# Chapter 4

## The Role of the Models of Information Behavior as the link between Information Seeking and Communication

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**Abstract**
Searching for information, retrieving it, and using it lie at the heart of library studies and librarianship. Libraries function by and for the human act of information seeking. The where, why, when, and how of information seeking continues as the topic of debate and discussion on both the theoretical and practical level of a variety of social science disciplines. Like any other complex concept, information seeking means different things in different contexts. In the simplest terms, information seeking involves the search, retrieval, recognition, and application of meaningful content. This paper therefore seeks to discuss the roles four models of information behavior and the link between information seeking and communication. The models includes Ellis model refers to his behavioral model as "the relation between these characteristics or components, Johnson model refers to the user's insight of their trustworthiness and authority, and the accurateness and comprehensibility of the information, Ingwerson and Javelin model refer to the different contexts of the information seeker, the author, the selector etc. and Gorman model which relates to information seeking by physicians in primary care. The paper gave the link between information behavior and communication. The paper concluded by listing the challenges faced when seeking information with relation to communication which includes among others lack of awareness of available resources and information seeking behavior models and nature of task at hand and communication of the task domain knowledge, the paper also gave some recommendations based on the challenges.

**Key words:** Information seeking, Information behavior, Information seeking behavior, model of information seeking behavior and Communication

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## Introduction

The term information seeking behavior has been developed after the first half of the twentieth century. Thereafter it took several decades for the subject to be presented as a major field of information science. Information behavior is meant by the activities of a person that may be engaged in recognizing their own needs for information, searching for such information in any way, and using or moving that information. Information seeking behavior denotes to the way people search for and utilize information.

Many theories and models of information behavior have been developed as a result of this research (Case, 2002; & Davis, 2007). Most, however, are restricted in their scope. Those developed in library and information science (LIS) typically focus on the information seeker and information-seeking behavior. Mass communication models, on the other hand, mostly focus on the communicator and the effectiveness of the communication process, particularly from the perspective of the communicator. Since so many theories and models have been formulated it is legitimate to ask what their value is and how far they build on each other to develop understanding of information behavior in a practically relevant way.

Information seeking behavior is a process where people search information and utilize the same to complete their assigned task. Information is basically structured or processed data. People need information in all walks of life. According to Sultana (2016), the term Information seeking behavior involves a set of actions like information needs, seek information, evaluate and select information and finally use this information. Information seeking is the process engaged in by humans to change their state of knowledge. It is a high level cognitive process that is part learning or problem solving. To seek information implies the need to change the state of one's knowledge. Because the new information formats of information sources and new information tools, users are expected to acquire new knowledge and skills in information searching. Information Seeking is defined as a conscious effort to acquire information in response to a need or gap in our knowledge (Case, 2002).

Information behavior is the totality of human behavior in relation to sources and channels of information, including both active and inactive information seeking, and information use. (Marcia, J. 2010. The term "information behavior" has been defined in different ways. One widely quoted definition is that of Wilson, who describes it as "the totality of human behavior in relation to sources and channels of information, including both active and passive information use" (Bao & Bouthhiller, 2007). Choukhande (2008) refer to information behavior as "the study of how people need, seek, give, and use information in different contexts, including the workplace and everyday.living. Ingwersen and Jarvelin define it as the "generation, acquisition, management, use and communication of information, and information.

## Statement of the Problem

Information seeking behavior over years, has citizen for serious weaknesses such as unclear goals and lack of accumulation of relevancy, they were seen as inapplicable for designing of information services. Until the emergence of the model of information seeking behavior which brought about focuses on the seeking processes of different models that is applicable to different disciplines. The process- oriented modern approaches information seeking e.g. work based on Kultau's model or Ellis's characteristics of information seeking behavior, have covered several empirical domain. However, despite the seemingly widespread and growing attention, the concept remains ill-defined and inconsistently applied. Most literature on information seeking behavior and communication has failed to address the problem. In similar vein Dervin, (2003) remarked on the narrowness of focus of much research on models of information seeking behavior. In every field, researcher studies information seeking and communication in other context such as culture, organization, domain, etc. without regard to any understandings of information seeking, use and the link between information seeking behavior and communication in the academic disciplines.

