

Information sharing in academic communities: Types and levels of collaboration in information seeking and use

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ABSTRACT

Research and theories of information behavior have traditionally focused on the "information man," i.e., on the individual as a seeker and user of information. The collective aspects of information behavior have been conceptualized, for instance, as consulting, informal seeking, use of person sources, and peer influence. These conceptualizations suggest a one-way process in which an individual consults another individual, however, information acquisition and filtering often is undertaken as a collective and collaborative effort. The paper develops a conceptual framework for the description of types and levels of information sharing in relation to document retrieval in academic communities. The concepts of strategic information sharing, paradigmatic information sharing, directive information sharing, and social information sharing are introduced to describe differences in the goals and purposes of information sharing in different groups and contexts of interaction.

INTRODUCTION

Information sharing in the form of consulting and informal communication is a widely recognized phenomenon in information science literature. Otlet, Briet, Bradford, and Allen (1) pointed out the significance of scholars' communication networks. Crane (2) developed the concept of invisible colleges, and showed that the most productive members in these networks have more social ties, influence, and visibility than those who are less productive. Stoan (3), among others, found that the amount of scholars' contacts with other researchers is the strongest predictor of their publication efficiency. Sonnenwald and Liewrouw (4) found that communication behavior and success in collaboration in project teams correlates positively with perceived individual effectiveness and project performance.

Studies on scholarly information seeking have long since established that researchers in most fields prefer informal information sources and channels over formal searches, as the use of informal sources saves time and energy. Seldén (5), for instance, characterizes socially oriented information seeking as typical for senior social scientists having a long information seeking career and a great deal of social capital, and formally oriented searching is typical for junior researchers with shorter information seeking careers and less social capital.

Previous literature on scholars' information seeking indicates that information sharing is as omnipresent a method of information acquisition in academic environments as information encountering (studied by Erdelez, 6). These methods have rarely been taken as objects of analysis in their own right. Information sharing practices have usually been described with distinctions such as the use of person vs. documentary sources, formal vs. informal channels, and social vs. technical searching. These distinctions seem to be oriented towards explaining why scholars do not always

use the document retrieval systems designed to assist them, describing aspects of scholars' information seeking that are important from the viewpoint of information professionals. These distinctions may not adequately capture the actual social, networked, and collective practices of scholars in seeking, finding, and using information. In information science literature, information seeking has mainly been analyzed as private labor, although information acquisition and filtering can be, and often is, undertaken as a collective and collaborative effort.

Recently, many researchers have stressed the importance of carrying out research on collaborative seeking (cf. 7, 8, 9, 10, 11). Haythornthwaite and Wellman (12, p. 1102) criticize the individualistic perspective assuming that each individual "acts independently in response to the norms with which they have been inculcated." They argue that scholars' information behavior is affected more by the kinds of social networks in which they are involved than by individual attitudes and attributes (12, p. 1102). They introduce the social network perspective to study how scholars' social ties and types of information exchanges in social networks affect their choice of the medium for communication.

In social network studies, studies on team collaboration, and studies on computer-supported collaborative work (CSCW), theories have been developed of the interaction between different groups - for instance, designers and users (cf. 13), that can be fruitfully applied also in information seeking research. The aim of CSCW is to assist in designing knowledge creation and sharing tools for distinct "communities of practice" (cf. 14). This kind of viewpoint shift from individuals to communities of practice (15; originally a concept developed by Lave and Wenger, 16) or communities of sharing (17) will enrich information behavior research (cf. 18).

In CSCW, all types of information exchanges are often of equal analytic importance, because the aim is to assist in the creation and dissemination of organizational knowledge. The focus on this paper is on sharing information about relevant documents and practices of finding relevant documents, not on all types of information exchanges that yield useful information for scholars. Facilitating document retrieval, access to recorded information, is one the primary aims of information science (19). By focusing on document retrieval, studies on collective and collaborative seeking can assist in the development of document retrieval systems and in clarifying the role of information professionals in the system of scholarly communication.

Adopting the focus on document retrieval, information sharing in the academic research community can take the following forms:

- 1) sharing information about relevant¹ documents,
- 2) sharing relevant documents,
- 3) sharing information about the contents of relevant documents,
- 4) sharing information about novel and efficient ways of finding relevant documents or information sources.

