in a digital environment.

As costs dropped, networking improved, and small mobile units became available, people were able to conduct electronic information seeking from the workplace to homes and public spaces. The types of plans and actions users take to meet their information needs have evolved from a focus on discrete batch-oriented steps to a focus on integrated subtasks that allow people to more directly attend to their larger information needs (Marchionini & Komlodi, 1988; p. 92-97).

3.2.10.1 New Theories

Research on information-seeking behaviour is on the rise. With the growth to multidisciplinary subjects and interest of researchers of new micro subjects, there appears a tremendous increase of special users in libraries and information centre. To cope with the task of providing satisfactory library and information services, it is always desirable to make a close look at the information-users. Hence, library intermediaries have started to undertake several researches works on information needs and information seeking-behaviour of their users at different levels.

As mentioned in the previous chapter, more than 1,000 studies have been conducted in the areas of 'information need,' 'uses' and 'seeking behaviour'. In spite of such voluminous work done one's understanding of the process that drive information seeking or the variables that influence is limited or inadequate.

While commenting on the problems of user studies in the previous two decades Brittain (1982: p.147) aptly concluded that

Always the number of user studies had increased greatly during the 1900s and 1970s, resulting in an enormous quantity of data about the information gathering, seeking and using behaviour of a large number of scientists, applied scientists, social scientists, practitioners, administrators, government officials, school teachers,
educationists and finally, the member of general public, there were no generally acceptable theoretical guidelines to make sense of this huge mass of data.

**Saracevik** (1987: p. 24) while speaking on information-seeking, however, has characterized the current state of knowledge of cognitive aspects of information-seeking and information retrieval in terms of two basic questions: (1) at the level that the nationalists used to ask a hundred years or so and (2) that concerns not only with identification of the variables, but what is their nature and their effects.

The situation remains same as **Krikelas** reacted to **Saracevik** in the words "work in this area of information-seeking is so difficult, because we are only now beginning to understand how complex the process may be and how difficult it is to define, let alone measure many of important concepts.

Most importantly, the publication, Annual Review of Information Science and Technology,(ARIST) while providing a series of reviews on "information needs and uses" since 1966 has contributed a lot to the research discourse on information-seeking behaviour. Attempts have been made to relate specific variables to particular pieces of information-seeking behavioural patterns. A good number of articles have also been presented which are devoted to in-depth analysis of behavioural components of information-uses. Still a renewed endeavor seems imperative in order to discover some of the important issues that remain hidden and possibly unexplored.

A user-centered philosophy of information seeking has become a pervasive perspective in user studies and in human computer interaction research since **Brenda Dervin and Michael Nilan's** review in 1986.