## Need for the study of Information Seeking Behavior

Libraries are the places where information acquired, processed, stored and kept for use and reuse. Information use generates information in the form of knowledge. In order to satisfy information needs of the user. Libraries are trying very hard to improve themselves by acquiring required methods and methodologies from time to time. Studies on Information seeking behavior of their user will help them to formulate policies related to acquiring information sources, improve upon the services rendered and the adoption of required technologies and communications (Roge & Signitzer, 2009).

## Types of Information seeking behavior

There are two types of Information seeking behavior; Compulsory Information seeking behavior: Compelling statures force a person to seek necessary information. Professional working in different field are forced to access the information in their respective field of expertise to become more informatics. For example Advocates, Engineers, Sociologists, psychologists etc. and Discretionary Information Seeking: this type is different from compulsory information seeking. It entails searching for information that may not be essential and/or whose source is not known with certainly (Padman, 2013).

## Reviews and Researches on Information seeking Behavior

Literature has revealed that studies of information needs, seeking, and use (INSU) make up about eight percent of research literature in library and information science (LIS) [Julien & Duggan, 2000]. Over the past 20 years or so, this subfield of LIS has recognized a shift in focus from the study of people interrelating directly with information systems to the study of the people themselves and how they seek and use information independently of precise sources and systems. The "user☐centered paradigm" not only emphasizes the understanding of information practices from the human standpoint but also views these practices as a process that takes place within specified circumstances and contexts.

An important element of the wider concept of information behavior is communication. However, most model of information behavior from the field of library and information science do not explicitly include communication or do not cover it in any detail. Their focus is on the information user and the user's needs. But as Bao & Bouthillier (2007) point out, "In information-sharing activity, information provider's behavior is not passively driven or solicited by information needs of the user; without information provider's motivations of sharing, information sharing behavior will not happen. The models of Wilson (1999) and Ingwersen & Jarvelin, (2005) show the links between communication and information seeking.

Information seeking research, over the years, has often been criticized for serious weaknesses. (Allen. & Shoard 2005) were among the early critics, who argued that there were conceptual problems in defining information needs and seeking, and several methodological problems. Moreover, the studies were largely seen as useless due to unclear goals and lack of accumulation of findings: they were seen inapplicable for designing of information services. Britain concluded that only a small part of what had been published in this area had been worth it (Korobili & Malliar, 2011) summarized that deficits of conceptual frameworks; methodology and theory building have continued to plague the information seeking and retrieval research area. We can thus see that the critics have been around through all the years of information seeking studies. Those working in the area in the 1990s have not been very critical, but we believe that the sentiment has been, and still is, shared by many working in information retrieval.

## Models of Information Seeking Behavior
According to Bates (2005), "Models are most useful at the description and prediction stages of understanding a phenomenon. Most of the information seeking behavior models are of variety: they are declarations that attempt to describe an information seeking activity, the causes and consequences of that activity, or the relationships among stages in information-seeking behavior. Very few models do search advance to the stage of stipulating relationships among theoretical propositions, rather, they are at a pre-theoretical stage, but may propose relationships that might be fruitful to explore or test. Models of information behavior, however, appear to be fewer than those dedicated to information-seeking behavior or information searching. The models have been discussed one by one.

## Ellis's Behavioral Model of Information Seeking Behavior
Ellis studied the activities and perceptions of social science scholars consisting of psychologists, educationalists, economists, sociologists, historians, geographers and political scientists at the University of Sheffield of United Kingdom. From the results, Ellis identified 6 major categories to cover the characteristics of the information seeking patterns, of social scientists, namely 1) starting, 2) chaining, 3) browsing, 4) differentiating, 5) monitoring, and 6) extracting. According to Ellis, starting refers to seeking information on a new topic and gathering initial relevant information. Starting includes activities that form the initial search for information. These could be familiar sources used before or less familiar sources that can provide relevant information (Ellis, 2005).

