CHAPTER ~ ONE
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1. INTRODUCTION

1.1 Rationale

The information age has brought dynamic change to countries, organizations, publics, groups and individuals. Labels like "The Information age", "The Information Society", "The Information era", "The Information Revolution" affixed to these societal changes have been many and varied in an effort to capture the essence of what is happening in today's world of information. Currently, the nation is undergoing major shifts from an agricultural society to an industrial society and now to an Information society (Bell, 1973; Drucker, 1974; Machlup, 1962, 1979, 1980). In order to cope with the situation, human, as a society or as individual is truly trying very hard to apprehend or fully comprehend the dynamic causes, processes and the management of effects of these changes. Besides, scientific and technological discoveries in computer and communication technologies, coupled with new socio-economic challenges of globalization and career opportunities, etc have been the prime factors to make information so paramount for the individuals, more specifically for the student's community for the attainment of their purposive goal.
In general the word “information” has been used to denote a physical entity or phenomenon, the channel of communication through which messages are transferred or exchanged. In order to cope with the new demands of information revolution and socio-economic challenges the individuals are required to handle information, both in terms of quantity and quality. In this context, the ways each information seeker meets these demands and chooses to handle information seeking tasks are however varied and somewhat unpredictable. Moreover, the demand for information searching and acquisition of knowledge by the individual is a natural and necessary mechanism of human existence. Such type of information searching behaviour is some time referred as Information Seeking Behaviour by many researchers (Johnson, 1997; Krikelas, 1983; Kuhltau, 1993a; Nahl, 2001; Wilson, 2000).

**Information seeking behaviour** is a process for identification or recognition of needs of information, exploration of sources of information, acquisition and utilization of information for attainment of purposive goals (Case, 2007; Kuhlthau, 1993b, 1991; Wilson, 2000). Generally, Information seeking behaviour refers to the way people search for and utilizes information. Most of the time student’s information seeking behaviour involves active or purposeful information seeking as a result of the need to complete course assignment, prepare class discussion, seminar, workshop, conferences, research, exploration of career opportunities etc. Information seeking behaviour may result into positive outcomes like self efficacy, accomplishment, achievement, positive competition, and decision making, enhanced
Realizing the needs of information seeking behaviour among the students many researchers were interested to explain the information seeking process (Dervin, 1983; Ellis, 1993) information management (Chatmen, 2000; Fisher et al., 2005), etc to explore the activities, programmes and interaction to facilitate the information seeking behaviour for achievement and accomplishment of students. As information searching has been claimed to be crucial for improvement of quality education among students, National Policy on Education (1986 and 1992) had recommended that Universities should develop their own mechanism for maintenance and promotion of information searching among students. Accordingly several effort have been taken by the universities to develop library, documentation centers, media services, curriculum based TV programmes etc for improving the quality of education. However, in spite of tremendous growth in information dissemination service centers, a lot more have to be accomplished to attract the attention and increased rate of participation of various academic groups for effective information searching.

Besides, it has been realized that in spite of the tremendous increase in information technology and processing activities, existing knowledge is often not applied to the solution of individual and societal problems of students. Also, the inequalities, weakness, inaccessibility of many information systems and product are startling (Beal, et al., 1986). A critical component of this task is that of bridging the
knowledge and communication gap between those organizations and individuals in need of education, training and staff development services and programmes and those organizations and individuals that provide such services. This 'gap' or lack of knowledge and communication exists between and within the educational institutions, departments and the individuals. Clearly an issue then is how to facilitate the knowledge and communication exchange regarding available education resources for those individuals involved in educational program and activities. An important prerequisite of such activities is the abilities or potentials of academic groups and suitable characteristics of the university systems or academic institutions for large scale processing and utilization of the resources and services available.

Accordingly psychologists, librarians, officers of media resource centers, planners and others have become increasingly concerned with the concept; antecedent correlates interventions strategies and measures for facilitating information seeking behaviour among students and other academic communities. Realizing its importance for development and improvement of students as well as cost-effective management of information dissemination services, the study of information seeking behaviour of the students has been considered as a major thrust area for Higher Education System.
1.2 An overview of Early Research Perspectives and Theoretical Concept of Information Seeking Behaviour

1.2.1 Early Research Perspectives

The early reference of the concept and issues of the information seeking behaviour were concentrated on the document focused studies of information need during 1948 to 1965. The main objectives of these studies were to explore information need of students. One of the most rigorous of these was a major study carried out in 1972-73 in Baltimore, USA into the information needs of ordinary citizens (Warner et al., 1973). In terms of over all research design and development of the research instrument, this study was recognized as a bench-mark for large-scale investigation of this kind. The study addressed the following issues-What were the information needs of urban community? How were these information needs presently satisfied? Could institutional forms be devised to better satisfy these needs?

In this context, the findings of studies from 80’s and 90,s were concentrated on students problems in information seeking and their library use (Hoglund and Thorsteinsdottir, 1996).

Since the 1980’s there has been a shift towards a ‘person centered” approach rather than a “system centered” approach. This has been accompanied by a switch from quantitative methods to qualitative methods. The investigation by Ellis, Dervin, Kuhlthau and Wilson was regularly associated with both approaches. Wilson’s
worked on the INISB (Information needs in local authority and social services departments) used semi-structured questionnaire for investigation (Wilson and Streatfield, 1980). These studies were followed by his observation on the evaluated implementation of a number of innovations in social services departments.

Cacioppo et al., (1984) in a series of studies devised a measure to identify general trait related to individual’s motivation to engage in cognitive acts of information searching. Verplanken et al., (1992) had used a Dutch version of this instrument to explore the relationships between need for cognition and the amount of effort expanded in external information searching.

