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Information Behavior

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Introduction

Wilson (2000, p. 49) defined information behavior as "the totality of human behavior in relation to sources and channels of information, including both active and passive information seeking and information use." Seen this way, information behavior includes purposive information seeking; serendipitous encountering of information; and the giving, sharing, and use of information. Pettigrew, Fidel, and Bruce (2001) described recent debates over the scope and terminology of this topic, including difficulties with the label "information behavior"; they concluded that information behavior was the most appropriate term for this area of research.

This chapter reviews recent literature on information behavior, covering publications appearing during the four-year period 2001 to 2004. The year 2001 has been chosen as the starting point because the most recent *ARIST* chapters relevant to information behavior (see the citations in the next section) were published in 2001 and 2002, and their bibliographies cover works from 2001 and earlier. In addition, I published a comprehensive overview of the information behavior literature that includes items published through late 2001.

The citations were gathered through electronic searches of bibliographic databases (such as Wilson's *Library Literature and Information Science Full Text*) and print and electronic journals on the topic (such as *The New Review of Information Behaviour Research* and *Information Research*), along with manual scanning of general publications in library and information science. Searches coupled the term "information" with "behavior," "seeking," "needs," and "uses."

More than 2,000 potentially relevant documents were identified, appearing between January, 2001 and December, 2004. With hundreds of relevant items being published every year, it is impossible to be comprehensive, even when restricting the literature to a four-year period. Consequently, several restrictions were applied.

The chapter assumes that a central component of "information behavior" is the notion of interacting with an array of potential sources that might address one's interests and information needs. Following the logic

of the last comprehensive review, I have excluded items that are "site-specific, system-specific, or service-specific" (Hewins, 1990, p. 145). That is, this review will not include studies of an isolated source (e.g., use of a particular electronic journal), solitary site (use of an individual library, for example), or a single service (e.g., Web access from home), unless the investigator attempted to situate these in the context of other sources, sites, or services; investigations of Internet usage are included if studied as one element of an omnibus mix of mass media (e.g., Web pages, journals) and interpersonal channels (e.g., e-mail, discussion groups) in the context of other sources (e.g., verbal exchanges). A portion of such excluded material—that related to information retrieval, searching behaviors, use of electronic journals, and search engines—has been recently reviewed in *ARIST* chapters by Vakkari (2003), Kling and Callahan (2003), and Bar-Ilan (2004).

History of *ARIST* Information Seeking Reviews

This chapter is the latest in a long—but interrupted—series of reviews. *ARIST* chapters on "information needs and uses" first appeared in 1966 (Menzel), 1967 (Herner & Hermer), 1968 (Paisley), 1969 (Allen), 1970 (Lipeitz), 1971 (Crane), 1972 (Lin & Garvey), 1974 (Martyn), and 1978 (Crawford). Perhaps because of the increasing availability of bibliographies on the topic, there was a pause in reviewing information needs and uses publications following Crawford's 1978 chapter. Later, comprehensive *ARIST* chapters reappeared in 1986 (Dervin & Nilan) and 1990 (Hewins). These chapters reviewed between 26 and 136 items, reflecting accumulations of literature over periods of one to eight years; all of them imposed restrictions of some kind, e.g., reviewing only science and engineering studies or not reviewing investigations that employed questionnaires or were specific to one site.

Gradually, reviews of the information behavior literature grew more specialized. Since 1990, *ARIST* has not published any general "information needs and uses" reviews, although several related reviews have appeared. A 1991 survey by Tibbo of "information systems, services, and technology for the humanities" included some information seeking studies. Three 1993 *ARIST* chapters, respectively by Choo and Auster ("Environmental Scanning"), Chang and Rice ("Browsing"), and Metoyer-Duran ("Information Gatekeepers"), covered contrasting behaviors that traditionally have been considered in the information behavior literature. Since then Pettigrew, Fidel, and Bruce (2001) have written on the conceptual models used in information behavior research; King and Tenopir (2001) on the use of scholarly literature; Wang (2001) on methods for studying user behavior; Cool (2001) on the concept of "situation" in information science; and Solomon (2002) on "discovering information in context." Together, these reviews cover many topics typically found in the information behavior literature; additional works from the 1990s are reviewed in Case (2002).

A Framework for Reviewing the Literature

The information behavior literature presents a bewildering array of topics, populations, samples, sites, theories, and methods. Case's (2002) review of information behavior literature presents an argument for categorizing the literature into one or more of the following areas:

- Information seekers by occupation (e.g., scientists, managers)
- Information seekers by role (e.g., patient or student)
- Information seekers by demographics (e.g., by age or ethnic group)
- Theories, models, and methods used to study information seekers

This last category—theories, models, and methods—suggests how and why to study information behavior. Occupations have constituted the most popular framework for investigating human information behavior, as when a researcher studies a group of engineers or managers (Julien & Duggan, 2000). Non-employment roles, such as student or patient, are the next most prevalent. Finally, demographic characteristics, such as age, gender, or ethnicity are less common and typically distinct from the other approaches.

The review will follow the same order, ending with some generalizations about the growth and scope of the literature on information behavior.

Information Seekers by Occupation

Research by Julien and Duggan (2000) and by McKechnie, Baker, Greenwood, and Julien (2002) makes it obvious that occupations are the most common entry point for investigations of information behavior. McKechnie et al. found that 32 percent of a large sample of recent investigations studied some kind of "worker," typically a professional, and another 17 percent of studies focused on academics or other researchers. Past *ARIST* chapters also have exhibited a fondness for studies of engineers, scientists, scholars, and managers.

Scientists, Engineers, and Scholars

Investigations of the information sources and habits of engineers and scientists continue, although the latter group has been of less interest in recent years. In fact, recent studies of scientists tend to replicate the conventional research questions and methods of the past, typically employing questionnaires and interviews in studying the reading and information-gathering habits of small samples within a single discipline. Flaxbart's (2001) interviews with six university chemistry faculty and

Hallmark's (2001) interviews with 43 academic meteorologists are examples of this approach, each covering a range of sources but emphasizing the impact of electronic journals on the habits of these groups. Murphy's (2003) Internet survey of 149 toxicologists, biochemists, and other scientists working at the U.S. Environmental Protection Agency is also of this type. It is perhaps notable that Flaxbart's is the solitary empirical study in a journal issue devoted to "information and the professional scientist and engineer"; even though "information needs" and "information seeking" are the subjects of several other articles, the authors' comments are mostly based on older studies of scientists and engineers. Scientists are no longer the frontier of information seeking research, as they were 30 years ago; perhaps the lack of novel findings in these studies means that we already know enough about scientists.