Studies conducted on scholars' use of the Web have established that information sharing is facilitated by the Web and other technologies to support collaboration (cf. 20). This paper does not address questions of design, use, or evaluation, of information sharing technologies, however, but shares the analytic position first developed by Wilson (21), and widely used in classic studies on scholars' information seeking (cf. 22, 23). According to Wilson (21, p. 12), the study of information behavior is most fruitful when it seeks to form "an understanding of information users in the context of their work or social life." Thus, according to this position, the sociological conceptualization of user communities, their work cultures and work practices, is logically prior to the evaluation and design of technical systems.

¹ Scholars can also share information about non-relevant documents and their contents.

This paper develops a conceptual framework for the description of information sharing practices in relation to document retrieval in different academic communities and groups. This framework is developed on the basis of exploratory qualitative case studies. "Information sharing" is used as an umbrella concept that covers a wide range of collaboration behaviors from sharing accidentally encountered information to collaborative query formulation and retrieval.

The structure of the paper is as follows. First, the empirical data are described. Second, an overview of the results is provided in the form of typologies describing different types and levels of information sharing. Third, the empirical findings that gave basis to the typologies are described. Fourth, the implications of the findings for theory building and information systems design are discussed.

THE STUDY

The data on scholars' information sharing practices were gained by informal semistructured interviews as part of a larger project, Academic IT-cultures, that focuses on scholars' use of electronic resources. Four different disciplines, nursing science (a social science), history (a humanistic field), literature and cultural studies (a humanistic field), and ecological environmental science (a laboratory science), were chosen as the objects of study in the project. The aim was to ensure diversity on disciplinary, departmental, and research orientation levels. The disciplines were chosen because of the different types of materials these disciplines use for work and differences in the general work patterns and levels of collaboration. Two humanistic fields were chosen because among humanists it was easiest to find non-users of electronic networks and researchers involved in network service development projects.

From each department, 10 interviewees were initially chosen so that the selection would contain both researchers working on projects in different roles (as leaders, researchers, and doctoral students) and researchers working individually. The selection of departments and participants was made on the basis of homepages. During the data-gathering process, we found that the amount of senior researchers in the sample was too small, and conducted additional interviews. The sample contains 12 nursing scientists, 11 historians, 11 literature scholars, and 10 environmental scientists from two different Finnish universities. The departmental and individual researchers' homepages are used also as research data, as they contain valuable information about research groups and research activities.

Participants were interviewed individually, and they were asked not only about their personal seeking, but also about group activities and collaboration, and about department-level collaboration. The interviews lasted 90 minutes, and they were conducted either by the author or a research assistant. A fuller picture of collaboration in information seeking might have been reached by focus groups interviews. In practice, however, arranging such interviews would not have been possible. Most of the scholars we approached had extremely busy schedules. Finding and settling times for even the individual interview was often difficult, even though the interviews were conducted in May-June and August 2000 when scholars were least busy with teaching and other obligations. The interviewed scholars generally had a positive view of the study and its importance.

The interviews were tape-recorded and later transcribed. The interview transcripts were analyzed thematically. The data were not coded into predefined analytic categories according to a preselected theoretical framework to produce factual or verified information of a calculable status. Such an approach can be used in qualitative research to refine an already existing theory. The analysis

presented here, in a manner suggested by Kuhlthau (9), develops concepts and hypotheses of information sharing practices to be tested and enriched in later studies.

TYPES AND LEVELS OF INFORMATION SHARING

This paper is based on the empirical observation that some scholars are super-sharers: they see collaborative seeking as an integral part of their research style and success as researchers.

Following the example of Erdelez (6), scholars can be characterized as super-sharers, sharers, occasional sharers, or non-sharers, according to the extent in which they engage in information sharing and/or collective seeking. However, individual scholars can simultaneously engage in different kinds and levels of information sharing activities. Scholars usually belong to many different kinds of networks with different levels of information sharing. They can simultaneously work with different research themes and topics, each topic enabling different patterns and levels of networking and sharing. Thus, rather than typologizing individual scholars, we view, for instance, supersharing and nonsharing as social and cultural phenomena; that is, phenomena that are affected primarily by factors other than individuals' attitudes, attributes, and information seeking styles.