Generally information need is a subjective phenomena and a relative concept only in the mind of the experiencing individual (Wilson and Streatfield, 1981). Miller and Jablin (1991), in this study found that organizational newcomers seek information when gaps exist between the quantity and or quality of information possessed and that which was desired to reduce uncertainty regarding one of three issues: (a) tasks, (b) relationships with new coworkers, or (c) performance. Besides, they on the basis of data based facts indicated that information seeking is the proactive communicative process of gathering information from one's environment, typically for the purposes of uncertainty reduction. Information use is the incorporation of found information into their pre-existing knowledge base, by thinking, by taking notes, or in some way cognitively processing or acquiring the information (Dervin, 1992; Todd, 1999).

Studies of undergraduate student’s relations to libraries had been conducted also in the Nordic countries in Danmark, 1995; Sweden, 1995 and Finland, 1996. The results
showed that students were rather frequent library users (Höglund and Thorsteinsdottir, 1996; Pors, 1995; von Ungern-Sternberg, 1996) although there was large differences in how students of different disciplines utilized library services (Höglund and Thorsteinsdottir, 1996). Generally, as part of information searching the students wanted more course literature and more generous opening hours (Pors, 1995). The user education programmes of libraries were not frequently used by the students (Pors, 1995). Again the Finnish and Swedish studies highlighted that students were interested to know more about their skill for information seeking and library use (Höglund and Thorsteinsdottir, 1996; von Ungern-Sternberg, 1996). On the contrary, it was observed that students also expected a traditional service from the library and they did not identify the library as an information center or as a place for studies (von Ungern-Sternberg, 1996).

In line with the trends of above mentioned empirical studies many researchers have framed many models in order to explain the information seeking process.

1.2.2 Models of Information Seeking Behaviour

Any analysis of the literature of information-seeking behaviour must be based upon some general model of what might be called "information behaviour", of which information-seeking behaviour is a part. Many models have been framed in order to explain the information seeking process. Some of the significant models are presented here:
Line (1973) pointed out that all people are individuals and will seek and use information in different ways. There is no such thing as a homogenous 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.

James Krikelas (1983) in his model suggested the following steps of information seeking: (1) perceiving a need, (2) the search itself, (3) finding the information, and (4) using the information, which results in either satisfaction or dissatisfaction.

Kuhlthau (1991) of Rutgers University suggested a process approach with an emphasis placed on cognitive skills. Kuhlthau's model goes beyond the actions of seeking and looks at the thoughts, feelings, and actions of the seeker as they go through their process. Kuhlthau formulated a model depicting common patterns of tasks, feelings, thoughts and actions in six stages: (i) Initiation: to recognize information need (ii) Selection: to identify general topic (iii) Exploration: to investigate information on general topic (iv) Formulation: to formulate focused perspective (v) Collection: to gather information search (vi) Presentation: to complete information search.

Leckie et al., (1996) in his model highlighted that needs create an awareness of information sources and/or content, and thus motivate a person to examine those. Here the most important variables are thought to be the familiarity and prior success.
with the source (or the search strategy employed), along with the trustworthiness, packaging, timeliness, cost, quality, and accessibility of the source.

Johnson (1997) in his sense making perspective focused on how all information seeking takes place within a context and must be understood as influenced by context. Besides Johnson asserted that information seeking begins only when a person perceives a gap in his or her existing knowledge. Information seeking is an end in itself because it is an activity expected of certain individuals in a social system.

Maletzke (1963) in his model focused upon the communicator and the channels of communication and indicated that the study of a particular topic needs to be undertaken in the context of the surrounding field. Thus, information searching should be explored with an understanding of information and the latter with an understanding of information behaviour in general.

According to Kumar (1983) information seeking process is related to (a) Identifying objective, (b) Defining need, (c) Assessing information systems, (d) Establishing sources of information, (e) Information acquisition, (f) Use of information and (g) Satisfaction/Dissatisfaction.

The conceptual framework for the present study was significantly relevant with the concept of the most popular Wilson’s model (1981 and 1999) which had reflected trends in the theory and practice of information seeking research. Wilson’s
information user has a need, which (may or may not) stem from his or her level of satisfaction (or dissatisfaction) which leads the user into a cluster of activities, the most straightforward of which is to make direct demands on sources or systems of information. The results of these demands lead either to success (in which the information is "used") or to failure. An important aspect of Wilson’s model is the recognition that information is exchanged with other people (information transfer) in the course of information use and seeking behaviors. His model explained the following three aspects of information seeking (1) Why some needs prompt information seeking more so than others (stress/coping theory, from psychology)? (2) Why some sources of information are used more than others (risk/reward theory, from consumer research)? (3) Why people may, or may not, pursue a goal successfully, based on their perceptions of their own efficacy (social learning theory, from psychology)? Wilson’s “activating mechanisms” as motivators can be thought of as motivators. These motivators are affected by intervening variables of six types: psychological predispositions; demographic background; factors related to one’s social role; environmental variables; and characteristics of the sources.

From the above models it was found that information seeking behaviour is a communication process (Miller and Jablin, 1991) and it would obey the principal of individual differences (Wilson, 1995; Kassebaum and Szenas, 1994) in terms of need (Anderson, 2000), cognitive behaviour (Caciappo et al, 1984), mental acts (Wilson, 2000) etc and such phenomenon may also vary under changes of circumstances of
library (Wallace et al. 2000), teaching-learning process (Lehtinen, 1997), discipline of studies (Marchionini, 1995; Williams, 1999) etc.