Recent investigations of engineers show more depth in their research questions. Fidel and Green (2004) chose to study the accessibility of information sources as perceived by engineers. Numerous studies have found accessibility to be the factor that most influences engineers' selection of information. However, Fidel and Green found some variation among their respondents in how they interpreted "source accessibility." Saving time was the chief criterion for selecting among documents, but familiarity was the guiding factor in selecting human sources of information. Bruce, Fidel, Pejtersen, Dumais, Grudin, and Poltrock (2003) and Fidel, Pejtersen, Cleal, and Bruce (2004) used a variety of techniques to investigate collaborative information gathering and sharing among members of design teams at Microsoft and Boeing: the investigators illustrate the use of "cognitive work analysis" to explore seven dimensions of the tasks they studied. Yitzhaki and Hammershlag (2004) contrasted academic computer scientists' with industrial software engineers' use of information and their perceptions of the accessibility of sources. Their mail survey of 233 respondents demonstrated differences among the two groups in age, education, seniority, type of research, and the use of most sources. Within both groups the accessibility of information was only partly correlated with its use; this relationship was stronger among the academics than those working in industry. Kwasitsu (2003) focused on engineers involved in microprocessor design and manufacturing, finding that the higher the level of education, the less likely the engineers were to rely on memory and the more likely to use libraries.

Academic scholars of all types have traditionally been a subject of information behavior investigations. This continued to be true during the period 2001 to 2004. Such studies formerly restricted themselves to one discipline but now sample broader populations. An example is Talja's (2002) study of information sources, peer influence, and information sharing among 44 faculty members at two Finnish universities. Talja conducted lengthy interviews with samples of 10 to 12 nursing specialists, historians, literature scholars, and environmental scientists. Her findings demonstrate that scholars define their research areas and

disciplines through social interaction and that collaboration and information sharing are essential aspects of scholarship.

Belefant-Miller and King (2001, 2003) examined a sample of faculty at a single university to chart their reading habits and use of e-mail. They documented the changing nature of scholarship as many sources became electronically available and emphasized the continuing value of browsing in searches for information. Herman (2004) used a critical incident technique to determine 11 aspects of information needs common to academic researchers.

Recent investigations of the information seeking habits of social scientists and humanists include those by Meho and Haas (2001), Meho and Tibbo (2003), and Brown (2001, 2002). Meho and Haas's (2001) survey of Kurdish Studies scholars demonstrated that interdisciplinary scholars often need to work harder and employ more elaborate methods of information seeking in order to locate and use relevant research. That theme is further explored by Meho and Tibbo (2003), who partially replicate earlier work by Ellis (see Ellis, Wilson, Ford, Foster, Lam, Burton, et al., 2002, and Wilson, Ford, Ellis, Foster, & Spink, 2002, for elaboration of the Ellis model). Theirs is a multinational study of 60 social scientists who study "stateless nations." Meho and Tibbo use Ellis's characterization of information seeking as a sequence of different stages and actions: starting, chaining, browsing, differentiating, monitoring, and extracting. They develop a model that adds other types of actions—accessing, networking, verifying, and managing—to Ellis's earlier model.

Humanities scholars have received continuing attention from information behavior researchers. Brown (2001) examined how music scholars in the U.S. and Canada communicated via e-mail and electronic discussion groups to facilitate their research. Using Diffusion Theory, interviews, and a survey, she found that music scholars rated e-mail as more helpful than discussion groups. Overall, both modes of communication played marginal roles in the research of these scholars. In her subsequent work, Brown (2002) proposed a six-stage model of the research process of music scholars, based on interviews with 30 respondents who described recent research projects. Dalton and Charnigo (2004) and Duff and Johnson (2002) focused on information acquired by historians. Caidi (2001), Palmer and Neumann (2002), and Westbrook (2003) discussed the challenges of interdisciplinarity for scholars in the humanities and social sciences. And as noted earlier, an *ARIST* chapter by King and Tenopir (2001) reviewed the personal and situational factors affecting the use of both print and electronic scholarly literature.

Managers

For several decades, managerial decision making has received a great deal of attention from scholars of organizational behavior. Increasingly, these scholars use the terms "scanning," "sense-making,"

and "information seeking" to describe the behaviors of interest. For example, Farhoomand and Drury (2002) asked 124 managers across various companies and government agencies in four English-speaking countries to define "information overload"; identify its frequency, sources, and effects; and report the actions they took in response. Most described overload in terms of excessive volume, irrelevant content, or an inability to manage or understand information. Over half of the respondents experienced the feeling often and most said they "filtered" information to combat overload. Allen and Wilson (2003) and Eppler and Mengis (2004) also address the definition and extent of information overload.

Choo (2001a, 2001b) described four modes of environmental scanning frequently observed within organizations, claiming that each reflected typical needs, habitual information seeking, and standard uses. Choo's model correlated needs, information seeking, and information uses with managerial traits, organizational strategies, and external situations. It also suggested future research approaches and applications.

Correia and Wilson (2001) interviewed 47 individuals in 19 Portuguese firms of differing size to discover factors that influenced environmental scanning. Using a case-study approach, coupled with grounded theory, they discovered factors that were partly individual in character—information consciousness (attitude toward information-related activities) and exposure to information (frequency of opportunities of contact with well-informed people and information-rich contexts)—and also partly related to both organizational information climate (conditions that determine access to and use of information in an organization) and "outwardness" (links to other organizations). They concluded that the more open the organization is to its environment, the more likely it is that individuals in the organization will be exposed to relevant information; correspondingly, to the extent that openness occurs, the organization is more likely to develop an information climate that supports the individual.

Houtari and Wilson (2001) focused on "Critical Success Factors" (CSF) in their case studies of the information needs of managers at U.K. and Finnish universities and business firms; CSF are linked to objectives that, if not achieved, may result in organizational failure. Qualitative interviews and social network analysis were combined with a grounded theory approach to identify main themes across the two universities and two companies, confirming the validity of CSF in differing kinds of organizations. Houtari and Chatman (2001) have explained the theories (Social Networks, Small Worlds) underlying such studies. Mackenzie (2003a) surveyed 50 business managers and 50 non-managers, finding significant differences between the two groups in terms of their information behaviors and motivations. The results demonstrate that managers tend to gather information they do not need, in a quest to simplify their environment and make faster decisions. The respondents believed that gathering information gave them

the reputation of being well connected and knowledgeable. In addition, her interviews with 22 line managers (Mackenzie, 2003b) reveal that, in some cases, they were drawn to a source that represented the best (e.g., most trusted or liked) relationship rather than the best information. Other studies by Mackenzie (2002, 2004) suggested that managers consciously cultivated other individuals as information sources. Hall (2003) took on similar themes to those of Mackenzie, exploring the motives behind the sharing of knowledge in information-intensive organizations.