These initial sources can lead to additional sources or references. Following up on these new leads from an initial source is the activity of Chaining. Chaining, as referred by Ellis, refers to following references in a work to its cited works (backward) and finding new citations to this work (forward). Backward chaining occurs when pointers or references from an initial source are followed, while forward chaining identifies and follows up on other sources that refer to an initial source or document. The next category, according to Ellis is browsing in which the individual often simplifies browsing by looking through tables of contents, lists of titles, subject headings, names of organizations or persons, abstracts and summaries, and so on. Browsing takes place in many Browsing involves looking through tables of contents, lists of titles, subject headings, names of organizations or persons, abstracts and summaries of the required topic. Next stage after browsing is differentiating, where the information seeker filters and selects from among the sources by taking note of the differences between the nature and quality of the information offered.

In this situation the information seeker has the capability to judge whether the information is ready to fulfill his/her needs. Monitoring, as described by Ellis is the process of keeping abreast of knowledge about the latest developments in areas of research interests. By monitoring, the information seeker concentrates on core sources of information which may include personal contacts and publications. Extracting is the process an information seeker is able to achieve extracting by directly consulting the source, or by indirectly looking through bibliographies, indexes, or online databases. So in this sequence the information seeking process is supposed to be ended. Two other categories are identified by Ellis, namely; Verifying which is checking the accuracy of information and Ending which may refer to as 'tying up loose ends' through a final search are also identified. Ending Ellis's model is not only applicable to the academics and researchers, but also the categories may be applicable to other groups of users as well (Niedwiedzka, 2003).

Johnson & Andrews (2001) proposed a comprehensive model of information seeking (CMIS), which he developed in the context of patients and others seeking information about cancer. He notes that they receive many health-related communications through the media and other "information carriers", but these communications may not meet the receivers' needs. "Communication research and theory have been dominated by a source perspective, primarily related to the field's obsession with persuasion, the nature and motives of receivers have been downplayed or ignored".

Johnson's model of information behavior suggested a process that consists of three parts which start with Antecedent Factors then flow to Information Carrier Factors and finally lead to Information Seeking Actions. This model implies that different Background Factors and Personal Relevance Factors are affecting the Characteristics and Utilities of information channels and sources and motivating to corresponding Information Actions. The information seeking behavior starts when the seeker perceives a difference between information needs and existing knowledge, which is affected by Demographics, Direct Experience, Beliefs and Salience. The seeker then consciously chooses different information channels and sources according to the expectation to dispense the gap between the needs for more information and the insufficiency of existing information.

Johnson sets out to redress this by focusing on the viewpoint of the information receiver or seeker. The CMIS refers to seven factors grouped under three heading antecedents, information carrier factors and information-seeking actions the antecedent "determine the underlying imperatives to seek information." According to the model are: the information seeker's demographics, age, sex, ethnicity, education socioeconomic status; the information seeker's experience of the area of interest salience of information its personal significance, relevance and applicability; and bel the information seeker's beliefs about the subject area and about his or her abilities

Johnson's concept of salience as an antecedent needs clarification. The salience information – its significance and applicability can of course be assessed only after it been found. In discussing salience, Johnson refers to Dervin's sense-making framework Dervin et al. (2003), note that the key factor leading to information seeking is perception of a gap in existing knowledge. If an individual believes that information be found that is likely to be sufficiently salient to bridge the gap, this expectation motivate information seeking.

