19
Ecological Theory of Human Information Behavior

Kirsty Williamson
School of Information Management and Systems, Monash University
School of Information Studies, Charles Sturt University, Australia
kirsty.williamson@sims.monash.edu.au

With Bates's (2002) "Towards an integrated model of information seeking and searching," a breath of fresh air blew into the debate about theories of information seeking and searching. Her theory attempted to be encompassing while bringing together many layers of understanding of human life and gave also particular prominence to the notion that information is not always purposefully sought. Bates gave equal emphasis to the active and passive in her "modes of information seeking" and that "it is not unreasonable to guess that we absorb perhaps 80 percent of all our knowledge through simply being aware, being conscious and sentient in our social context and physical environment" (p. 4).

The ecological theory for the study of human information behavior (ecological theory) by Williamson develops Williamson's (1998) model of information seeking and use (see Figure 19.1), which emerged from a large-scale study focusing on older people and everyday life information. This model emphasizes that, at least in the field of everyday life information, information is often incidentally acquired rather than purposefully sought. While concepts such as "gaps" (e.g., Dervin & Nilan, 1986), "uncertainty reduction" (e.g., Kuhlthau, 1993), and "anomalous states of knowledge" (e.g., Belkin, 1978) are appropriate for the study of purposeful information seeking, not all information-related behavior is purposeful. Williamson chose the term "incidental information acquisition" as a result of the influence of P. Wilson (1977) who suggested that people find information unexpectedly as they engage in other activities, with information acquisition becoming an "incidental concomitant." Other researchers who have given prominence to this concept are Erdelez (1997) who used the term "information encountering," and

Savolainen (1995) who saw everyday life information seeking as manifesting itself in the "monitoring of daily life world" (p. 317). Williamson (1998) also believed that people monitor their world for relevant information, but suggested that some needs are "unconscious" becoming recognized only when relevant information is discovered.

The concept of incidental information acquisition may have been neglected because it is difficult to explore empirically. Williamson (1998) used three in-depth interviews with each of 202 participants to gain extensive understanding of the processes involved. Nevertheless, incidental information acquisition remains a concept that should be further
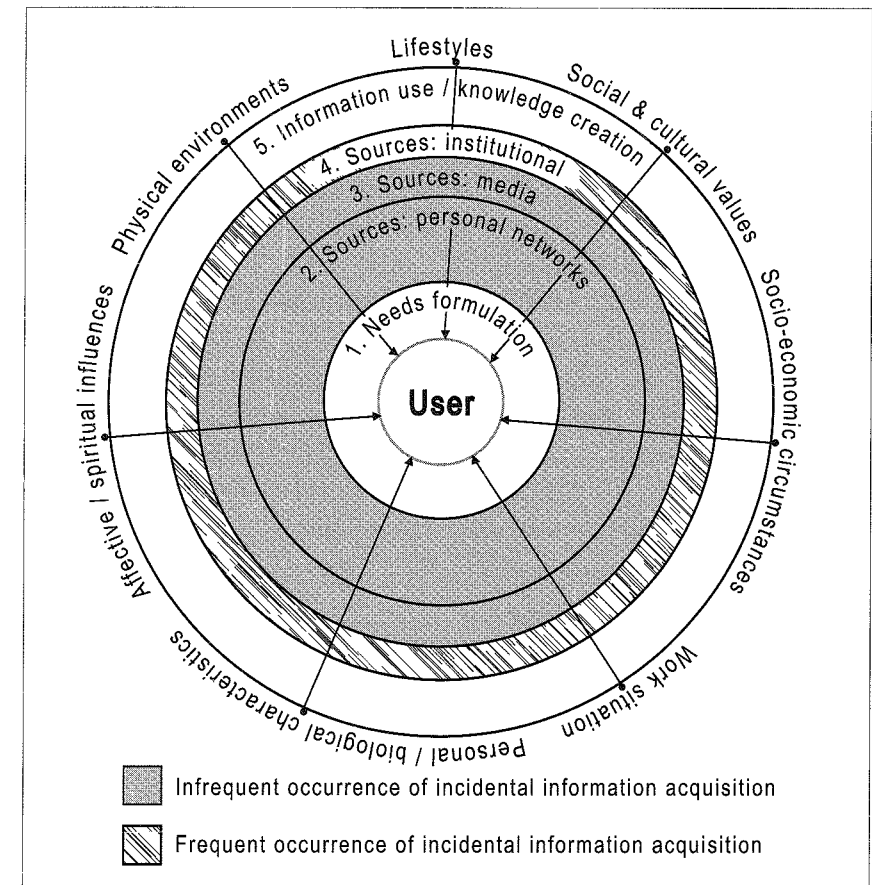