Widén-Wulff (2003) examined how 15 Finnish insurance companies (virtually a census of the industry in that country) built their respective knowledge bases. After conducting 40 interviews, she outlined three categories of companies on the basis of the characteristics of their internal environments: "closed businesses" (in which tradition and safety were emphasized), "open companies" (those that were innovative and integrated social capital and individual employees in their planning process), and firms "in the middle," perhaps transitioning from closed to open.

Hirsh and Dinkelacker (2004) followed the information-seeking behaviors of 180 researchers from Hewlett Packard Labs and Compaq Computers during the merger of those two companies. They found heavy use of Web sources, the corporate library, information from standards bodies, and information from colleagues outside the firm. Their results suggested that the factors most influencing selection of sources were time-saving, authoritativeness, and convenience; currency, reliability, and familiarity were less important.

Journalists are another occupational group that has received attention of late, particularly as the Internet changes both the way they gather information and how they publish their work. Atfield and Dowell (2003) and Atfield, Blandford, and Dowell (2003) based their conclusions on interviews with reporters for the (London) *Times*. They examined the role of uncertainty in the work of newspaper reporters in Britain, looking at how they perceived newsworthiness, generated "angles" for stories, exercised creativity, and gathered information in the process of writing. The ideas of Kuhlthau (see Kuhlthau & Tama, 2001) and Dervin (see Dervin, 2003) figured prominently in this research. Although more focused on Web usage, Garrison (2001) used Diffusion Theory to consider other jobs and roles in the newsroom. The results of Garrison's large-scale survey suggested that daily newspapers typically have three types of roles (news researchers, specialists, and reporters/editors) that differ in the sophistication of their searching skills. The efforts of news librarians to train reporters and editors in online searching have resulted in less dependence on librarians and other news researchers.

Other Occupations

Attorneys are among the other occupational groups often encountered in past information behavior literature. Wilkinson (2001) conducted over 150 interviews with lawyers about how they solved problems in their practice. She concluded that "legal research" was not synonymous with "information seeking." Wilkinson's respondents named other tasks, such as administration, that entailed both problem-solving and information-seeking activities. In general, they preferred informal and internal sources of information, especially those who were working in larger firms. Haruna and Mabawonku (2001) took a more conventional approach in studying the needs and seeking behaviors of lawyers in Nigeria. They concluded that the most pressing information needs of Nigerian lawyers related to recent decisions of superior courts, new legislation, and advice on bettering their knowledge and skills. They concluded that law libraries in their country were not fully meeting lawyers' needs. In another study relevant to law libraries, Kuhlthau and Tama (2001) concluded that lawyers desire information services that are highly customized to their needs.

Investigations of health care providers appear to be increasing. For example, Sundin (2002) conducted multiple interviews with 20 Swedish nurses to explore the distinctions made between practical and theoretical knowledge and the relationship of that knowledge to the nurse's professional identity (that is, as a legitimate specialty distinct from that of physicians). Sundin argued persuasively for a sociocultural approach to studying information behavior as one aspect of professionalization. Cogdill (2003) studied the information-seeking practices of 300 primary-care nurses through a questionnaire and interviews with 20 of the respondents following episodes with patients. He found that nurse practitioners most frequently needed information related to drug therapy and diagnosis and that they most frequently consulted colleagues, drug reference manuals, textbooks, and protocol manuals. Gorman, Lavelle, Delcambre, and Maier (2002) used individual and group interviews coupled with participant observation of the information behaviors of a sample of physicians, nurses, and pharmacists in order to design better digital libraries for them. They found that an overabundance of records, coupled with severe time constraints, forced their informants to focus tightly on data related to the problem of patient care. MacIntosh-Murray (2001) offered a framework for studying the monitoring of "adverse clinical events." She argued that the incidence and seriousness of medical errors made the scanning behavior of health care workers an important topic for research and suggested variables that could influence the incidence of adverse events. Ocheibi and Buba (2003) described a conventional survey of the information needs of Nigerian doctors. Urquhart (2001) reviewed some earlier studies of health care professionals in the course of explaining the use of vignettes in information research. Vignettes, it may be noted, are clinical case histories used (in this context) to elicit from physicians and nurses the information sources or

actions they would most likely employ in response to a situation presented to them.

Donat and Pettigrew (2002) reviewed literature on both doctors and patients in describing typical information behavior surrounding the dying patient. Harrison, Hepworth, and de Chazal (2004) studied the information behavior of hospital social workers by means of questionnaires, focus groups, and interviews. Their results suggested that these social workers were relatively "information poor," given their needs and their lack of access to the Internet and other useful sources; consequently, information tended to be gathered in face-to-face exchanges with other people. Baker, Case, and Policicchio (2003) raised the issue of how information professionals might help sex workers cope with health problems. They carried out nonparticipant observation of 75 sex workers, using a social services van in a Midwestern U.S. city as a research platform; a similar study was carried out in South Africa by Stilwell (2002). Hepworth (2004) interviewed 60 non-professionals who provided substantial health care for a relative or other person and suggested a model of information service based on his findings.

Two publications in this category by Ikoja-Odongo and Ocholla (2003, 2004) concern unusual occupations; both employed the critical incident technique to gather information. For the first study they interviewed members of the "artisan fisher folk of Uganda," a group that includes a range of occupations associated with the fishing industry: fish and equipment sales, processing, boat building, net making, fisheries research, government extension, and so forth. Ikoja-Odongo and Ocholla (2004) interviewed 602 entrepreneurs in various businesses in Uganda, including fishermen, metal fabricators, blacksmiths, quarry workers, brick makers, carpenters, builders, mechanics, and craftsmen. Observation of the entrepreneurs' work environments and historical methods were also employed. Their results demonstrated the importance of oral traditions and local knowledge in the trades they examined. Information behavior research, Ikoja-Odongo and Ocholla stated, must be sensitive to the circumstances of poverty, illiteracy, and lack of infrastructure often found in developing areas. In doing so, it could suggest ways of "repackaging" information for use by such entrepreneurs. These findings were echoed by Serema (2002) in an investigation of communities in Botswana, by Meyer (2003) in a study of maize farmers in South Africa, and by Ekoja (2004), who focused on Nigerian farmers.