The development of early concepts by the researchers on information seeking behaviour had indicated that the investigators had gradually shifted from information seeking behaviour as a global construct, inherently either person or situation towards viewing them as multidimensional construct that are part of person situation interaction. Accordingly in order to understand the concept of information seeking behaviour for its application in scientific investigation the following definitions and set of characteristics seem to the present author highly meaningful and useful.

1.2.3 Definition (s)

- Spink and Cole (2004) defined Information seeking as a subset of information behaviour that includes the purposive seeking of information in relation to a goal.

- Johnson (1997) defined “Information seeking as the purposive acquisition of information from selected information carriers”. Information seeking is a process of volition and the result of intellecction.

- Information behaviour can be defined by the general model of information behaviour developed by Wilson. (Wilson, 1999). According to Wilson a
general model of information behaviour needs to include at least the following three elements:

• "an information need and its drivers, i.e., the factors that give rise to an individual's perception of need;
• the factors that affect the individual's response to the perception of need; and
• the processes or actions involved in that response."

* Again Pettigrew (1996) defined "Information-seeking behaviour involves personal reasons for seeking information, the kinds of information which are being sought, and the ways and sources with which needed information is being sought."

• Taylor (1991) defined information behaviour as the product of certain elements of the information use environment. Based on the definition he believed that the information behaviour of different groups of people also is different. The elements are:

  • "The assumptions formally learned or not, made by a defined set of people concerning the nature of their work.
  • The kinds and structure of the problems deemed important and typical by this set of people."
• The constraints and opportunities of typical environments within which any group or subgroup of this set of people operates and works.

• The conscious, and perhaps unconscious, assumptions made as to what constitute a solution, or, better said, a resolution of problems, and what makes information useful and valuable in their contexts."

• Information seeking behaviour refers to the way people search for and utilize information.

The analysis of the empirical studies and models indicated that the researchers have tried to conceptualize information seeking behaviour in terms of four perspectives. In this regard while the first group Dervin (1992); Wilson (2000); Todd, (1999) tried to explain the information behaviour as the totality of human behaviour in relation to sources and channels of information including both active and passive information seeking and information use. At the same time other group indicated information seeking behaviour as the purposive seeking for information as a consequence of a need to satisfy some goal (Pettigrew 1996; Wilson 2000). The third group tried to explain information use behaviour in terms of physical and mental acts involved in information searching (Wilson 2000). The 4th group indicated that information need consist of the process of perceiving a difference between an ideal state of knowledge and the actual state of knowledge.
Based on the above mentioned review based fact, in this study information seeking behaviour has been considered as a process of problem solving activities for identification or recognition of needs of information, exploration of sources of information, acquisition and utilization of information for attainment of a purposive goal, etc.

On the basis of above attributes and models, following characteristics and components of information seeking behaviour have been identified.

1.2.4 Characteristics of Information Seeking Behaviour

Considering the different theoretical assumptions, the general characteristics of Information seeking behaviour are as follows:

1. Information seeking behaviour is a subjective phenomenon (Choo et al 1998; Vakkari, 2003; Yerbury and Parker, 1998; Zerbinos, 1990).

2. Information seeking behaviour is related to psycho-social demographic and situational factors (Krikelas, 1983; Kuhlthau, 1993a; Ocholla, 1996; Solomon, 2002; Brown and Cezerniewicz, 2007; Callenan, 2005; Danny, 2008; Urquhart et.al., 2003; Yousefi and Yousefi, 2007), availability of resources (Baldwin and Rice, 1997; Johnson, 1997; Geck, 2006; Latrobe and Havener, 1997).
3. Information seeking behaviour is an individualistic phenomenon unique to each student in terms of the personality disposition, demographic characteristic etc (Holland, 1959; Kassebaum and Szenas, 1994; Kirton 1989; Kernan and Mojena, 1973; Palmer, 1999; Revelle and Loftus, 1992).

4. Information seeking behaviour is a subjective response which is hard to avoid by the student, such needs may or may not corresponds to immediate academic or career situation (Bilal and Kirby, 2002).

5. Information seeking behaviour may result into positive outcomes like self efficacy, accomplishment, achievement, positive competition, facilitates decision making, enhance self confidence, etc (Butler, 1999; Elliot and McGregor, 1999; Elliot and Church, 1997; Elliot and Harackiewicz, 1996; Thompson, et al., 1995) and as well as negative outcome in an individual like anxieties, fear, aggression, neurotic behaviour, negative competition, etc (Ellis, 1989; Ingwersen, 1992; Kuhlthau, 1993a; Oliver and Oliver, 1997; Oliver and Perzylo, 1994; Wilson, 2002).
1.2 Components of Information Seeking Behaviour

There are various dimensions/factors of information seeking behaviour which operate when a person involves in information searching activities namely; need/purpose for information search, drive for search, Mode of information use, Level of cognitive nature of search, preferred mode of accessibility of resource, involvement in resource utilization, satisfaction and obstacles encountered by the user etc. All these attributes were considered as components of information searching behaviour by many researchers (Bates, 1999; Järvelin and Ingwersen, 2004; Johnson, 1997; Krikelas, 1983; Kuhltau, 1993a; Nahl, 2001; Wilson, 1999). All these variables had indicated important implication for research in information seeking behaviour. Some of the theoretical concept has been explained in the following section.

