Knowledge Sharing in Information Seeking and Retrieval Situations

Preben Hansen[1] and Claus-Peter Klas[2]

[1] SICS - Swedish Institute of Computer Science
[2] DistanceUniversity Hagen
preben@sics.se, claus-peter.klas@fernuni-hagen.de

Abstract. Research on information behaviour and information seeking has traditionally focused on the human as an individual as an information seeker and user of information. In this demonstration paper we present the DAFFODIL system as collaborative tool to reflect the social aspect on collaborative information retrieval.

1 An Experimental System for Collaborative Information Seeking and Retrieval

Research on information behaviour and the performance of the information seeking (IS) and retrieval tasks and processes has often been viewed in isolation. Recent studies undertaken in the areas of both work and everyday life IS show that people commonly work in groups and solve problems together with other people. Collaborative information seeking and retrieval (CIS) is such an activity (e.g. [2], [3]). The social and collective aspects of human knowledge and experiences of information behaviour involve both CIS processes, but also the relationship between people and the sharing of other people's knowledge and experiences.This may enhance not just a single persons situation, but rather also a group of people. CIS includes how to search, analyse, judge information as well as use and share that with other people. It also includes ways of developing competence and knowledge as well as experinces. CIS involves finding, aggregating and exchanging information and knowledge and this can vary from an d hoc situation to a more planned team member effort. It views these processes as taking place and being embedded in work and other kinds of everyday life practices. Collaboration related to information seeking and retrieval may include sharing the same need for information, search strategies and results and further processing of the retrieved information: interpretation, filtering, synthesis or archiving potentially useful information into group repositories. Understanding the mutually shaping relationship between work practices as well as technologies yields a better insight into information and collaboration practices and enables a better understanding of how to develop systems for supporting those practices.

We introduce the DAFFODIL-System as an experimental system for CIS in the field of higher education in the domain of computer science. DAFFODIL is a virtual digital library system targeted at strategic support of users during the

information seeking and retrieval process ([1]). It provides basic and high-level search functions for exploring and managing digital library objects including meta-data annotations over a federation of heterogeneous digital libraries (DLs). In order to support such CIB DAFFODIL provides on the one hand basic *collaborative services* and on the other hand *recommendations*. Currently three special **collaborative services**. The **chat-tool** enables direct communication between different users and between users and a possible help-desk. Also information objects can be shared with the chat-tool via Drag&Drop. The **personal library** (PLib) enables users to store their information objects (DLOs) in a structured way. Through group folders a shared knowledge store is provided, where all users belonging to the group, can structure and store all informations. Through awareness mechanisms all users are always informed about changes. All DLOs can be **annotated**, either for personal use, like a summary, or in the group context, for discussion threads and ratings of stored objects. The PLib provides the bases for **recommendations and collaborative filtering**. Depending on the stored information, which can be almost all DLOs, the task of the recommendation service is to suggest other information objects to users or groups and to support the formation of new groups. Additionally we currently investigate the possibility to retrieve the best *adaptive search suggestions* for all users based on the current situation of an individual user in the search process. The ranked suggestions, comprises sixteen different suggestions ranging from terminological hints (e.g. vary spelling) to suggestions for using different tools from the DAFFODIL toolbox (e.g. show co-author network), are presented to each individual user and relay on case-based reasoning techniques to find the most useful suggestions for a given situation by comparing it to a case base of previous situations and adapting the solution. The case base consists of implicit logged user behaviour and explicit given feedback on the success of the suggestion.

Conclusions Our approach sees human information behaviour and information seeking and retrieval processes as firmly embedded in work and other social practices, and views work practice, information objects, and information technologies as intertwined and mutually shaping. Importantly, the technologies we develop to facilitate CIB, increase the CIB structure of the workplace, and indeed increase the CIB structure in everyday life. The implemented collaboration feature in DAFFODIL can be used as starting point to further research and evaluations.

References

1. N. Fuhr, C.-P. Klas, A. Schaefer, and P. Mutschke. Daffodil: An integrated desktop for supporting high-level search activities in federated digital libraries. In *ECDL 2002*, pages 597–612, Heidelberg et al., 2002. Springer.
2. P. Hansen and K. Järvelin. Collaborative information retrieval in an information-intensive work domain. *Information Processing and Management*, 41(5):1101–1119, 2005.
3. S. Talja and P. Hansen. New directions in human information behavior. *Information Science and Knowledge Management: Information Sharing*, 8:113–134, 2006.