Information Seekers by Role

Julien and Duggan's (2000) work indicated that the second most common approach to studying information behavior is the investigation of roles such as citizen, consumer, patient, student, or gatekeeper. Investigations of "citizens," "voters," or "consumers" may have practical outcomes (e.g., improving social services or marketing efforts) yet also cover many other areas of interest to the average person. As McKechnie,

Baker, Greenwood, and Julien (2002) pointed out, reports on "ordinary people" make up about 22 percent of the information seeking literature; investigations of "students" (a role we take on for the majority of our childhood and often part of our adult lives as well) make up another 19 percent of such studies.

The General Public

Studies of the information behavior of the public have been rare since the large-scale studies of the 1970s and 1980s (e.g., Chen & Hernon, 1982). An exception is Marcella and Baxter's (2001) random sample of almost 900 British citizens. They and their colleagues conducted "doorstep" interviews using a careful sampling plan, preceded by a questionnaire survey of almost 1,300 residents. They advocated door-to-door interviews as a method that could probe deeply and reach individuals who might be missed by other approaches.

A broad range of methods—surveys, observations, interviews, focus groups, and case studies—was used by Pettigrew, Durrance, and Unruh (2002) to assess the use of community information by the general public. Libraries in the states of Illinois, Pennsylvania, and Oregon were used as entry points to see how the Internet and libraries disseminated local information, answered questions, provided access to governmental services, and connected citizens to one another. Pettigrew, Durrance, and Unruh concluded that such networks were highly beneficial even when deficient in terms of interface design, organization, authority, currency, security, and other factors.

Beer (2004) conducted interviews with representatives of over 100 community groups, businesses, and information providers in eight remote communities in Shetland and the Western Isles of Scotland. She found that strong personal ties within the community enabled residents to find answers from other people. Complaints were made about the lack of relevance of some information from outside (e.g., "urban solutions") and the withholding of some information by local parties (sometimes due to journalistic sensitivity within such small communities). Difficulty of travel—even within the islands themselves—was judged to be a key barrier to finding information.

One aspect of everyday information seeking has dramatically changed since Hewin's (1990) review: the emergence of the Internet as an omnibus channel that complements (and, in part, replicates) the usual array of interpersonal and mass media sources of information. The diffusion of access to the World Wide Web is frequently discussed in reports of information seeking research. Case, Johnson, Andrews, Allard, and Kelly (2004), for example, argued that patterns of source preferences common 30 years ago (e.g., information gained in face-to-face or telephone exchanges with friends and family members) have shifted in light of the widespread availability of e-mail and Web pages. They based their findings on data from a 2002 telephone survey of 882

adults regarding information seeking about the genetic basis of disease. In the context of voting-related behavior, Kaye and Johnson (2003) used the results of an online survey of 442 respondents to demonstrate that the Internet is gradually substituting for other media usage—particularly television, radio, and magazines.

Although usage of Web pages (in isolation) falls outside the scope of this review, those investigations that consider Web searching in the context of other sources are deemed relevant. Hektor (2003) conducted an investigation of this type among 10 Swedish citizens. His study considered the place of Web sources among others available in the respondents' environment, including other people, the television, and the telephone. Based on interviews and diaries, Hektor noted that the Internet is used broadly for both seeking and giving information, yet is most often a complement to or substitute for other sources, not a unique source (a point also made by Flanagan & Metzger, 2001). The Web is but one channel among many that may be monitored habitually.

A series of articles by Savolainen, co-authored in three cases with Kari, advanced similar claims concerning the role of the Web among other sources and channels available in daily life. Savolainen (2001a) carried out an empirical study of a Finnish newsgroup on consumer issues, exploring the interaction between information needs, sources, and the social network of newsgroup users; a related article (Savolainen, 2001b) considered the relationship of Bandura's Social Cognitive Theory to the finding of information. Kari and Savolainen (2003) made the case that Web searching needs to be considered within the larger contexts of other sources and the person's "life-world," or everyday reality. Savolainen and Kari (2004a) extended the consideration of larger contexts by studying the "information source horizon" of the Internet in the context of self-development. Source horizons place information sources and channels in order of preference, based on attributes such as accessibility and quality. Savolainen and Kari's study drew on interviews with 18 Internet users who positioned information sources within three categories that were defined by degree of relevance to the respondents' interests and goals. Human sources such as friends and colleagues were preferred, followed by print media such as newspapers and books; networked sources were ranked third. In interviews with 18 Finnish citizens, Savolainen and Kari (2004b) found that they conceptualized the Internet as a space or place and that they assessed the quality of what they found there by comparing it with other information sources.

A study that barely fits in this category is that of Julien and Michels (2003). They documented "intra-individual information behavior," by which they meant patterns of need, information seeking, context, and source selection across one individual's various daily life situations. Through participant diaries and interviews, Julien and Michels found that time constraints, motivations, context, type of initiating event, location, intended application of the information found, and source type

were the most common influences on the information behavior of their single respondent.

Patients

Perhaps because of the steady growth in the complexity and importance of health care, studies of health-related information needs in general, and patients in particular, have been popular.

The information-seeking behaviors of spinal surgery patients, both before and after the procedure, were examined by Holmes and Lenz (2002). Lion and Meertens (2001) considered cases in which patients sought information about a potentially risky medicine. Rees and Bath (2001) conducted a study of the information needs and seeking behaviors of women with breast cancer, utilizing the Monitoring/Blunting Scale (MBS). (The eight-item MBS is the most widely used instrument for measuring how people react to threatening information; a "monitoring" response is to scan the environment for potential threats, while a "blunting" behavior [e.g., going to the movies] ignores threatening information or distracts the person from it.) A later investigation by Williamson and Manaszewicz (2002) reviewed additional literature on the use of the MBS and conducted interviews with 34 women to aid in the design of a Web portal; its findings cast doubt on the utility and validity of the MBS in this particular context.

Warner and Procaccino (2004) surveyed a broad sample (by age and education) of 119 women regarding their seeking of health-related information. They found that physicians, medical or health books, people with similar medical conditions, family or friends, nurses or pharmacists, Web sites, and public libraries were the most common sources of health information, in that order. A similar investigation was conducted among Somali women living in the U.K. by Davies and Bath (2003). McKenzie (Carey, McKechnie, & McKenzie, 2001; McKenzie, 2002a, 2002b, 2003a, 2003b) studied the information behavior of pregnant women, in some cases along with those of their midwives (McKenzie, 2004).