(a) Information Need

At the root of information-seeking behaviour is the concept of information need (Belkin, 1978; Fidel, 2000; Hjorland, 2003), the experience of which can only be discovered by deduction from behaviour or through the reports of the person in need. Information gathering comes about because of an environment or event that creates needs (Bystrom, 2000; Krikelas, 1983; Kuhlthau, 1993a; Solomon, 2002).

Information need is described as an anomalous state of knowledge (Belkin et al. 1982) or a gap in individual's knowledge in sense-making situations (Dervin and Nilan, 1986). In this regard Wilson pointed out that there must be an attendant motive when a person experiences an information need (Wilson, 1997). Information need is a
subjective, relative concept only in the mind of the experiencing individual recognition of a gap in individual's knowledge in sense-making situations (Dervin and Nilan, 1986; Krikelas, 1983; Wilson and Streatfield, 1981).

Some research studies highlighted that information need is not a primary need, but a secondary need that arises out of needs of a more basic kind; and second that in the effort to discover information to satisfy a need, the enquirer is likely to meet with barriers of different kinds. There must be an attendant motive actually to engage in such behaviour (Burnkrant, 1976; Wilson, 1997). The notion of motive is implicit in gratification theory (Fiske, 1990), which had been developed in mass communications research. The theory also suggested (Rubin, 1986) that people are active seekers of information to gratify their needs. McQuail (1972) suggested four main categories of gratification, which fall mainly into what they had called affective needs, but for which, clearly, information may have a role in gratifying: (a) Diversion- escapism; emotional release, (b) Personal relationships: companionship, social utility and (c) Personal identity: comparison with life; reality exploration; value reinforcement

(b) Involvement in Resource Utilization

The generated information cannot just float about in air just as water is contained in a vessel, so too its information contained in different sources. Information finds its way into (a) Primary sources; (b) Secondary sources and (c) Tertiary sources. Again sources may be formal and informal. It is an almost universal finding in studies
investigating scholarly information seeking that there are differences in the preferences of sources by the seekers. In most fields people prefer informal information sources and channels over formal searches (Johnson and Meischke, 1991b; Pennanen and Vakkari 2002; Witte, et al., 1993), as the use of informal sources saves time and energy (Connell and Crawford, 1998), had identified important implication for information behaviour research. Researchers also found that interpersonal sources were, 'better suited to handle special individual needs and questions', due to the immediate feedback available from the source. An explanation for the use of people as information sources was that they were easier to approach than more formal sources and therefore they were a least effort option (Johnson 2004).

Generally, people seek information from variety of sources and it was found that, where individuals were exposed to information from more than one channel, their information-seeking behaviour had increased (Toggerson, 1981). The role that information sources have played in the information seeking process had been addressed by knowledge gap researchers (Baldwin and Rice, 1997).

Today advances in information technology have changed student information seeking. Inadequate use of the library had been documented as a major obstacle to obtaining academic information (Dreifuss, 1981; Morner, 1993).

In this context researchers highlighted that extension of multimedia resources and electronic resources during 1994 to 1995 had changed the trends in information
search strategy of students. Not only that the perceived accessibility of resources in terms with their capabilities about technical and financial resource support were considered as important component for information seeking behaviour.

(c) Drive for Search

Information seeking behaviour arises out of a motivation to make sense of the world around individual (Dervin, 1983). In understanding human behavior, psychologists were interested in knowing about motivators behind specific actions. Debates had pointed out extrinsic motivators (e.g. rewards/punishment) against intrinsic motivator in attempting to determine what best motivates individuals.

The "activating mechanism" of information behavior can be understood as a consideration of motivation. Chatman (1999) discussed this in terms of situations that would cause an inmate to cross information boundaries, in other words, to be motivated to get information from outside the inner circle. She named three conditions that need to be met: a) the information is critical; b) it is relevant; and c) the current situation in no longer functional. Knaus et al (2000) found that individual motivation was positively related to the level of information-seeking behavior.

(d) Mode of Information Use

To understand the nature of information seeking, the transfer of information and its exchange have been a very significant issue in a wide variety of studies (Allen, 1977;
Lazerfeld et al 1948). In this context Wilson (2002) in his study found the level of information searching is dependent on the level of expected utilization with respect to the demands of information searching.

Constructivism asserts that people use information from their own experience to create constructs in order to solve problems, anticipate future events and to make sense of the world (Dervin, 1999; Kuhlthau, 1993a, 2004; Pitts, McGregor and Stripling, 1995). Thus the information obtained must have meaning so that it can be used in a 'dynamic process of being informed' (Kuhlthau, 2004).

Dervin and Dewdney (1986) asserted that, "information quality and sources had a direct effect on the individual behaviour of the searchers.

Considering the significance of the transfer of information being a significant dimension of information seeking behaviour, a wide variety of studies have been undertaken to look from various diverse angle. However, there have been investigations into how information is used - most notably in policy research.

(e) Preferred Nature of Accessibility

Studies indicated that if information is to be effective, it has to have some qualities like accessibility, precision, timeliness, flexibility, unbiasness, comprehensiveness, compatibility, clarity, verifiability, quantifiability etc. (Simon, 1955, Childers, 1975).
A fundamental requirement for information-seeking is that some source of information should be accessible (Simon, 1955). The lack of an easily accessible source may inhibit information-seeking altogether. People tend to seek information that is most accessible. According to Harris and Dewdney (1994), information should be physically, psychologically, and intellectually accessible, which is intertwined with the issues of control of the user specifically autonomy and heteronomy.