To develop a more in-depth understanding of the contextual factors affecting information sharing, it is useful to distinguish between the different goals, purposes, and tasks accomplished by information sharing practices in different contexts. The empirical findings gave basis to the following classification of the types of information sharing:

1. Strategic sharing: information sharing as a conscious strategy of maximizing efficiency in a research group.
2. Paradigmatic sharing: information sharing as a means of establishing a novel and distinguishable research approach or area within a discipline or across disciplines.
3. Directive sharing: information sharing between teachers and students.
4. Social sharing: information sharing as a relationship- and community-building activity.

The following statements combine the classification of the types and goals of information sharing with the typology describing different levels of information sharing. They are a summary of the concepts and hypotheses that emerged from the empirical data. The empirical findings that the statements are based on are described in the next chapter. The statements are in essence hypotheses to be tested and enriched in subsequent studies.

- Super-sharing takes place in longitudinal closely-knit research projects in which information sharing has been adopted as a conscious productive strategy. All types of information sharing take place in such projects.
- Sharers work together in temporary writing projects or research groups combined with an interest in making sense of or establishing a novel research problem, approach, or area. All types of information sharing take place in such groups.
- Occasional sharing takes place between colleagues who do not share the same research interest or subject, or between teachers and students. The forms of sharing are mainly limited to sharing information about relevant documents and about ways of finding relevant documents. Documents and information about the contents of relevant documents are less often shared.
- Nonsharing is combined with research projects that are unique in the sense that no one else either in the immediate work community or in virtual research communities shares the same research interest or subject.

FINDINGS

Strategic sharing

In the department of nursing science, there was a research project in which one researcher of the team did the initial actual searching on behalf of the whole research group. The leader of the team and this researcher together chose the keywords to be used in searches. These searches were replicated later by research assistants under the project leader's guidance. Books that were potentially relevant to the project were identified by the researcher responsible for information seeking, and acquisition decisions were made collectively. When individual researchers located relevant articles they copied them simultaneously to their colleagues.

The project leader said that without "designed helps" and well organized "centralized searching" she would never have the time to do actual research. Thus, she considered it self-evident that given her long career as researcher, and her own extensive experience of information seeking and filtering, she could delegate these tasks to others as work assignments. She pointed out that "whatever the area, I want everything that can be found to be taken," and emphasized that centralized scanning makes it possible to cover a larger area, so that "the project files contain everything that can possibly be needed at this moment." Wide-range scanning is necessary in nursing science, because in this multidisciplinary field, relevant documents can be scattered across fields such as medicine, education, and sociology. Two research assistants who also did their own masters thesis as parts of the project were hired to filter and describe the contents of retrieved articles according to a scheme the project leader had designed, "so that I know when I start writing exactly which articles are relevant for that particular piece."

The project team contained 10 researchers and 5 students. The scholars of the team also wrote most publications collaboratively. They not only shared information about documents, they shared documents and information about the contents of documents. They also discussed the technical features of the databases they used and alerted each other of new possibilities in the library's electronic journal services. The project leader and the junior researchers all emphasized that everyone benefits from the kind of sharing practice adopted in the team. The information sharing practice adopted in this research project can be called strategic since the progress of research and publications was purposefully designed to function on the basis information sharing activities. For those researchers who have been specifically trained to work as researchers in groups and long-term projects, information sharing can be an integral part of research style.

Paradigmatic sharing

The research group of digital art and culture, functioning in the department of comparative literature but also attracting members from other departments, started in 1997. The leader of the group and some group members had started doing research on hypertext already in the 1980s. The leader of the group said that in the beginning, the group sought and "knew from a wide sector everything there is." The group members identified the classics of the field and important new works, and shared their findings and interpretations not only with group members but also in the group's homepage. Later, the stream of new research on the area could no longer be controlled. As the interest in digital culture became more widespread in general, and a more "normal" research interest for literature and cultural studies scholars, researchers adopted more specialized, narrow viewpoints to digital culture. The group branched off to those studying information technology and those studying audio-visual culture. In the beginning, however, the group members needed each other to collectively develop and establish a shared understanding that information technology,

conceptualized as "digital culture," can be a "proper" research interest for scholars in the field of literature.