In a review of the health care literature, Donat and Pettigrew (2002) addressed the topic of the terminally ill patient, pointing out that the patient, as well as her or his caregivers, may have information needs at this difficult time. Baker (2004) carried out empirical research on this topic through a content analysis of a book of conversations between a husband who was dying and his wife (a grief counselor). Baker concluded that a person near death may need a variety of information to help her or him cope with dying and death. These needs reflected physical, emotional, spiritual, and financial dimensions of the person's situation.

Studies by Hepworth, Harrison, and James (2003a, 2003b); Box, Hepworth, and Harrison (2003); and Hepworth and Harrison (2004) used a variety of methods (focus group interviews, audio diaries, and questionnaires) to investigate the information needs of people with

multiple sclerosis. The thousands of responses they gathered indicated a need for information regarding the disease, its symptoms, and treatment, to be tailored to various audiences (including the patients, the public, and health care providers). Matthews, Sellergren, Manfredi, and Williams (2002) employed focus group interviews to explore factors affecting medical information seeking among African-American cancer patients. They identified several cultural and socioeconomic barriers, including limited knowledge and misinformation about cancer, mistrust of the medical community, privacy concerns, religious beliefs, fear, and stigma associated with seeking help.

Johnson, Andrews, and Allard (2001) offered a model for studying cancer genetics information seeking, drawing upon research on cancer patients. Johnson, Andrews, Case, and Allard (in press) argue that issues surrounding genomics make the topic a "perfect information seeking research problem." Case, Johnson, Andrews, Allard, and Kelly (2004) reported on a telephone survey of 882 adults regarding the public's sources of information about genetic screening and the genetic bases for cancer. The respondents said they would be more likely to access the Internet before turning to health care providers or relatives—both of whom are better sources of information about a person's genetic basis for disease. Johnson, Case, Andrews, Allard, and Johnson (in press) presented contrasting ways of considering survey data about health information sources as either "fields" or "pathways." The former approach is the traditional view of individuals choosing among one or more information sources, whereas the latter sees the search for an answer as a serial chain of sources that is followed until the seeker is satisfied or exhausted. Taylor, Alman, David, and Manchester (2001) also focused on genetics-related information available through the Internet.

Marton's (2003) examination of health information seeking by 265 women ranked Web information high on relevance but only moderately on perceived reliability; in contrast, health care providers, books, and pamphlets received high ratings on both of those attributes. Yet other studies (Wikgren, 2001, 2003) of Internet health discussion groups emphasized this channel as a source of interpersonal communication and emotional support. Wikgren (2003) found that 80 percent of references for supporting information were to Web pages and that 60 percent of all references were to sources with scientific medical content.

Students

As has been noted, studies of students constitute 19 percent of the literature on information seeking. Indeed, almost any publication on "learning" is relevant to information behavior (Kuhlthau, 2004b), making this section necessarily more selective in what it covers.

Toms and Duff (2002) studied 11 history students, mostly at the doctoral level. Respondents were interviewed and also kept diaries describing their visits to six different archives. Toms and Duff noted that the

diaries provided strong evidence complementing the evidence derived from interviews, yet the work depended on the commitment of respondents to maintaining the diary.

Gross (2001) and Gross and Saxton (2001) reported two investigations of "imposed" information seeking—queries developed by one person but given to someone else to resolve—in public and school libraries. The first study took place in three elementary school libraries serving children ages 4 through 12. The investigators found that between 32 and 43 percent of all circulation transactions in the school libraries involved imposed queries. The second survey, undertaken in 13 public libraries and involving 1,107 users, did not include minors, but it was clear that instructors' assignments were still a major source of imposed queries, along with those of spouses and, especially, the children of library users. Gross (2004a, 2004b) reports another study of imposed queries and information seeking in schools. In a similar vein, Hultgren and Limberg's (2003) review of the learning and information seeking literature suggested a strong relationship between the nature of school assignments and the ways in which students seek and use information.

Whitmire (2003) looked at the information-seeking behavior of 20 senior undergraduates as they researched a major paper. She employed Kuhlthau's Information Search Process model and four other research models from educational psychology to create the theoretical foundation of her investigation. Whitmire found that students' epistemological beliefs (e.g., the belief that "right and wrong answers exist for everything," as opposed to the belief that "all knowledge is contextual") affected their choice of topic, the ways they looked for information, how they evaluated information, and their ability to recognize cognitive authority.

Foster and Ford (2003) examined the role of serendipity in the information-seeking behavior of 45 university students and faculty, particularly how they accidentally or incidentally acquired information of interest to them. Foster (2004) identified three core processes and three levels of interaction with the context of the information—likening the resulting behavioral patterns to an artist's palette.

Given (2002a, 2002b) reported qualitative interviews with 25 "mature" university undergraduates. Taking Savolainen's (see Kari & Savolainen, 2003) framework for the study of everyday-life information seeking, Given's investigation explored how the academic and non-academic information needs of these students were related to one another, including the role of social and cultural capital. Jeong's (2004) interviews with, and observations of, Korean graduate students in the United States revealed gaps in their knowledge about American culture and described language and financial barriers that inhibited them from learning about their surroundings. Seldén (2001) used interviews, observation, and textual analysis to investigate the information-seeking behaviors, career, identity, and independence of 10 doctoral students in business administration.

Heinström (2003) tested the personality attributes of 305 master's degree students in a variety of disciplines. Her quantitative analysis found that five personality dimensions—neuroticism, extraversion, openness to experience, competitiveness, and conscientiousness—interacted with contextual factors to affect students' information behavior.

Other Roles: Hobbyists

Beyond students, other studies of "roles" tend to focus on narrowly defined groups. An example is Hartel's (2003) research on "hobbyist cooks"—people who do not cook for a living and yet are devoted to collecting and using information about food and its preparation. Hartel used this population as an example of the potential for the study of hobbies as a serious lifetime pursuit that features concentrated episodes of information seeking. In the same vein, Yakel's (2004) interviews with 29 genealogists and family historians explored their motivations and use of sources. Yakel concluded that being a family historian involves seeking meaning and self-identity as well as collecting facts; another study of genealogists by Duff and Johnson (2003) focused more on the latter aspect.

Information Seekers by Demographic or Social Group

Compared to occupational or role-based investigations, relatively few studies have involved the information-seeking behavior of demographic groups. However, demographic variables still form a common schema for analyzing the results of these other investigations.

Children and Youth

Children and adolescents are under-studied groups (considering their numbers and importance) according to Todd (2003). Those studies that have appeared tend to look at aspects of library or Web usage, but with the broader intent of understanding the child's thinking, learning, and social interactions.