(f) Diversity in Information Search

Information seekers have been found to be engaging in diverse channels and sources in order to meet their information needs. Bystrom and Jarvelin (1995) focused on the relationships of task complexity, necessary information types, information channels and sources (Rowland and Rubbert, 2001). Tasks were categorized in five complexity classes and information into problem information, domain information, problem solving information and several classifications of information channels and sources were utilized. The findings indicated a systematic and logical relationship among task complexities, types of information, information channels and diversified sources. Iselin (1989) studied the effects of information diversity to the unstructured decision-making tasks and found significant relationship between diversity in information search and the nature of information seeking behaviour (Turoff and Hiltz, 2008).
(g) Nature of Cognitive Domain of Search

In addition to the information need, cognitive component in the form to know, to satisfy curiosity, the desire to be informed (Cacioppo et al., 1984; Verplanken et al., 1992) are facilitating the information searching behaviour of the individuals. Weigts et al., (1993) suggested the following categories of cognitive domain: need for new information; need to elucidate the information held; and need to confirm information held are significant attributes of information searching behaviour. Taylor suggested that there are four more or less distinct steps in the cognitive process concerned with information need and seeking that are common to most information-gathering situations. At first, need for information is at a visceral, almost subconscious level. Individuals move from a visceral sense to a conscious need for information in the second step. Third, information seekers formalize their need for information, verbalizing the specific sorts of information products that would ideally answer their need. Finally, the individual seeking information finds himself in a state of compromise between the ideal information product and actual information products (Taylor, 1990).

Studies highlighted that specific abilities, styles and individual cognitive attributes such as approaches to studying can be an important factor in influencing specific tasks (Ford, Miller and Moss, 2003). Understanding of why different persons search information in different ways is vital before designing information retrieval systems and offering appropriate user support (Ford et al., 2002).
The Psychological approach focuses primarily on the study of cognitive processes in relation to information behaviour. Many psychological mechanisms come to work also in a seemingly rational process as information seeking. Later studies employed these approaches to examine information behaviour at various cognitive states (Aaker et al., 1992; Festinger 1957; Sorrentino and Short, 1986), such as stages in solving problem (Bruce 1999; Kuhlthau, 1991), Cognitive dissonance (Aaker et al., 1992; Festinger 1957; Sorrentino and Short, 1986); Selective exposure (Rogers, 1983) emotional characteristics (Kassulke et al., 1993), the level of familiarity with a topic (Pennanen and Vakkari, 2002), etc.

1.5 Information Seeking Behaviour and Assumptions on Selected Personal and Contextual Determinants

Factors which influence information needs, seeking, and use have been very central in studies involving the users of information. The reason for this is that it has been found that differences in the use of information sources and types exist among professionals (Robinson et al., 1995). These differences can be seen from the factors that influence information seeking. On the basis of previous research the possible correlates of information seeking behaviour can be broadly categorized in to two types namely (a) person related variables and (b) contextual/situational variables.
The strongest predictor of behavior is often the personal characteristics and the environment or situation in which the behavior occurs (Doyle et al., 1997). Thus recognition of individual differences is increasingly becoming an important consideration in user information seeking studies to arrive at some generalization regarding the nature of the seekers and how the seekers information seeking behaviour gets influenced by the situation or context or to locate the possible variables which cause such individual differences in search.

Psychologists have long been attempting to construct criteria, which are as objective, consistent and valid as possible, for classifying and predicting human behaviour in relation to information processing and the learning process. Taylor (1991) believed that the information behaviour of different groups of people also were different. Previous research has shown that students vary widely in their ability to find and retrieve information in loosely structured information environments (Chang and McDaniels, 1995). Some factors that predict search success in such environments include level of domain knowledge and search expertise, ability (Chang and McDaniels, 1998) Gender (ChenLin, 1999); Learner control (Dillon and Gabbard, 1998); Learner Style (Shute, 1993) and interest (Tobias, 1994) and so on.

Some salient features of these studies (theoretical and empirical) have been presented in the following section:
1.4.1 Person Related Variables

(a) Personality Traits

Recently researchers have recognized the potential predictive power of personality and answered the calls for individual differences to take on a more prominent role in the wider newcomer adaptation literature (Chan and Schmitt, 2000; Miller and Jablin, 1991; Wanberg and Kammeyer-Mueller, 2000). Personality traits have been shown to predict a variety of organizational behaviors (e.g., performance, leadership capabilities), including communication (Moberg, 2001; Northcraft and Ashford, 1990; Teboul, 1995; Wanberg and Kammeyer-Mueller, 2000); therefore, personality may predict information-seeking patterns if the appropriate traits, mediating variables, and measures are chosen. Personality as an influential variable on information behavior have received little attention from the researchers (Bellardo, 1985; Borgman, 1989; Kernan and Mojena 1973; Palmer, 1991b; Teitelbaum-Kronish, 1985; Webreck, et al., 1985; Heinstrom, 2003). To date, two trait classifications have been examined in this regard: the Big Five global personality taxonomy (Wanberg and Kammeyer-Mueller, 2000) and traditional midlevel traits such as self-esteem (Northcraft and Ashford, 1990; Teboul, 1995) and tolerance for ambiguity (Fedor, Rensvold and Adams, 1992; Teboul, 1995), both of which are sub dimensions of one of the Big Five.

According to the Miller and Jablin model (1991) and other theoretical and empirical scholars. (Miller, 1996; Sias and Wyers, 2001; Teboul, 1995; Wanberg and Kammeyer-Mueller, 2000), trait-based predictors, such as the Big Five, should help
explain information-seeking behavior. Herold and Fedor (1998) noted that certain traits had affected the relational, performance, and/or task information seeking when overt and/or covert methods were utilized.

