Chapter I

User-Oriented IR Research Approaches

The Divide between System-Oriented and User-Oriented Approaches

There exist two approaches in IR system design and research: system-oriented and user-oriented. The system-oriented approach has played the dominant role in the design of IR systems in the past. Only in recent years have system designers begun to accept the need to take the human, socio-technical approach. They recognize that technically-oriented designs cannot satisfy user needs, and as a result, these designs have not succeeded in the market (Shackel, 1997). The traditional model of information retrieval as a match between a request or a query and a set of documents is no longer working. The emergence of the cognitive approach in IR signified a shift from document representation to the representation of the cognitive structure of users (Vakkari, 2003). The new concept is to consider the user as an essential component of the system (Beaulieu, 2000; Robertson & Hancock-Beaulieu, 1992). At the same time, Wilson (2000) also noted the shift from a system-centered ap-

proach to a person-centered approach accompanied by a shift from quantitative methods to qualitative methods.

User studies have been conducted over the years. However, most of the suggestions of these studies are not implemented into system designs. In Borgman's popularly cited article (1996) "Why Are Online Catalogs Still Hard to Use?" she pointed out that online catalogs continue to be difficult to use because their design does not incorporate sufficient understanding of searching behavior. Research on searching behavior studies has not influenced online catalog design. The same can be said of other types of IR system design. The design of most IR systems assumes that users formulate a query that represents a fixed goal for the search, while users might engage in multiple types of information-seeking strategies in their retrieval process (Belkin, Cool, Stein, & Theil, 1995). Saracevic (1999) well summarized the relationship between the two approaches. While the user-centered approach criticized the system-centered approach for paying little attention to users and their behavior, user-centered research does not deliver tangible design solutions. Simultaneously, designers taking the system-centered approach do not care about user studies and their results in their design of IR systems.

Norman (1988) presented the criteria for user-centered design:

- Make it easy to determine what actions are possible at any moment (make use of constraints).
- Make things visible, including the conceptual model of the system, the alternative actions, and the results of the actions.
- Make it easy to evaluate the current state of the system.
- Follow natural mappings between intentions and the required actions; between actions and the resulting effect; and between the information that is visible and the interpretation of the system use. In other words, make sure that (1) the user can figure out what to do and (2) the user can tell what is going on (p. 188).

In order to take a user-oriented design approach, we first need to apply user-oriented research approaches to understand how users seek and retrieve information in different contexts and how they interact with different types of IR systems.

User-Oriented Approaches

In this section, the author introduces six well-known user-oriented approaches: Taylor's levels of information need approach, Belkin's anomalous state of knowl-