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Chapter VIII

Helping Users, Mentally: A Lesson Learned from Hypertext and Web Navigation

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Abstract

The World Wide Web offers a vast collection of information. As the result, information seeking and related activities have become increasingly common. However, several drawbacks of the current systems often cause some user frustrations. One source of frustration is the way information is presented on the Web. It appears that virtually anyone could become an information source and Web site owner. As such, it is difficult, if not impossible, to have a standardized structure on how information should be structured and presented on the Web. This chapter presents a comprehensive literature review on information seeking emphasizing aspects of human cognition. It starts by pointing out some problems the information seekers may encounter when searching the Web. It proceeds with a navigation metaphor to compare the real-world navigation into hypertext navigation. A psychological overview of navigation is also

presented, followed by a discussion of mental model. The chapter concludes with a discussion of an application of a real-world navigation strategy, called wayfinding, into a hypertext system. It shows how certain Web site design elements can be used as wayfinding cues.

Introduction

The World Wide Web (WWW) is a vast collection of interconnected documents. Its foundation is based on the concept of hypertext. The Web consists of hypertext, the Internet, and multimedia (Rumpradit & Donnell, 1999). The Web provides individuals with the potential to access large and complex information sources. The increasing amount of information on the Web gives opportunities, challenges, as well as problems to individuals who engage in Web activities. The problems came from the fact that Web search engines are designed to support only one type of information-seeking strategy: specifying queries by using terms to select documents from the database (Xie, 2000).

From users' perspective, Kuhlthau (1991) states that the information search process is a form of users' constructive activity which leads to finding the meaning of information in order to extend their state of knowledge on a particular problem or topic. It is a process of sense making, which involves the whole individual's experience, feelings, thoughts, and actions. Theoretical and empirical studies have identified user goal as the most important factor in defining information-seeking behavior (Belkin, Marchetti, & Cool, 1993). This suggests that we approach information system design from the point of view of its users; specifically to determine how users view their domains, goals, and tasks in specifying the range and relationships of relevant information sources, and the most appropriate means of accessing them (Belkin et al., 1991). To provide assistance to its users, computerized information providers need to perform the following functions (Raskutti & Zukerman, 1997):

1. Recognize the goal that user is pursuing on the basis of user's initial request and subsequent utterances, and propose a plan to satisfy the user's goal; and
2. Generate clarification and information-seeking queries and negotiate a user's specifications when needed, and generate answers that inform the user of the plan proposed by the systems to satisfy the user's goal.

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