In order to get complete picture of information seeking behaviour a consideration of effective and conative elements are important emotional aspects like feelings of frustration, impatient, information overload, resistance to new information and computer aversion may form barriers to the search process (Nahl, 2001). The feeling of uncertainty often expressed as anxiety or worry was particularly strong at the beginning of a search process, when the users became aware of their lacking of knowledge about the topic (Kuhlthau, 1993). Although anxiety in connection to intellectual works usually was a temporary state (Venkula, 1988). Again certain individuals were vulnerable to feelings of stress and worry in an information seeking context (Heinstrom, 2002).

(b) Achievement Motivation

The decision to seek information is dependent on motivation which may have a cognitive origin or be emotionally based as in the need to reinforce previous values. The importance of motivation in information science research has been recognized by few researchers other than Kuhlthau (1991). However, analysis of various motivation theories clarifies the important role motivation plays in information-seeking behavior (McClelland's, 1953). Some motivational components that are important to keep in mind when considering information seeking are level of effort, expectations, and curiosity. The ARCS model of motivation can also be
applied when designing lessons in information seeking. Information is based on a person's emotions and achievement-related goals.

The influence of an individual's needs and desires both have a strong impact on the direction of their behavior (Butler, 1999; Elliot and McGregor, 1999; Elliot and Church, 1997; Elliot and Harackiewicz, 1996). Besides, there are different forms of information motivation including extrinsic, intrinsic, physiological, and achievement motivation.

Achievement goals can affect the way a person performs a task and represent a desire to show competence (Harackiewicz et al., 1997). All of human information behaviors, actions, thoughts, and beliefs are influenced by the inner drive to succeed. Previous researchers have showed a strong relation between information seeking behaviour and achievement motivation (Brunstein and Maier, 2005; Butler, 1999; Harackiewicz et al. 1997). Weiler (2005) explored information-seeking behavior, motivation and compared in a search for possible motivating factors behind students' information needs. Various other researchers have established strong linkage of motivation for information seeking (Butler, 1999; Oliver and Oliver, 2005).

The psychological approach focuses fundamentally upon attributes of the individual; and examines psychological motivations for information behaviour that carry across contexts or are independent of context (Chatman, 2000; Vakkari, 2003: Yerbury and Parker, 1998). Understanding of the motivational reasons behind different information-seeking styles is important for a holistic view of information behavior.
Information seeking is essentially a learner-centered activity and as such holds considerable prospect for supporting meaningful knowledge acquisition and learning. Information seeking is defined by Marchionini (1995) as a high level cognitive process which forms an integral part of learning and problem solving. Learning within a positive instructional environment holds strong prospect for knowledge acquisition that is built for use rather than imitative reproduction in the artificial educational setting. Specific abilities, styles and individual cognitive attributes such as approaches to studying can be an important factor in influencing specific tasks along (Ford, Miller, and Moss, 2003). A better understanding of the link, connections and interactions between specific cognitive styles, learning styles, abilities, and particular tasks of information searching should be established.

There are three basic ways students can interact with each other as they learn. They can work individualistically, competitively and as well as cooperatively (Deutsch, 1962; Johnson and Johnson, 1993). Cooperation is working together to accomplish shared goals. When a situation is structured competitively, individuals work against each other to achieve a goal that only one or a few can attain. When a situation is structured individualistically, each individual perceives that he or she can reach his or her goal regardless of whether other individuals attain or do not attain their goals (Johnson and Johnson, 1989). There is mixed results about the influence of various learning approaches/styles of students on their information searching activities. Druin's (2003) analysis of children's information seeking under two separate
collaborative conditions produced no such conclusion about the extent to which collaboration facilitates children's information seeking. A meta-analysis (Lou, et al., 2001) that examined studies involving student learners using technology found that overall small group achievement exceeded that of individuals working alone. An earlier study of information search styles and gender (Burdick, 1996), has indicated that boys are less likely to enjoy working in socially connected environments than girls (Bilal, 2004). In another study a group of researchers (Anderson et al 2003) found that young children, at various information seeking activities, acted more cooperatively at the computer center than any of the other three centers provided for them.

(d) Gender

Gender as regarded as a cultural and social construction of personality which is manifested in qualities and behaviour of men and women is one individual difference that can be significantly related to successful search behaviour. The gender gap has been proved by several studies of differences in seeking information (Fallows, 2005; Kennedy et al., 2003; Losh, 2003). Gender as a variable can be productive for better understanding of cognitive and social background of human information processing (Sandra, 1997; Nahl and Harda, 1996). The males includes original roles of hunters, fighters and protectors and the females includes qualities of care and sensitivity to others, emotional expressivity, adaptability (Kalnická and Geller, 2001; Ruisel, 2004; Renzetti and Curran, 2003). Research evidence suggested that girls lagged behind the boys on the degree to which they were experienced with and maintained by
technology related search (Light et al., 2000; Schursacher and Morohan-Martin, 2001) as well as their attitudes towards computers and experiencing using web for information seeking (Leong and Havandels, 1999). These mental representations and attitude had an impact on information behaviour. Researchers claimed that the antecedent factors (gender, ethnicity etc) had motivated person to seek information (Dervin, 1989; Johnson, 1997).

Agosto (2001) presented a model of gender-specific information behaviour (Sullivan, M. et al. 1990). Besides gender-related differences were manifested in various dimensions of information seeking like topics, task perception, and affective experience etc (Bain et al., 1999; George et al., 2006; Marcella, 2001; Roy and Chi, 2003; Wilson 2002). Deeper understanding of women's way of knowing has great potential for information behaviour research and 'highlights the value of gender as potentially significant variable' (Julien, 2005). Research showed that women had appreciated especially the communicative features while seeking information, while men were more interested to use individual level transactions, to get information.