Cooper (2002) observed seven-year-olds browsing in a library in order to understand how people who are still learning to read are able to search through printed material. She found that children often picked books on the basis of their covers rather than a closer examination of the contents. Using much different approaches and research questions, Alexandersson and Limberg (2003) performed an ethnographic study in which eleven-year-olds were observed, interviewed, and surveyed regarding how they constructed meaning from books, films, CD-ROMs, and the Internet.

The information-seeking behavior of young people was the subject of a series of articles by Shenton and Dixon (2003a, 2003b, 2004a, 2004b). Rather than studying sources or habits, their qualitative investigation of English children examined characteristics that correlated with the

use of a range of information sources. Shenton and Dixon (2003a) offered a model of the information behavior of the young. Specifically, they focused on how youngsters used other people, particularly friends, as information sources (Shenton & Dixon, 2003b). They also emphasized that some information-seeking patterns reflected personal problems that the youngsters were facing, whereas others were attempts to simplify the process (Shenton & Dixon, 2004a). Shenton and Dixon (2004b) have discussed general approaches to studying the information behavior of the young. Carey et al. (2001) also included some preschool children in their sample of informants.

Chelton and Cool's (2004) edited book is mostly about how children and youth have used electronic information systems in schools. However, two chapters discuss broader, what Chelton and Cool (2004, p. xii) call "personal, as opposed to school-based," information behaviors. One is Todd and Edwards's (2004) review of investigations of how teenage girls find out about drug usage, drawing on the work of Chatman (1996), Dervin (1989), and Kuhlthau (2004a). Not surprisingly, the main sources of the informants were other teenagers. Also in this volume, Julien (2004) described the results of interviews with 30 adolescent men and women regarding how they made decisions about future careers. Julien categorized the informants into five types of decision-making styles, based on locus of control and degree of active information seeking.

Agosto and Hughes-Hassell (in press) investigated the everyday-life information-seeking behavior of urban young adults through group interviews, surveys, audio journals, "photo tours," and activity logs. The informants were 27 Philadelphia teenagers, aged 14 to 17, nearly all belonging to racial minorities. Agosto and Hughes-Hassell found that friends and family members were preferred sources; cell phones served as the favorite medium; and schoolwork, social life, and the time or date of events were the most common topics of interest.

Hamer (2003) adopted a social constructivist perspective in a study of young men's information needs related to coming out and forming a gay identity. Their information seeking most often took place through online forums. Hamer relates his findings to Chatman's (1996) *Theory of Information Poverty*. A related investigation concerned the information needs of gay, lesbian, bisexual, and transgendered health care professionals (Fikar & Keith, 2004); although restricted to a sample of medical workers, the results of this Internet survey clearly have implications for the broader public that visits clinics and hospitals.

Other Groups: Immigrants, the Poor, the Homeless, Women, and the Elderly

Fisher, Durrance, and Hinton (2004) expanded the concept of "information grounds"—temporary environments in which information flows abundantly as a by-product of other activities—in their investigation

of immigrant users of Queens, New York, public library programs. They observed and interviewed 45 patrons, staff, and other stakeholders to ascertain what immigrants gained from such services and how the programs related to information literacy, concluding that the programs resulted in many benefits to newcomers.

Spink and Cole (2001) investigated the information-seeking channels used in poor African-American households in Dallas, Texas. Their interviews with 300 heads of households revealed that what their respondents most wanted to know about were local events, followed by information relevant to personal security and health. They ranked family and school as the most important sources of news events, followed by television, newspapers, and radio. Although friends and neighbors were the least important source for general news, they were the second- and third-ranked sources (preceded by newspapers—by far the best source) for information on employment.

Hersberger (2001) examined the information needs and sources of homeless parents. Hersberger spent a year as a participant observer in six homeless shelters in Indianapolis, Indiana. In addition to her other observations, she conducted interviews with 28 informants, generating over 800 pages of transcripts. Financial needs were the most pressing issue among the members of this sample, followed by child care, housing, health, employment, education, transportation, public assistance, and problems associated with living in the shelter. Altogether, Hersberger identified 16 major problem categories and 145 specific needs within those categories. Social service staff was the most frequently mentioned information source in nearly all major categories of need, with friends and family, personal experience, and other shelter residents also serving as common sources of help. A second study by Hersberger (2003) was a social network analysis based on interviews with 21 homeless parents in shelters in North Carolina and Washington State. Hersberger found the social networks of these informants to be small and sometimes unconnected. At times, the informants used secrecy and deception to protect themselves.

Dunne (2002) examined the information-seeking behavior of battered women. She advanced a "person-in-progressive-situations" model to chart stages in information seeking and identified three types of barriers that battered women face in finding information. Ikoja-Odongo (2002), Jiyane and Ocholla (2004), and Mooko (2002) each used interviews and questionnaires to study samples of South African women; all three studies stressed reliance on personal experience and the dominance of information obtained by word of mouth.

Finally, Wicks (2004) undertook a qualitative study of 29 older adults, showing how their information sources varied by role, retirement status, and living situation.

Metatheory, Theory, and Models

Aspects of both theory and metatheory have received considerable attention in the recent literature. To the long-standing and continuing influence of Dervin (e.g., Dervin, 2003), Wilson (e.g., Wilson, 2002), Kuhlthau (2004a), and Chatman (e.g., Dawson & Chatman, 2001) on information behavior theory are added the influential voices of Hjørland (2002a, 2002b, 2004), Savolainen (2001a, 2001b), and other mid-career scholars.

Empirical research on the use of theory and metatheory in information seeking, carried out by Fisher (née Pettigrew; e.g., Pettigrew, Fidel, & Bruce, 2001; Pettigrew & McKechnie, 2001; and McKechnie & Pettigrew, 2002), Julien and Duggan (2000), and McKechnie (McKechnie et al., 2002), has made us more aware of both the importance and the changing nature of theories, metatheories, and paradigms in the domain.

Bates (2002) has argued persuasively in favor of metatheoretical diversity in the study of information behavior. She sees in the ongoing epistemological debates a tendency for proponents of the three main metatheories (information transfer, constructivism, and constructionism—in the terms of Tuominen, Talja, & Savolainen, 2002) to celebrate the “triumph” of their metatheory over the others. Bates believes that there is room for multiple approaches and that more effort should be spent on mutual understanding and less on attacking other epistemological stances. Hjørland (2002a, 2004) and Tuominen, Talja, and Savolainen (2002) offer contrasting points of view to those of Bates. Of special importance is Hjørland's (2004) thoughtful essay on the tendency of information scientists to avoid fundamental philosophical issues underlying research. Hjørland points out that some investigators appear ambivalent about whether there exists a reality independent of human minds; in information behavior research this leads to a neglect of the objective possibilities of information resources, an overemphasis on users' mental states, and a corresponding lack of explanatory power.

