

CHAPTER 12

CONCLUSION AND FURTHER RESEARCH

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1. NEW DIRECTIONS IN COGNITIVE INFORMATION RETRIEVAL (CIR)

New Directions in Cognitive Information Retrieval (IR) gathers user or cognitive approaches to IR research into one volume. The group of researchers focus on a middle-ground perspective between system and user. They ask the question: What is the nexus between the wider context of why and how humans behave when seeking information and the technological and other constraints that determine the interaction between user and machine? These researchers' concern for the application of user/cognitive-oriented research to IR system design thus serves as a meeting ground linking computer scientists with their largely system performance concerns and the social science research that examines human information behavior in the wider context of how human perception and cognitive mechanisms function, and the work and social frameworks in which we live.

The researchers in this volume provide an in-depth revaluation of the concepts that form the basis of current IR retrieval system design. Current IR systems are in a certain sense based on design conceptualizations that view

- the user's role in the user-system interaction as an input and monitoring mechanism for system performance;
- the system's role in the user-system interaction as a data acquisition system, not an information retrieval system; and
- the central issue in the user-system interaction as the efficacy of the system's matching algorithms, matching the user request statement to representations of the document set contained in the system's database.

But the era of matching-focused approaches to interactive IR appears to be giving way to a concern for developing interactive systems to facilitate collaboration between users in the performance of their work and social tasks. There is room for cognitive approaches to interaction to break in here.

The cognitive approach researchers in this volume focus on IR interaction facilitating users finding and using information in the performance of the task for which the information is being sought. Perhaps the distinction between system and cognitive approach research is the difference between the two words "finding" (as in retrieving) and "use," but also between the two words "data" and "information." The contextualization

of data retrieval into information finding and use in the user-system interaction is perhaps the road to turning the IR system from a data acquisition system into an information acquisition system for the user. The challenge cognitive approach researchers have given themselves is to work within the constraints of current and near-to-medium future technology to modify and upgrade the model of the user-system interaction utilized in the technology so that these systems truly become information retrieval systems.

As outlined in summary form in the Introduction chapter, the book divides the chapters into three sections: (1) CIR concepts, (2) CIR processes, and (3) CIR techniques. (An integration of all the chapters is available in Chapter 2, this volume, by Cole, Beheshti, Leide and Large.)

This last and concluding chapter of the book provides an overview of conclusions and further research for CIR based on the new directions discussed in the chapters in the book. We divide the new directions (with some overlapping) in the book into four sections:

- New Directions in Integration with Human Information Behavior
- New Directions in Cognitive Studies
- New Directions in Social and Organizational Studies
- New Directions in Relevance and Evaluation Studies

2. NEW DIRECTIONS: INTEGRATION WITH HUMAN INFORMATION BEHAVIOR

One of the key directions identified by chapter authors for CIR research is the integration of CIR within the broader human information behavior (HIB) framework which makes up the human information condition. An HIB perspective for CIR seeks to create a more holistic understanding of CIR that takes into account the HIB context in which human-IR system interaction takes place.

- In Chapter 6, Spink and Cole examine user multitasking when seeking and searching an IR system. New directions in research should ask: Does the user's information seeking stage (in the performance of the task for which information is being sought) affect the number and nature of multitasking searching? New Directions in research should also examine the interplay between information and non-information tasks, as well as beginning to conceptualize the so-called interruptive HIB behaviors users engage in during search session like "vanity searching." Such HIBs should be analyzed in terms of the role these behaviors may play in providing coordinating or switching mechanisms between individual search and seeking tasks during a multitasking search session.
- In Chapter 7, Vakkari and Järvelin highlight the need for a more integrated understanding of information searching and seeking. New directions in research should include studies that take into account the user's changing goals during task performance, and consequently the information searching and seeking it generates is a process, with the search topic, goals and the process itself gradually changing as the task performance proceeds.
- In Chapter 11, Lucas and Topi believe that despite recognition of the growing need for search training that supports the cognitive processes and learning styles of individual searchers, there has been relatively little response from the academic community to date. Different stages of the search process