# A MODEL OF INFORMATION USE BEHAVIOR BY SCIENTISTS

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**Abstract**. The services that are provided in a library are at various levels and varieties. Library automation services such as computerized OPAC, e-mail based reference service etc., are being provided. Also, Web based services like Web Opac, E-Journals, CD-ROM Collection search, Bibliographical database services such as Engineering village 2, Compendex, Chemical Abstract, Web of science, are being provided.

The researcher approaching the library in search of information must be satisfied with proper provision for information. With this in view, it seems essential to provide the right information to the right user at the right time and in the right form. In order to provide for such a information facility in the digital environment, library should be managed more effectively and efficiently. Library automation services such as computerized OPAC, e-mail based reference service etc., are being provided. Profile based services like my TOC, Document delivery services are also provided. Specialised departmental library services like Envis, Bio-informatics etc., are made available. Union Catalogue of books and journals have been created.

In a digital environment information is always available in digital form. This provides an opportunity for enhanced service effectiveness. For this purpose, library collection and services are developed in response to the demands of the Digital environment in the form of e-books and e-journals. There are a number of barriers to information in the pre-digital environments which may be overcome in the digital environment. Therefore user needs such as- current approach, everyday approach, exhaustive approach, Catching up approach can be handled by a variety of services tailor made to serve such needs.

Scientists are an extraordinary diverse group of professionals. An attribute common to all scientists is their use of information. To view the information seeking behavior of scientists within a conceptual framework of the scientists, they must be considered as an information processor. This article uses this chosen framework to discuss information seeking behaviour of scientists, reviewing selected literature and empirical studies from information centers and proposes a model for information use based on the studies on the relationship between task performance and information searching by end users.

A variety of approaches to information seeking are known to the information scientists:

1. A semantic network, representing of experts domain knowledge, embodies a search strategy as an information search aid.

2. An expert system for finding sources of information for a given research project consists of a constrained spreading activation in semantic network

3. An expert system that suggests appropriate search terms is composed of two components.
   (a) Knowledge base, represented as a semantic network in which the nodes are words and phrases denoting concepts.
   (b) Links to express the semantic relationship between nodes.

4. A Thesaurus presented in a menu driven approach provides a search system (CANSEARCH). Users browse and select terms from the menu for their queries.

5. The intelligent intermediary for information retrieval development with the help of a group of experts communicates via a common data structure called the blackboard. The system consists of a user model builder, a query model builder a treasures expert. A search expert (for suggesting statistics based search strategies), provides for a browser expert , and an explainer.

6. A natural language processing of queries with deductive capabilities related to user modeling, search strategies definition, use of expert, and domain knowledge, management of full texts, and

evaluation of answers have been developed. An example of this is IOTA developed by Chiaramiller and Defude[12]

Understanding of the information seeking behavior of scientists is essential to predicting information use and to planning development and implementing scientists information systems. The scientist profession cannot be described fully without reference to the nature of scientific work, knowledge and communication. The skills required for searching a manual system and a computer system differ greatly especially in the case of Web search.

The conceptual framework that is developed based on Roger's (8) model represents Scientists as an information processor. The framework focuses on information seeking assumes that individual differences not withstanding an internal, consistent logic governs the information seeking behavior of scientists. Throughout the process, data information and knowledge are being acquired, produced, transferred and used. Scientists as information processor takes three possible courses of action.

The paper enlists the services and provides a futuristic perspective of a specialist reference librarian in different subject areas, serving different category of users. There are three basic aspects that operate the information retrieval process:

1. The way the documents or information is indexed
2. The way the information searching approach the text of the document
3. The way information intermediary bridge the gap between the document content and the terms in the index and search to derive maximum benefits.

Models are representations of various characteristics of the user. The methodological way of model is to select features of the searching from the point of view of search process and outcome. The intelligent intermediary for information retrieval development with the help of a groups of experts communicates via a common data structure called the blackboard. The system consists of a user model builder, a query model builder a treasures expert. A search expert (for suggesting statistics based search strategies), provides for a browser expert, and an explainer. A natural language processing of queries with deductive capabilities related to user modeling, search strategies definition, use of expert, and domain knowledge, management of full texts, and evaluation of answers have been developed. An example of this is IOTA developed by Chiaramiller and Defude.

The frame work focuses on information seeking, assuming that individual differences not withstanding an internal, consistent logic governs the information seeking behavior of scientists. Throughout the process, data information and knowledge are being acquired, produced, transferred and used scientists as information processor takes three possible courses of action as explained above. Boryoung Ju and Myke Gluck have conducted a study to inductively reorganize interfaces provided by software's through menus. They find that the interfaces are not as effective as traditional interfaces this leads to the fact that a further comparison of interfaces and traditional system interfaces needs to be carried out. This requires the study of human factors, such as ability to analyze data, comprehensibility and domain knowledge rather than just menu interfaces. This paper proposes that the comparative study of physically organized information systems and computer organized information systems needs to be undertaken.