

LIBRARY AND INFORMATION SCIENCE

**LOOKING FOR INFORMATION:
A SURVEY OF RESEARCH ON
INFORMATION SEEKING,
NEEDS, AND BEHAVIOR**

THIRD EDITION

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Chapter 1

Information Behavior: An Introduction

What you *don't* know has power over you; knowing it brings it under your control, and makes it subject to your choice. Ignorance makes real choice impossible.

— Abraham Maslow (1963, p. 116)

Beyond obsessions, curiosity, and creativity, lies a host of motivations *not* to seek information.

— David Johnson (1997, p. 70)

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1.1. Introduction

This volume describes common and essential human behaviors: seeking and using information. Noticing a change in the weather, deciding to visit another city, finding out about travel schedules, choosing a departure date, and buying an airline ticket are examples of a range of activities known as "information behavior." These include accidental encountering, needing, finding, choosing, using, and sometimes even avoiding, information. They are types of behaviors that are basic to human existence.

This introductory chapter describes the scope of the book and its contents. It says briefly what kinds of concepts, questions, and research have

been developed regarding information behavior, and why this topic has attracted attention. I make the case that the nature of this research has changed over several decades, away from an emphasis on institutional sources and searches, and toward a focus on how individuals encounter and make sense of their environment.

The Internet could serve as a metaphor for information behavior and the way our view of it has changed. Think back to a time before the World Wide Web was available. All of the information was out there in individual books, journals, radio and TV programs, offices, filing cabinets, minds, and computers. But because it was divided by source, by location, by person, and by channel, it was not always easily located or examined. Making arrangements for *travel* is one comprehensive example: One could hear the weather forecast on the radio, read about a destination in a travel guide, call hotels to make reservations, telephone an airline to learn departure times and fares, visit a travel agent to pick up a ticket, and so on. In terms of research, each of those needs and transactions have needed to be conducted (and studied) separately. But now it is possible to satisfy all travel-related requests on a single website. Not only have the different channels of communication collapsed down to one, but less goal-oriented behaviors, such as browsing, may play a larger role than ever before. Looking for information becomes more holistic.

The contrast between new and old is even greater when we compare tasks in the office and classroom to their counterparts of 20 years ago. Obscure bits of information — the text of a government regulation, the date of an event, the author of a document — are more easily found in a single “place” — the Web. Both work and education have changed as a result. In a manner similar to the emergence of the World Wide Web, our view of information behavior has become more integrated and less dictated by sources and institutions. As what we know about these behaviors has grown, so has the vocabulary used to describe it.

1.1.1. A Bit of Vocabulary

In introducing the subject matter of this book I will be using terms like “information,” “information need,” “information seeking,” and “information behavior” without defining them fully until later chapters. For the moment let us assume that there *are* such things as “information” and “information needs” that can be satisfied by “information seeking” or “information behavior.” To tide us over until these concepts are fleshed out, here are some brief definitions:

- *Information* can be any *difference* you perceive, in your environment or within yourself. It is any aspect that you notice in the pattern of reality.

- An *information need* is a recognition that your knowledge is inadequate to satisfy a goal that you have.

- *Information seeking* is a conscious effort to acquire information in response to a need or gap in your knowledge.
- *Information behavior* (hereafter, “IB”) encompasses information seeking as well as the totality of other *unintentional* or *passive* behaviors (such as glimpsing or encountering information), as well as purposive behaviors that do not involve seeking, such as actively *avoiding* information.
- *Information practices*, a term more popular in Europe and Canada than the United States, may be thought of as a synonym for information behavior — although it maintains some differences that will be explored in a later chapter.

The most commonly discussed of these concepts is *information seeking*. It is a behavior so commonplace that it is generally not an object of concern until time pressure makes it so. If we are making a major decision (e.g., buying a house) or finishing a task by a deadline (e.g., writing a report), we might find ourselves in an earnest information seeking mode: talking to others, searching the Web, reading magazines, watching the news, and so on. We may do everything we can to satisfy our desire for input, until either our need is satisfied or we have run out of time. More commonly, it is the latter, as the demand for “information” is usually elastic — there is always more that one could know. After our need is met (or we give up) we return to a more passive state of information seeking, at least as regards the object of our earlier curiosity.