The information sharing practice adopted in this group can be called paradigmatic information sharing. Paradigmatic sharing is goal-oriented in the same way as strategic sharing. It is typical for research groups that are formed around new areas of interest, new methods, or research paradigms. Such groups are usually temporary, dissolving as the research area or approach that once efficiently distinguished their members from others working in the same discipline becomes established and other differences become more crucial. Such groups can be either inter-disciplinary or intra-disciplinary, and they can consist of small teams gathered around a collaborative writing project or larger and more loosely structured groups. Such groups commonly strive for a new kind of understanding concerning the important questions in their fields and/or the most fruitful way of studying a particular phenomenon. The scholars in the research group of digital art and culture shared a mutual interest, and gathered as a group to identify the core literature on their topic, to distinguish the classics of the field, and to share information about the important new contributions. They engaged in collaborative seeking, filtering, and interpretation of documents.

Directive sharing

In the departments of nursing science and ecological environmental science, students were occasionally engaged in the research projects progressing in the departments. Researchers sometimes benefited from the searching done by graduate and doctoral students, and students benefited from the projects' cumulated document stores.

Information sharing in LIS literature is often described by the concepts of peer influence and consulting (cf. 3). Both expressions suggest a one-way process in which a more experienced researcher guides a student or a junior researcher to relevant sources. We can speak of directive sharing when the process is two-way, when senior and junior scholars both benefit from the results of each others' searches, and when they have mutual interests and goals. Without mutual interests and benefits, when a mentor simply suggests relevant literature to a student, a better conceptualization is information giving.

Seldén (5) found that scholars in training tend to emphasize their relative independence from seniors in research and information seeking. However, the more junior nursing scientists and plant researchers associated with projects benefited from the projects' cumulated document stores, the more they emphasized the importance of developing independent research and searching skills. In the fields of history and literature, doctoral students typically choose and develop their research interests individually. In these fields, junior scholars rarely felt the need to emphasize their independence. Rather, one junior literature researcher remarked that a strong dependence on "gurus" is typical for humanist scholars in the beginning of their careers, limiting their searching and reading to well-known names. The mature scholar does not need these crutches any more and is "more prepared to face the challenge of thorough literature searches." Thus, the norm of independent searching that scholars observe and express in interviews may not always correspond with the actual social practice of document retrieval. This finding supports Haythornthwaite's and Wellman's (12) argument that researchers' actual information seeking is affected more by their social ties and networks than their individual attitudes and attributes.

In the departments of nursing science and ecological environmental science, directive sharing not only took the form of sharing information about documents, but also sharing documents and information about document retrieval techniques. Relevant articles, when encountered, were often

directly copied also for others, by mentors as well as doctoral students, or their URL addresses shared by e-mail. One senior plant researcher told that document retrieval methods "have been taught collegially here, people will tell you that you can find the data you want from there, with that keyword. It has been taught in a mouth-to-mouth fashion." Literature scholars rarely discussed information seeking methods collegially, while historians enjoyed sharing tales of their detective work in finding original sources.

Directive sharing, in general, does not often seem to take the form of sharing information about the contents of documents; students are expected to read on their own, and senior scholars are not necessarily interested in discussing contents with those not having an extensive understanding of the field.

Social sharing

Respondents frequently said that sharing information about relevant documents is "an extremely good system that we have in this department." The existence of this departmental-level "system" means that information seeking is not always related to optimizing efficiency or to satisfying individual information needs. Erdelez and Rioux (24) call this type of information behavior "the sharing of encountered information with others;" here, I call it social information sharing. Twidale et al (7, p. 769) characterize information sharing between colleagues not working in same projects as "serendipitous altruism." Social sharing is not strictly goal-oriented, rather, it most resembles the practice of giving and receiving gifts. Its essence is in building and maintaining social relationships (24, p. 228), developing communality where otherwise might only be scholars working individually and alone with their own projects. Scholars need the feeling that they belong to a community of scholars, not only by reading other scholars and writing for them. They need reassurance at intervals that what they are doing is worthwhile (25). Scholars usually regarded sharing information about potentially relevant documents between researchers working in different fields as signs of respect and that their work is valued.

Individual researchers and research teams also compete for prestige, positions, and funds, so that optimization might, in fact, mean not sharing important references and findings with others. Sonnenwald (13, 11) has introduced the concept of "contested collaboration" to emphasize that individuals and groups often maintain an outward stance of cooperation but also work to further their own interests or knowledge claims. Social or department-level sharing practices may also have the function of veiling and smoothing contests or differences in perspective. If research groups overtly competed with each other, it would result in increased stress in a situation where scholars already face many kinds of pressures and anxiety about "producing enough."