Information carrier, factors are the characteristics and utility of a particular source which influence an individual's decision to seek information from that source. considering the characteristics of carriers (Johnson et al 2001), he notes, however, ease of access may count for more than credibility and authoritativeness. Johnson concept of the utility of an information carrier relates to the relevance, topicality interest of the information and its usefulness and importance for achieving the user goals. The third component of the model, information-seeking actions, involves choosing which source(s) to use and the extent and depth of the search. In discussing how user choose sources, Johnson refers to the uses and gratifications approach from mass communication theory (Baran & Davis, (2003); (Windahl et al., 2009), suggested that the user of mass communication seeks the content that seems to be the most rewarding depending on the user's particular needs and interests.

Thus, certain media or information products may be selected in partiality others. Johnson acknowledges that the uses and gratifications perspective suggests people are active, goal-directed information seekers, which is not always the case. Also as noted above, ease-of-access plays a key part in the choice of an information source The model does not describe in any detail the steps involved in information seeking "The CMIS is oversimplified by design" (The CMIS was developed as a model of information seeking by patients and others affected by cancer. It has been tested primarily in the context but its basic principles are of more general applicability, and it has for example been used to investigate information seeking by engineers Johnson (2001)

## Gorman Model of Information Behavior
Gorman model is another model developed in the context of health-related information that of Gorman, (1999), which relates to information seeking by physicians in primary care. The main activity of primary care physicians is patient management. The model sees information seeking as a related but sometimes unnecessary activity: "The primary goal of the clinician and the patient is not to obtain information but to find some resolution of the patient's health problem" (Gorman, 1999). At the start the physician in a state of unrecognized information need. He or she does not know what information will be needed until faced with a specific patient problem. If, when the problem present

itself, the physician is aware that he or she does not have necessary information to deal with it, a state of recognized information need arises. The next stage, pursued information need, occurs if the physician decides to seek the required information.

In doing this, he/she makes a choice of which knowledge resources to use. However, the model does not elaborate on the steps involved in information seeking or the resources used. If the information needed to answer the clinical problem is found, the stage of satisfied information need is reached. Gorman points out that information seeking is only one of the strategies employed once the information need has been recognized, and that only about a third of clinical questions are pursued. Another commonly used strategy is deferral or "watchful waiting" when immediate action is not deemed necessary, perhaps because the patient's problem is not serious and may resolve without treatment.

A third strategy is referral to a specialist, in which case the physician does not need to search for information instead, the specialist is likely to provide information and commendations on appropriate treatment. The predominant strategy, however, is for the physician to tolerate doubt, make do with the information at hand, and act on the basis of his/her knowledge and experience. Although this model refers specifically to physicians, it is of wider relevance in highlighting the facts that an information user may have unrecognized information needs, and that even when a need is recognized the user may not actively pursue it. (Tamrakar, S.T. 2017)

**Ingwersen and Jarvelin Model**
This model focuses primarily on information seeking. In their reasoning model Ingwersen & Jarvelin (2005) also refer to it as communication. The model focuses on information seeking and retrieval but it includes the various "cognitive actors" involved: authors of information objects; information seekers; designers of database systems; human indexers; selectors deciding on the obtainability of information objects (examples mentioned by Ingwersen and Jarvelin include journal editors, database producers, reviewers and conference organizers); and communities of individuals organized in a social, cultural or organizational context.

The graphical representation of the model is fairly simple but Ingwersen and Jarvelin provide much more detail of the framework and underlying concepts in their written description of it (Ingwersen & Javelin, 2005). It is based on the cognitive viewpoint, which the authors describe as the "epistemological holistic view" that processing of information is arbitrated through a system of categories or concepts that are a model of the individual's world Jarvelin & Wilson (2003). It is similar to what Choo, describes as the "socio-cognitive" paradigm. Thus, important factors affecting information behavior are the perceptions of an individual or group, and how these are affected by organizational, cultural and social contexts.