Consider also cases in which the acquisition of information does *not* concern an immediate task like buying or writing something. Our daily life is peppered with instances in which we become interested in learning more about a topic after accidentally encountering some bit of information about it. This sort of curiosity, unmotivated by an immediate goal, is a common aspect of human life.

The situations described above, no matter how familiar to all of us, are much more complex than they may appear on the surface. Information seeking behavior often escapes observation. It is difficult to generalize about behaviors that vary so much across people, situations, and objects of interest, and which often take place inside a person’s head. This book is about the many ways in which information seeking has been defined, explicated, observed, and measured in studies of human behavior.

1.1.2. Emphasizing People Rather Than Systems

Systematic research on information seeking — at least on the use of sources like books or newspapers — dates back nearly a century. In the first three

decades of the twentieth century, studies of information "channels" and "systems" — chiefly libraries and the mass media — accumulated slowly. The 1940s saw the first published reviews of this literature. By the 1960s, such investigations, particularly of the specialized information needs and uses of scientists and engineers, were appearing regularly in a variety of journals and reports.

But much of this older literature was really not about information seeking in the sense in which that concept is discussed in current research. Rather, most of the investigations focused on the *artifacts* and *venues* of information seeking: books, journals, newspapers, radio and television broadcasts, schools, universities, libraries, professional conferences, and the like. What was actually studied were the information *sources* and how they were used, rather than the individual users, their needs (as they saw them), where they went for information, and what kind of results they experienced. Surveys of individuals made such strong assumptions about their needs, motivations, habits, and behaviors that the range of responses they could make was severely constrained; what mattered in these early investigations was how *formal information systems* served the serious (e.g., work, health, or political) information needs of the population studied. Typically this literature was called "information needs and uses" research, or sometimes "user studies" or "audience research." Choo and Auster (1993) call this tradition "system-centered" research; Vakkari (1999) refers to it as "system oriented"; a host of other commentators have applied similar labels.

It was not until the 1970s that investigations begin to branch out beyond the focus on formal channels and task-oriented needs. The emphasis shifted away from the structured "information system" and toward the person as a finder, creator, interpreter, and user of information. In mass media research the focus shifted to the "gratifications" that users experienced, rather than focusing on "effects" that messages had on people and how to persuade them to do things. Even studies of formal information systems began to consider a wider range of people, more general needs and problems, and the ways in which those systems often failed to serve their publics. The term "information seeking" — and, later, "sense making" — began to be preferred in describing the kind of phenomena that interested a growing number of scholars.

Some observers (see, e.g., Vakkari, 1999) have stereotyped the concerns of the old versus the new research on information behavior. Table 1.1 contrasts the person and system orientations by posing some examples of research questions that are typical for each.

The right column in Table 1.1 reflects research questions that have motivated thousands of studies — typically institutionally sponsored evaluations of library use, selective dissemination of information (SDI)

Table 1.1: Contrasting examples of information behavior research questions.

Task-oriented studies	Person oriented	System oriented
<ul style="list-style-type: none"> • How do lawyers make sense of their tasks and environment? • How does a manager learn about job-related information <i>outside of formal</i> organizational channels? • What happens when a voter has too much information about a candidate or an issue? • How do the elderly learn about and cope with problems or opportunities that come up in their daily lives? • Why do TV viewers choose one program over another, and what satisfactions do they achieve in doing so? 	<ul style="list-style-type: none"> • What kinds of documents do engineers need for their work, and how might the corporate information center supply them? • How satisfied and successful are student searches of a university library's Web-based catalog? • How much use do medical doctors make of medical databases? • How does the public use a library for personal pleasure and growth: what they ask for, borrow, and read? • How do we persuade teenagers to act in healthy and responsible ways? What messages about drug abuse do they attend to, in which medium, and why? • Why do people browse in stores when they have no explicit need in or intention to buy? 	<ul style="list-style-type: none"> • How does the public use a library for personal pleasure and growth: what they ask for, borrow, and read? • How do we persuade teenagers to act in healthy and responsible ways? What messages about drug abuse do they attend to, in which medium, and why? • Why do people ignore safety warnings on packages and advertisements?
Nontask-oriented studies		

programs, information retrieval systems, interface designs, information campaigns, advertising effectiveness, and the like. A few of these studies will be discussed in this book, almost exclusively the "nontask-oriented" variety. The left column reflects the emphasis of this volume, and hence, the predominate type of examples used within.