The information shared by scholars working in the same department is not always relevant, because scholars working in different research areas cannot necessarily always understand the subtle but essential differences in, for instance, ways of approaching a particular topic. In social sharing, information about the contents of documents is less often shared, as scholars may not know exactly how the discussion of a specific document is related to the colleague's topic. Relevance (especially in humanistic and social scientific fields) is often relational and context-dependent, however. References coming from respected colleagues or mentors can be more readily judged as relevant (or a relevance may be invented to them) than those found individually by chaining or searching from databases.

Information sharing in many research groups and projects is mainly of the social type. The group members meet a few times a year, occasionally sharing information about relevant documents.

Especially in humanistic disciplines, where scholars usually write alone, projects and research groups can be developed around funding applications, because major research funders often prioritize multidisciplinary project research undertaken in specific programs. To use Wilson's (26) distinctions, scholars in such groups have the same research interests, but they do not necessarily have the same underlying concerns; sharing concerns is typical for paradigmatic and strategic sharing.

Nonsharing

Nonsharing in the study concerned three historians and literature scholars who did classical humanist research of the "life and works" kind on important historical figures that no one had before written about. Their research was empirical in its character, relying on insight, storytelling and interpretive abilities, or, in a senior historian's words, "normal logic and healthy common sense," more than explicit methods and theories. Their main sources were people who had known the people they were writing about, archive materials, and in general documents that could be estimated to contain relevant information, but whose relevance could only be determined by closer scrutiny.

Nonsharing as a phenomenon thus does not refer to a condition when scholars hold back relevant information for fear of being "scoped." It is not related to distance from the work community, or to people who do not have social capital, a functioning network of social contacts. On the contrary, one female historian explicitly described how she had built a network of contacts that on the basis of friendship could be "bothered" when she wanted to establish whether there was anything done on a subject. She also reported discussing with librarians more often than any other respondent. These contacts just could not help her, because in her case there were no other options but to go manually through original written catalogues and sources.

Nonsharing as a phenomenon cannot be captured or understood if we explain information behavior by individual-level variables; for instance, by individuals' preferences, or their cognitive and affective styles. Nonsharing takes place in the academic research community when the community as a whole cannot provide information about relevant documents to one of its members.

Nonsharing is combined with research projects so unique that the researcher cannot delegate any part of their information seeking to others, because only they would know when a finding is a finding. In these instances, it is highly unlikely that others could encounter information that would be relevant to these scholars. Such unique projects are rare, because, as a rule, scholars tend to study that which has already been studied (27, p. 657), or at least use common theoretical and methodological literature.

THE ROLE OF LIBRARIANS IN COLLABORATIVE SEEKING

The interviewed scholars did not collaborate with librarians in information seeking in the manner suggested by some previous studies on collaborative retrieval (cf. 28, 29). Delegating searches to others most often meant using research assistants enrolled to be trained as researchers. As Kuhlthau (9) has pointed out, in the current information environment there is, typically, no lack of information resources. The interviewed scholars frequently pointed out that finding relevant documents is usually not a problem, rather, the problem is deciding which documents are most relevant. That is why scholars preferred to collaborate with those colleagues and students they trusted to have previous knowledge of the field and of the way documents are connected with their research problems. As Solomon (30, p. 1111) noted, people prefer to cooperate with those they trust to speak the same specialized language as they and share the same language games.

When asked about whether they collaborated with librarians, many participants said that they have no use for the kind of general or technical searching skills librarians possess. Only one senior researcher had, when starting on an entirely new research theme, delegated the starting search to a specialist library, because the library had purchased databases the researcher did not otherwise have access to. When humanist scholars needed help in identifying seed documents, they rather sent email queries to discussion lists than to librarians. They needed help in connecting older existing literature to a new or emerging keyword rather than in connecting new literature to an older existing keyword. Plant researchers did sometimes seek the help of librarians, but these interviewees expressed their trust on a particular librarian they named, and mentioned his scientific training. This training made him in these respondents' eyes "qualified" for setting keywords, which otherwise was defined as a scientific task that could not be delegated to librarians.

SUMMARY

This paper developed concepts to describe scholars' collaboration in document retrieval. Table 1 summarizes the empirical findings concerning disciplinary differences in respect of information sharing.