A scholar seeking information is influenced, not just by existing knowledge, but also by the prevailing beliefs and traditions in the field and by colleagues. Information objects such as books and articles represent an author's interpretation of the world, and that interpretation is shaped by organizational, cultural and social contexts. The author or information provider is also influenced by his/her perception of the reader or information user. Unlike Leckie et al. (1996), Ingwersen and Jarvelin Authors are influenced by their context to communicate information and the recipients interpret the information

according to their context. Thus, the intended meaning and the received meaning may not be the same.

## Links between information behavior model and communication models

Various communication theories and models have been developed connecting to mass communications and information diffusion, but there have been few if any attempts to link them to LIS models. Whereas LIS models typically focus on the information seeker and information-seeking behavior, communication models focus on the communicator and the efficiency of the communication process. They usually describe one-way communication, directed by the sender, who thus influences the recipient. The focus is on whether the communication produces the effects intended by the sender, rather than on the recipient's situation and needs (Seekicase, 2007).

An example of verbal formulation: "Who says what to whom through what medium with what effect?" Consumer research by Lazarsfeld showed that the communication process might not have a direct effect by the communicator on the recipient. Instead, a two-step flow of information may occur, whereby opinion leaders influence other individuals in understanding communications. The model concerns the process by which information about an invention is communicated through certain channels over time among members of a social system. Innovators adopt the innovation at an early stage of the process. Opinion leaders, if favorably disposed towards the innovation, influence others to adopt it (Paro, 2004).

Taking a social-psychological perspective of mass communication, Maletzke (1963) developed a conceptual model that takes into account the viewpoint of the receiver as well as that of the communicator just as the model of Ingwersen and Jarvelin (2005) considers contextual factors for the author and the information seeker. Model refers to personal and contextual factors for the communicator and the receiver. Information-seeking and communication model shows a schematic representation of this novel information-seeking and communication model (ISCM). Information users include: those who seek information; those who have information needs, whether they pursue them or not and whether the needs are recognized or unrecognized and receivers of information whether or not they actively use it (Niedwiedzka, 2003).

Information sources may be information products or the providers of those products. Information providers are individuals, groups and organizations who produce, supply or communicate information, or who facilitate or control access to it. There are many different types of information provider. Some examples are: originators or authors of information; reviewers; publishers; colleagues, experts and opinion leaders; libraries and information centers; producers and suppliers of databases, websites and other computerized information sources; official bodies and organizations, such as government agencies; and companies.

## Challenges of Information Seeking Behavior

The followings are the challenges of information seeking behavior: Lack of adequate awareness of information seeking behavior models; Lack of time limited resources. Lack of the nature of the problem to be answered or question to be solved when seeking for information; Lack of the nature of task at hand and communication of the task domain

knowledge and lack of awareness of available information services and Poor arrangement of a full range of information collections and resources.

## Conclusion

The models of information behavior focus on the micro-processes in the daily lives of users within particular contexts and social settings that could potentially influence users' information behavior. The models developed by Ellis focuses on the different activities involved in the information-seeking process. Johnson model approach implies that different Background Factors and Personal Relevance Factors are affecting the Characteristics and Utilities of information channels and sources and motivating to corresponding Information Actions. The Gorman model of the information seeking of professionals developed by Gorman is another model developed in the context of health-related information is that of Gorman (1999), which relates to information seeking by physicians in primary care, while Ingwersen and Jarvelin model focuses on information seeking and retrieval but it includes the various "cognitive actors" involved: authors of information objects; information seekers; designers of database systems; human indexers; selectors deciding on the obtainability of information objects. The link between the information seeking and communication is that the model concerns the process by which information about an invention is communicated through certain channels over time among members of a social system. Innovators adopt the innovation at an early stage of the process. Opinion leaders, if favorably disposed towards the innovation, influence others to adopt it.

## Recommendations

The followings are the recommendations: Information seekers should be made aware of the various information seeking behavior models. Internet connectivity should always be available to enable information seekers answers their problems timely. The information seekers should have knowledge on how to communicate and transfer information of their task domain knowledge and there should be awareness of the available information resources of all disciplines and there should also be proper arrangement of a full range of information collections.

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