Figure 19.1 Ecological model of information seeking and use.

explored. It is particularly important to the study of the use of sources of information and information systems.

While the shift of focus from information systems to users (Dervin & Nilan, 1986) has been loudly applauded, there is a need for an acknowledged compromise position and for at least some of the focus to move to the *relationship* between information types/sources/systems and the information seeker/user. After all, it is from sources and systems that people usually seek or acquire information. As Talja (1997) stated, if the focus is shifted to the study of knowledge formations, "it is equally important to study the socio-cultural aspects and the ideological nature of the information systems, as it is to study the socio-cultural aspects of the users" (p.77). There is also a need to include information sources such as family, friends, and colleagues, who are not components of "information systems," but who play a significant role in incidental information acquisition. As Kari and Savolainen (2002) pointed out, although there have now been a large number of studies of information searching on the World Wide Web, the broader picture and the relationship with other sources of information is usually not considered.

Williamson explored concepts of both "purposeful information seeking" and "individual information acquisition" in an ecological framework which, inter alia, encompasses as influences on behavior several of the layers from Bates's (2002) integrated theory. The key influence for this framework was work by Hummert, Nussbaum, and Wiemann (1992), who argued that research about people must be grounded in a view of nature as *personal existence*. This means that human beings should not be conceptualized exclusively as either individual entities or socially constructed entities. Rather, they should be seen as self-creating, but within contexts that involve various kinds of biological and social circumstances and constraints.

In recent years, Williamson has undertaken many funded projects, which identified how her ecological model can be broadened and modified, to be useful to study information-related behavior beyond the everyday life area, and also for the study of user preferences for information types, e.g., visual/textual or scholarly/lay information. Her view is similar to that of Bates who postulated that the scientific, the cognitive, and the socially constructed metatheories all have value and a possible continuing role. Williamson has particularly used social constructionist theory

(Berger & Luckman, 1967) and personal constructivist theory (Kelly, 1963) to capture both shared and individual meanings—the consensus and the dissonance —about information seeking and use.

For example, in a study by Williamson and Manaszewicz (2002) the researchers set out to understand potential user perspectives in relation to a range of information issues on an online portal with breast cancer information. Several "ecological" elements were found to play a part, including promoting or impeding information seeking. Examples are biological factors/physical health, age, ethnicity, place of residence (city/country), stage of disease, and affective issues. The outcome is that information is being "tailored" to user needs through a portal—by the provision of "user-centric" resource descriptions and a metadata repository that links the self-selected profiles with specific information resources. This is an example of how information behavior researchers can work with metadata and technical experts to develop systems based on the information-related behavior of prospective users.

The major strength of the ecological theory is its flexibility to include all influences on behavior at any stage of the information-seeking or information-acquisition process. Examples of its use have involved many different academic and industry partnerships, topic areas, and target groups, e.g., online investors, people with disabilities, and members of the International Olympic Community (see Information and Telecommunications Needs Research Web site). A part, or parts of the concentric circle diagram, presented in Figure 19.1, can be used, as appropriate, and the influences on behavior can be selected and/or expanded according to the user group or groups involved.

Bates, M. (2002). Toward an integrated model of information seeking and searching. *The New Review of Information Behaviour Research, 3,* 1–15.

Belkin, N. J. (1978). Information concepts for information science. *Journal of Documentation, 34,* 55–85.