	Strategic sharing	Paradigmatic sharing	Directive sharing	Social sharing	Nonsharing
Nursing science	Yes	No	Yes	Yes	No
Ecological environmental science	No	No	Yes	Yes	No
Literature and cultural studies	No	Yes	No	Yes	Yes
History	No	No	No	Yes	Yes

Table 1. Disciplinary differences in information sharing

Scholars' collaboration practices depend on many temporally varying factors like projects and research funding. In this limited case study, the interviewed historians, for instance, reported no incidents of paradigmatic sharing. Historians usually work alone, but under specific circumstances, they too are likely to form groups striving for a new way of looking at history. The findings of this exploratory study enable no conclusions about the frequency of collaborative seeking and different modes of information sharing in the studied disciplines. More research is needed to establish the extent of collaborative document retrieval in different disciplines and how it is influenced by situational and other factors.

CONCLUSIONS AND IMPLICATIONS

The findings of this study indicate that collective and collaborative seeking is as common and natural a form of information behavior as individual seeking. Further research is needed to develop concepts and frameworks that start from the assumption that users are not individuals working in isolation but communities of sharing engaged in joint tasks. The study shows that the social aspects of information seeking cannot be captured in a framework that views individuals as functioning independently but adhering to social and cultural norms. Scholars' social networks not only affect

their choices of information seeking strategies; rather, these networks are often the *place* where information is sought, interpreted, used, and created. As Meadows (25) pointed out, scientific research is bound up with social interaction. The need to acquire information, to select, distill, and modify ideas, all involve scientists in communication, and "communication is, by definition, a communal activity" (25, p. 49).

Carey (31) makes a useful distinction between two different views of communication: the information transmission view and the ritual view. These two views can also be seen as potentially guiding information seeking research into different directions. When the information transmission/transportation view is adopted, information behavior (communication) is understood as the seeking and finding of relevant information through sources and channels. In the ritual view, information seeking (communication) is part of a process through which a shared culture, a domain, sub-discipline, research topic, or a research project, is communally created, defined, and transformed. Adopting the ritual view of communication, or the information sharing paradigm, would have quite distinct consequences for research efforts in information seeking research and for information systems design. For instance, scholars' information seeking careers (5) might be described as the histories of their participation in and association with different scholarly networks and projects. Or, research efforts could be focussed in the ways in which these groups invent themselves and their research interests, reach their goals, and dissolve.

This study did not address the question of how scholars' information sharing practices are changed or facilitated by the web. Studies on the use of collaboration technologies typically indicate, however, that their use and usefulness depends on their ability to function as extensions of scholars' already existing social networks and work practices (cf. 32, 33, 34). The research and design of electronic services such as digital libraries aims at understanding and supporting scholars' actual work practices and preferred ways of collaborating in information seeking. Digital libraries have been thus far mainly designed to support individual's information seeking, and not much research has been conducted on the ways in which digital libraries could support collaborative keyword formulation, document retrieval, filtering, and problem-solving (for exceptions, cf. 28, 35, 36, 37). This study indicates that these are important issues to consider in future research.

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APPENDIX A: INTERVIEW SCHEDULE

- Tell me a little about your current research. What kinds of projects are you working on?
- Do you work alone or in a research group? (If collaborates: How do you collaborate?)
- Can you take a manuscript you are currently working on? Tell me a little about how you found the sources you cite there.
- Which are the most essential sources in this work? What is the basis of their relevance, what type of knowledge do they contain (e.g. methodological, theoretical, empirical)?
- How did you find these sources?
- What sources are secondary or less essential in this work? What type of knowledge do they contain?
- Do you do your searches yourself or do you seek the help of library professionals?
- In what phase of your project did you seek literature?
- How do you generally conduct your searches? (Detailed discussion of searches, monitoring, browsing, encountering, sharing; and the use of libraries, electronic journals, databases, other digital resources, persons' and institutions' homepages, subject gateway libraries, search engines, newsgroups, discussion lists, e-mail).
- What kind of role do your colleagues and research group play in finding sources?
- What is the role of conferences?
- Has your way of finding sources changed during the last couple of years?

- What causes you the most problems in searching and finding literature?
- What is most enjoyable in searching and finding literature?
- Do you generally discuss information seeking with your colleagues?