The degree to which information studies are—or should be—subjective or objective in nature is well addressed in articles by Ford (2004b) and Abbott (2004). Ford was concerned with the implications of subjectivity for research; Abbott considered its relationship to problematic issues like classification and retrieval. The aforementioned work by Hjørland (2004) also contains an analysis of the relationship of objectivity and subjectivity to one another and to information behavior research.

A concept central to many theories—that of “context” or “situation”—has received a great deal of discussion in recent years. Both Johnson (2003) and Cool (2001) have written lengthy reviews on how context and situation have been defined and operationalized. Cool's (2001) *ARIST* chapter is a comprehensive review of the literature up to the year 2000. Since then, an essay by Johnson (2003) has appeared. Johnson maintained that context

is commonly used in three progressively more complex senses: as equivalent to the situation in which a process is immersed (a “positivist” orientation that specifies factors that moderate relationships); as contingent aspects of situations that have specific effects (a “post-positivist” view that emphasizes the prediction of outcomes); and as frameworks of meaning (a “post-positivist” sense in which the individual is inseparable from the context). He illustrated his essay with examples from two different contexts: studies of organizational communication, compared with cancer-related information seeking. Johnson argued that these two contexts offer useful contrasts in levels of analysis, rationality, and predictability.

Pettigrew, Fidel, and Bruce (2001) provided a comprehensive overview of the many models and theories used in studying information behavior since 1978, dividing the literature into approaches that are either cognitive, social, or multifaceted. They explored definitions of “information behavior” and noted an apparent disconnect between research on that topic and its application to information system design. *Theories of Information Behavior* (Fisher, Erdelez & McKechnie, 2005), a book produced by members of the American Society for Information Science and Technology (ASIST) Special Interest Group on Information Needs, Seeking, and Use, describes over 70 theories used in information-behavior research, many of them developed by information studies faculty (rather than borrowed from other disciplines); a total of 85 authors from 10 countries have contributed to the volume. Examination of the table of contents reveals a wide array of topics. Few are really “theories” in the most formal sense used in the social sciences (i.e., an articulated set of constructs, definitions, and propositions); rather, most are concepts, hypotheses, or models that have been developed to explain information-related phenomena. Chapters in the volume explore, for example, propositions about what knowledge and skills are needed for a researcher to use an archive, models showing how library searches typically proceed, and explanations of factors that influence relevance judgments; also included are decades-old constructs and theories (e.g., Diffusion Theory) adopted from other disciplines. Several of the entries show the influence of Bandura's (2001) Social Cognitive Theory, especially his central concept of self-efficacy. Whatever the granularity of the entries, the book promises be a useful addition to a literature frequently criticized for its lack of theory. Many of the concepts discussed are closely related, so it is reasonable to expect converging definitions and future collaborations among the authors, leading to further development of theory specifically for information behavior.

Several theories have been proposed recently in regard to information behavior. Dawson and Chatman (2001), for example, have suggested Reference Group Theory, as used by Merton and other sociologists. Burnett, Besant, and Chatman (2001) and Houtari and Chatman (2001) are two studies that applied Chatman's Small-World Theory. McKenzie (2004) discussed Positioning Theory in the context of

her study of pregnant women. And Budd (2001) has argued for the importance of phenomenology, particularly the work of Bakhtin on dialogic communication.

Hall (2003) discussed the issue of borrowing theory from other disciplines to use in information research. Hall employed Social Exchange Theory, a framework used in sociology, psychology, and anthropology, as an example of borrowed theory. Wilson (2002) addressed the relevance of phenomenology for information behavior studies. Ford (2004a) suggested a wide variety of different theories and models that could be applied in the study of information seeking, including most notably the Conversation Theory of Gordon Pask.

Järvelin and Wilson (2003, online) differentiated "summary-types" from those that are more "analytical," in their review of conceptual models for information seeking and retrieval (IS&R). They discussed the functions of conceptual models in research and explored the attributes of models that facilitate the formulating of research questions and hypotheses.

A number of the items in this review have presented new models. A model of the information behavior of adolescents was advanced by Shenton and Dixon (2003a). Ford (2003) presented a model of learning based on constructs used in both information studies and education, including information processing types and approaches, learning objectives, needs, and relevance. Choo (2001a, 2001b) developed a model of environmental scanning. Niedwiedzka (2003) proposed modifications to Wilson's general model of information behavior, in order to apply it to the information-seeking behaviors of Polish managers. Wilson updated his own model in a chapter in *Theories of Information Behavior* by Fisher, Erdelez & McKechnie (2005). An empirical test of Taylor's value-added model was conducted by Miwa (2003), based on 62 callers to the AskERIC service. McKenzie (2003a) elaborated a model of quotidian life information practices contrasting direct with indirect ways of finding information on the basis of her interviews with 19 pregnant women. Brown (2002), Foster (2004), Hepworth (2004), Kari and Savolainen (2003), Meho and Tibbo (2003), Savolainen (2001b), Warner and Procaccino (2004), and Whitmire (2003) suggested yet other models, several of them based on Kuhlthau's Information Search Process model.

Methods

Wilson (2002) offered a novel typology of research methods. He considers observation to be the "root" method of data collection, dividing it into direct and indirect variants and further subdividing it into more familiar types, such as ethnographic observation, survey questionnaires, interviews. In a subsequent and related article co-authored with Järvelin, Wilson discussed conceptual models for information behavior research (Järvelin & Wilson, 2003).

A series of studies over the past decade has given us an overview of specific methods used in investigations on information seeking. The latest of these, by McKechnie, Baker, et al. (2002), examined 1,739 articles published during the period 1993 to 2000 in seven major journals and proceedings; of these, 247 (14 percent) were classed as concerning human information behavior. The 247 articles were content-analyzed to determine the affiliations of the authors, the populations they studied, and the methods they used—the last of which were not well described in some cases. The study found that 35 percent consisted of interviews; 20 percent, of other kinds of surveys; 14 percent, of observation studies; and about 12 percent, of content or document analysis; the remainder used a variety of measurement designs, including (in order of frequency) diaries, transaction logs, focus groups, "think aloud" protocols, secondary analysis, experiments, tests, bibliometric analysis, and discourse analysis.