Berger, P. L., & Luckmann, T. (1967). *The social construction of reality: A treatise in the sociology of knowledge.* New York: Anchor Press.

Dervin, B., & Nilan, M. (1986). Information needs and uses. In M. E. Williams (Ed.), *Annual review of information science and technology, 21,* 3–33. White Plains, NY: Knowledge Industry Publications.

Erdelez, S. (1997). Information encountering: A conceptual framework for accidental information seeking. In P. Vakkari, R. Savolainen, & B. Dervin (Eds.), *Information Seeking in Context* (pp. 412–421). London: Taylor Graham.

Hummert, M. L., Nussbaum, J. F., & Wiemann, J. M. (1992). Communication and the elderly: Cognition, language and relationships. *Communication Research, 19,* 413–422.

Information and Telecommunications Needs Research. (n. d.). Retrieved February 10, 2004, from www.sims.monash.edu.au/research/itnr/

Kari, J., & Savolainen, R. (2002). Towards a contextual model of information seeking on the Web. In Working Papers of ISIC 2002, *Information seeking in context: The fourth international conference on information seeking in context* (pp. 488–513). Lisbon, Portugal: Universidade Lusiada.

Kelly, G. (1963). *The psychology of personal constructs.* Vols I & 2. New York: Norton.

Kuhlthau, C. (1993). A principle of uncertainty for information seeking. *Journal of Communication, 49*(40), 339–355.

Savolainen, R. (1995). Everyday life information seeking: Findings and methodological questions of an empirical study. In M. Hancock-Beaulieu & N. O. Pors (Eds.), *Proceedings of the 1st British-Nordic conference* (pp. 313-331). Copenhagen, Denmark: The Royal School of Librarianship.

Talja, S. (1997). Constituting 'information' and 'user' as research objects: A theory of knowledge formations as an alternative to the information man-theory. In P. Vakkari, R. Savolainen, & B. Dervin (Eds.), *Information Seeking in Context* (pp. 67–80). London: Taylor Graham.

Williamson, K. (1998). Discovered by chance: The role of incidental information acquisition in an ecological model of information use. *Library and Information Science Research, 20*(I), 23–40.

Williamson, K., & Manaszewicz, R. (2002). Breast cancer information needs and seeking: Towards an intelligent, user sensitive portal to breast cancer knowledge online. *New Review of Information Behaviour Research, 3,* 203–219.

Wilson, P. (1977). *Public knowledge, private ignorance.* Westport, CT: Greenwood Press.

20
Elicitation as Micro-Level Information Seeking

Mei-Mei Wu

Graduate Institute of Library and Information Studies
National Taiwan Normal University, Taiwan
meiwu@cc.ntnu.edu.tw

Elicitation, or "questioning" and "question-asking," is not only an important phenomenon in everyday communication, but also a salient concept in the areas of library reference services and information retrieval interaction. Elicitation was not a focus of systematic research until the 1960s, when the logic of questions and answers attracted researchers' attention (Wu, 1993). A bibliography compiled by Egli and Schleichert in 1976 reveals that in the 1960s, when the concepts of artificial intelligence and automatic query systems were introduced, the primary concern of elicitation research was the logic of questions and answers. The fundamental assumption of the logic of questions is that any question Q needs a logically true answer A as a presupposition (Belnap & Steel, 1976). This assumption, however, does not lend itself well to empirical observation. Goffman (1976) and Stenstrom (1984), for example, investigate the mundane conversation and both challenge the circular logic necessary when a question and a response are assumed as criteria for each other.

The next stage in the development of elicitation research belongs to psychology and the empirical aspects of elicitation in various social contexts (e.g., Belkin & Vickery, 1985; Dillon, 1990; Graessar & Black, 1985). Among the research topics addressed are the studies of comprehension, the internal cognitive process of asking a question and the provision of a proper answer (Galambo & Black, 1985), and the taxonomies for question forms and functions based on empirical observation (Kearsley, 1976). For example, Dillon (1990) suggests that prior to the act of asking a question, the speaker presupposes that the listener has the answer or should know the answer, which constitutes the first element,