1.4.2 Situational Variables

Context and situation are important concepts for information behaviour research. Information needs have not rose in a vacuum, but rather owe their existence to some history, purpose and influence (Case, 2002). The seeker exists in an environment that
partially determines constrains, and supports the types of needs and inquiries that arise (Jacobson, 1991; Marchionini, 1995; Nicholas and Williams, 1998; Rouse and Rouse, 1984; Savolainen, 1998, 1999; Van de Wijngaert, 1999). The seeker also has its own memories, predispositions and motivations—an internal environment of influence. The strongest predictor of behavior is often the environment or situation in which the behaviour occurs.

In contrast to the psychological approach, some researchers were primarily interested to meet the study of social/contextual (Byström, 2000; Chatman, 2000; Limberg, 1998; Taylor 1991). (Marchionini, 1995; Oliver and Oliver, 1997), organizational (Palmer, 1991; O'Reilly, 1983), political states (Wilson, 1981), cultural factors (Hofstede, 1980; Shore and Venkatachalam, 1994); Racial or ethnicity (Agada, 1999; Freimuth 1993; Gourash 1978); Educational level and knowledge base (Bettman and Park, 1980; Ippolito and Mathios, 1990; MacInnis and Jaworski, 1991; Moorman and Matulich, 1993; Radecki and Jaccard, 1995) as impetus for information behavior. It assumed that the study of information behaviour cannot be considered in terms of isolated rather focus on the social context and conditions, interaction, and discourse through which human-information interaction occurs. This approach views the human as a person who lives and acts in a certain context, rather than a user of information systems and services. Some salient features of such studies on situational variables have been presented in the following section:
(a) Information Source and Interaction Context

People seek information from variety of sources and it is found that, where individuals were exposed to information from more than one channel, their information-seeking behaviour increased (Toggerson, 1981). The role that information sources play in the information seeking process, have been addressed by knowledge gap researchers (Baldwin and Rice, 1996; Chatman and Pendleton, 1995) but more exploration is needed in the field.

Solomon (2002) observed and analyzed information behaviour in three different contexts and created an information mosaic for each context that represented patterns of action. When he compared these mosaics he found that common to all were the factors: action preference; way of thinking (cognitive); knowledge about task, (problem) etc.; response to the actions of others (affective). While these attributes are of the actors, he explained some of the differences among the mosaic by the dissimilarities in the constraints each context presented.

Today advances in information technology have changed student information seeking behaviour. Inadequate use of the library has been documented as a major obstacle to obtaining academic information (Watkins 1973, Dreifuss, 1981; Morner, 1993). The multimedia resources have doubled between 1994 and 1995 and this has leaded the student to become more and more dependent on electronic resources so their library use is shrinking (Gilbert, 1996).
Besides the researchers opined that if information is to be effective, it has to have some qualities like accessibility, precision, timeliness, flexibility, unbiasness, comprehensiveness, compatibility, clarity, verifiability, quantifiability etc.

"Access" refers to the breaking of long-standing information barriers, bringing entry to a wide diversity of opinion and opportunity. The immediate environment may facilitate or inhibit access to information. A fundamental requirement for information-seeking is that some source of information should be accessible (Simon 1955). The lack of an easily accessible source may inhibit information-seeking altogether. People tend to seek information that is most accessible. According to Harris and Dewdney (1994), information should be physically, psychologically, and intellectually accessible, which is intertwined with the issues of control of the user specifically autonomy and heteronomy. The explanation for the use of people as information sources has often been that they are 'typically easier and more readily accessible than the most authoritative printed sources' (Case, 2002).

(b) Thrust Areas of Discipline of Studies

Research pointed out that there are specific differences in search strategies in the various disciplines that are created by their information seeking behaviour, the types of information they user, their patterns of mentoring and collaborative research, their funding and their use of vocabularies and paradigms specific to their disciplines (Anderson, 2002; Brown, 1999a; Covi, 1999; Ellis, 1993; Folster, 1995).
Students Information seeking takes place in respond to its immediate social situation or environment and the academic disciplines to which they belong may influence a great deal (Broadus, 1987; Brown, 1999a; Covi, 1999; Ellis et al., 1993; Watson-Boone, 1994; Wilberly and Jones, 1989). The need for knowledge, ways of working and the perspectives of the world around the students are influenced by different sources. Influence in the academic profession is derived from disciplinary foundations. Larsson (2007) aimed at a deeper understanding of information systems and subject representation in relation to academic disciplines (Alm and Larsson, 2003) and stated that the quality of information seeking was enhanced if subject representation had taken into account the contexts, in which documents were produced and used (Hjorland, 1997).

Differences of style of information searchers come from both the individual, his or her own personal traits, predispositions, and biases, and from the training that he or she has received in a particular discipline, including the ways individuals seek information, as is passed on through apprenticeship and practice.

Although differences exist among different disciplines, similar information seeking patterns could also be expected because students are socialized and indoctrinated into research process of their academic disciplines through coursework, methods of teaching and lectures offered by faculties and the major theories and methods for seeking information to complete course assignments are similar regardless of disciplinary differences in broad sense (Smart, Feldman and Ethington, 2000). Prior Information seeking studies also support the notion that users exhibit common
characteristics of information behaviours at different stages of the information seeking process (Ellis et al., 1993; Folster, 1995).