Numerous methods have been advocated by individual researchers. Carey et al. (2001), for example, discussed both theoretical stances and interviewing methods that can tease out information behavior in everyday life. They argued for a shift in focus away from the individual as a unit of analysis toward a more general understanding of cultural conditions, illustrating their points with examples from studies of three different populations: pregnant women, members of a self-help support group, and preschool children.

In a similar vein, Urquhart (2001), Urquhart, Light, Thomas, Barker, Yeoman, Cooper, et al. (2003), and Bates (2004) described various interviewing approaches to studying information behavior. Methods including the critical incident technique, vignettes, scenarios, storytelling, narrative interviewing, and focus group interviews have been used in studies of hospital staff, doctors, nurses, midwives, and patients, among other respondents. Penzhorn (2002) reported on the use of a qualitative, participatory research approach for studying information needs.

Gorman, Lavelle, Delcambre, and Maier (2002) described participant observation and "think aloud" techniques that enabled them to understand the "information spaces" of medical clinicians. And Wildemuth (2002) compared the methods of Gorman et al. with those used in some other information-seeking studies.

Steff-Mabry (2003) described the measurement technique of Social Judgment Analysis (SJA), which can be used to interpret information source preferences and can aid the understanding of how and why users may "satisfice," meaning that they decide to terminate their information seeking before all sources have been consulted or all available information has been found. A tool widely used in the social sciences, SJA relies on scenarios (or vignettes—see Urquhart, 2001) to represent patterns of information from different media, with the sources varying by the degree to which they offer supporting or conflicting information. Using data from 90 human subjects, Steff-Mabry's multiple regressions illustrated the utility of the technique for studying source preferences.

Finally, Shim (2003) described how a researcher can use handheld computers (e.g., PDAs) in research on information seeking. These devices can function as diaries for the collection of information-seeking actions and episodes.

Conclusions

A topic with a long history, information behavior is more popular than ever. Both the individual and society have come into focus, resulting in more attention to context and social influence, more effort to “get inside the head” of the seeker, more time spent with individual informants, and greater depth of description overall.

The research community is increasingly international. Thirty years ago the majority of information-seeking research was conducted in the U.K. and North America. Now the research community has become global, with leading investigators found in other parts of Europe (especially Scandinavia), along with Africa and Asia. The field has many talented researchers, some of them highly influential and productive even at relatively early stages of their careers. This development is partly due to the popularity and effectiveness of the Information Seeking in Context (ISIC) conferences, of which there have been five to date; these meetings have provided fertile ground for the exchange of research ideas regarding information behavior.

The ways in which information-seeking behavior has been conceptualized and studied have changed profoundly over the last three decades. Perhaps the most obvious influences have been various strains of the “sense-making” paradigm as well as constructivist and constructionist models of thought. The shift in these new directions started about 30 years ago, when Brenda Dervin questioned the static ways in which “needs and uses” had been characterized. Now the dynamic, personal, and context-laden nature of information behavior seems to be taken as a given by all.

This paradigmatic shift has resulted in more attention being paid to, and more diversity in, both theory and methods. Researchers continue to embrace concepts and theories from many other disciplines, including sociology, psychology, communication, organizational behavior, and computer science. They are also developing their own concepts and theories. It would be heartening to see more agreement emerge from the current confusion—or at least a few clearly articulated camps within which everyone would agree on the nature of reality (see Bates, 2002, and Hjørland, 2004).

Examining the topics addressed in the Fisher, Erdelez, and McKechnie volume (2005), along with other work reviewed here, I am struck by how often spatial metaphors are employed in information behavior research; about a quarter of the entries in the theory book use some kind of quasi-geographical notion such as field, network, horizon, ground, boundary, domain, environment, browsing, or foraging. Of

course, we live in a physical world populated with information-laden objects such as books and people, so spatial perception and movement are an unavoidable aspect of information behavior. Yet, as in other disciplines (e.g., Silber, 1995, regarding sociological theory), spatial metaphors have come to be used in the study of nonspatial aspects of social and mental life (see also Zook's chapter in the present volume). Indeed, Silber's work points out the strong influence of such metaphors in the work of particular theorists who are currently popular among information behavior researchers: Bourdieu, Foucault, Giddens, Goffman, Granovetter, Habermas, Lin, Luckmann, Schutz, and Zerubavel, to name a few. The popularity of spatial metaphors in information behavior research is due not only to the influence of these theorists, but also to the creative potential of metaphors for suggesting new meanings and relationships; there is nothing wrong with using them, except that we must keep in mind that any metaphor has its limits.

In terms of topical focus, traditional occupations (especially engineers, managers, university faculty, and health care providers) continue to be the subject of many investigations. A vigorous research agenda on everyday-life information seeking has made ordinary people the target of ever-expanding number of investigations. The widespread influence of the Internet and World Wide Web on human information behavior has spawned a large number of studies in itself; a future *ARIST* volume could benefit from a chapter focusing on just those investigations.

This trend—the plethora of “Web searching” studies—blurs the identity of the traditional information behavior literature. In previous decades, investigations that focused on searching electronic resources were not typically called “information seeking” studies; they were rather, a subtopic within other research areas: information retrieval, online searching, system evaluation, or human-computer interaction. Use of the Web is increasingly characterized as a kind of “informatic seeking.” Has information behavior, then, subsumed all of what used to be called “online searching” investigations? It would appear so.

A problem with this broadening of scope is that the importance of “information behavior” as a concept is weakened. In a world in which everything is considered to be “short,” height ceases to be a useful construct. Is there any topic in information studies that has nothing to do with “information behavior”? This question brings to mind Fairthorne (1969, p. 26) comments, now nearly four decades old, regarding the scope of “information science”:

[There is] a dangerous tendency to bring in every and any science or technique or phenomenon under the “information” heading. Certainly hitherto distinct activities and interests should be unified, if indeed they have common principles. However, one does not create common principles by giving different things the same name.

If information behavior includes all aspects of searching, seeking, and use (as Wilson, 2000, implies), then it is even more important for authors to exercise precision in their titles and abstracts. Too many evaluations of searching skills or system features are now labeled "information seeking" or "information behavior"; these terms have simply become too popular.

Will the growth in the scope and size of the information behavior literature continue? Given the cyclical nature of academic research, it would not be surprising to see the number of information behavior investigations eventually subside. Yet, aside from a suggestion by one editorial board member that *Library & Information Science Research* may publish too much information behavior research (see Schwartz, 2003), enthusiasm for the topic appears to be growing. In particular, the increasing attention paid to theory is a sign of maturity in the investigation of information behavior.

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