Understanding the user behavior of the students of diverse disciplines in turn may necessitate offering help to design services and products which would transmit the required information most effectively (Eskola, 1998; Zhang et al., 2005).

1.4 Outcome of Information Searching

Although many different kinds of studies had paid attention to how satisfied users were with the information they receive, but very few studies that had dealt specifically with satisfaction of searchers. Studies depicted the three models of user satisfaction and clearly, offered many ideas for further research in this area. They were, first, the material satisfaction model, where the performance of the information "product" in terms of relevance, pertinence, recall, and precision, was believed to lead to "use", which is a measure of "material satisfaction". Secondly, the single path, emotional satisfaction model, whereby material satisfaction (derived from product performance) is seen to lead to "emotional satisfaction", which, in turn leads either to repeat use and/or complaint about lack of satisfaction. Finally, researchers indicated the multiple path, emotional satisfaction which depends upon material satisfaction, the "product setting" (i.e., price, inter-personal skills of the intermediary, etc.), and "disconfirmation" - the extent to which the user's expectations (derived from innate factors such as demographic and psychological characteristics, and acquired
characteristics such as information about the product) were confirmed or disconfirmed. Again, emotional satisfaction leads to behaviour.

Barriers that prevent individuals from seeking and getting information are also of great importance in understanding the information-seeking behaviour of individuals and organizations. Barriers to information seeking referred to the difficulty of the students in gathering required information. The multitudes of barriers faced by the students were related to library related problems, language problem, financial problems, inefficiency in using the internet, unavailability of experts etc. (Wallace et al., 2000). Taylor (1990) noted that after interacting with the information sources (like in a library), what a user actually needs may not tally with what is particularly available, due to constraints either within the stock or due to the users own inability (Mellon, 1986). Again perceived barriers are more important than actual barriers for inhibiting information seeking behaviour. Growing technological advancement and information explosion along with rising competition among the students is creating many new and complex and diverse inhibiting factors for the facilitation of healthy information seeking behaviour. Thus it has become prime necessity to find out the possible ever rising barriers in information seeking which the seekers incorporate while seeking for information.

1.5 An Overview of Assumption and Emerging Needs of Studies

Acknowledging the importance of information seeking behaviour for development of quality education among student different researchers had tried to explore the
theoretical model and methodologies that could examine the personal (Chan and Schmitt, 2000; Miller and Jablin, 1991; Wanberg and Kammeyer-Mueller, 2000) and situational or contextual variables (Byström, 2000; Bates, 1999; Chatman, 2000; Limberg, 1998; Taylor, 1991) that has facilitated or inhibited the information seeking behaviour and its related outcome. Later from the mid of 20th century the researchers gradually shifted from information seeking behaviour as a constructs that are part of person-situation interactions.

In this context model of information behaviour highlighted psychological variables (Chatman, 2000; Ford, 1986; Ford et al., 2001; Ingwersen, 1992; Ruisel, 2004; Talja, Kesö, and Pietiläinen, 1999; Williamson, 1998), demographical variables like Age (Chatman, 1992; Gourash, 1978; Tinker et al., 1993; Todd, 1984) and Gender (Baker, 1996; Creelman et al., 1990; Freimuth, 1993; Harris, 1988; Harris and Dewdney, 1994; Whitt, 1993); role-related (Brown, 1991; Belkin et al., 1982; Ingwersen, 1992; Mick et al., 1980; Pezeshki-Rae. and Zamani, 2005; Leckie, Pettigrew and Sylvain 1996), interpersonal (Borgers et al., 1993; Dervin, 1992; Howze and Redman, 1992; Lueg, 2000; Rogers, 1983), environmental/situational variables (Borgers et al., 1993; Cameron et al. 1994; Marcus and Tuchfield, 1993) and source-related characteristics (Chen and Hernon, 1982; Warner et al., 1973) etc for influence the information-seeking process. The decision to seek information is dependent on motivation which may have a cognitive origin or be emotionally based as in the need to reinforce previous values. Before the relevant information is retrieved the searchers must overcome possible barriers, which sometimes are psychological. They must
experience the situation as rewarding enough and themselves as competent enough to actually take the final decision to seek information (Wilson, 1981; Wilson and Walsh, 1996).

Review highlighted that researchers have defined the term information seeking behaviour (Kuhlthau, 1993; Wilson, 2001) and identified relevant characteristics or attributes of information seeking behaviour. While some studies reported positive outcomes (Large et al., 1994), again others highlighted negative consequences (Oliver and Oliver, 1996; Oliver and Perzylo, 1993).

Earlier researchers indicated that measurement technique of information seeking behaviour have been approached in different way. Firstly, as the contextual force, acting on the individual and Secondly, as the psychological changes and activities of the individuals.

Information seeking behaviour has been studied in several contexts over recent decades. While a number of factors associated with information behaviour have been found, there are several areas only partly researched. Not only that a large number of studies indicated the impact of situational and personal attributes on information seeking behaviour separately but very limited studies have focused on eclectic concept, interactive effects, which is both important theoretically and for those interested in promotion of information seeking behaviour among educational institution. Information seeking behaviour has been considered as a natural process of
human existence and consequences of such behaviour may be functional and dysfunctional in nature.

Considering the relevance and importance of information seeking behaviour for the development and achievement of the student, curriculum implementation, information dissemination services in the university system, library planning, teaching-learning programme and effective management of information services, the present researchers concentrated her attention towards relevant scientific literature, empirical studies and data based facts on information seeking behaviour and related personal attributes as well as situational or contextual attributes, which have been presented in the next chapter.