1.1.3. Ten Myths About Information and Information Seeking

A key development in the shift toward more user- or person-centered theories and methods were the questions raised in the early 1970s by several researchers, chief among them Professor Brenda Dervin (Ohio State University). A landmark 1976 article by Dervin encapsulated several years of her work by challenging 10 assumptions that had dominated

research on communication and information seeking up to that time. In her article she was concerned chiefly with the everyday information needs of the ordinary, urban resident. However, much of what she says also applies to more formalized needs. Here are the 10 "dubious assumptions" that Dervin (1976a) identified in past writings about information seeking.

1. *Only "objective" information is valuable.* People are rational beings who process data from the environment to analyze alternatives and make optimal decisions. Several problems plague this assumption, including our common tendency to rely on easily available sources of information such as our friends. For most tasks and decisions in life, people tend to settle for the first satisfactory solution to a problem, rather than the best solution.
2. *More information is always better.* Yet too much information leads to overload and thence to deliberate ignoring of inputs. "Having information" is not the same as "being informed," so increasing the flow of information does not always result in an informed person. Typically there is not a problem getting enough information but rather with interpreting and understanding what information there is — an internal, rather than an external, locus of control.
3. *Objective information can be transmitted out of context.* But people tend to ignore isolated facts when they cannot form a complete picture of them. Individuals yearn to understand how information connects to other facts, beliefs and emotions they have, and how all these affect one another.
4. *Information can only be acquired through formal sources.* This assumption, often made by those in educational institutions, flies in the face of actual behavior. People use formal sources rarely, instead gathering and applying information from informal sources, often friends and family, throughout their lives.
5. *There is relevant information for every need.* The truth is that mere information cannot satisfy many human needs. People may want information in the sense of learning or understanding or entertainment; more commonly they need the physical and psychological necessities of daily life, such as food, shelter, clothing, money, and love. Information cannot substitute for many human needs, nor even facilitate all of them.
6. *Every need situation has a solution.* Institutions such as libraries, medical clinics, and social service agencies are focused on finding solutions to problems. To do so they attempt to map what the client says — the words they use — onto the resources and responses of their system. But sometimes the client is looking for something — a reassurance, an understanding — that does not come in the shape of a

canned response. Nevertheless, the system will usually provide an answer of some type, in its own language and logic, whether it is useful to the client or not.

7. *It is always possible to make information available or accessible.* Formal information systems are limited in what they can accomplish, at least where the vague, ambiguous, and constantly changing needs of the public are concerned. People will continue to come up with their own answers to their own unique, unpredictable questions without resorting to formal information systems.
8. *Functional units of information, such as books or television programs, always fit the needs of individuals.* Information systems such as libraries or broadcasters define themselves in terms of their units of storage or production: in the case of libraries, these are books, journals, audio-visual materials, or websites; in the case of broadcasters, it is programs, ads, or public service announcements. But the "functional units" of the individual are not often these things; rather, they are responses, solutions, instructions, ideas, friendships, and so forth. Thus, client requests for help, action, or resources tend to be reinterpreted by institutions as information needs that can be fulfilled with the units that they provide: books, programs, and the like. The client cannot always effectively use these units of information.
9. *Time and space — individual situations — can be ignored in addressing information seeking and use.* Yet often it is the individual's definition of the situation that shapes his or her needs as much as the "real" situation itself. If individuals perceive a lack of predictability and control of an outcome, then they worry. The worry itself becomes a need.
10. *People make easy, conflict-free connections between external information and their internal reality.* We tend to assume an ordered universe, in which connections exist between the internal and external. In our research, we tend to ask "what" and "how" rather than "why." We ask what people read or view, rather than why they do so. We lack understanding about how people inform themselves, how they make connections over time, the sense they make of their world between significant events. Dervin said that instead of studying what "information does ... for people" we need to focus on "what people do to information" (p. 333).

Dervin argued that all 10 of these assumptions were flawed in the ways indicated. Of course, she made these statements about *everyday* information needs, not in the context of highly specific, task-oriented needs like scientific or business data for decision making. There are indeed times when people act mostly rational and optimal in their

information seeking and processing. Those situations, too, will be addressed in this volume.

1.1.4. When, Why, and Where Information Behavior has been Studied

As a subject of scholarly attention, information behavior has been studied in many different contexts, with a variety of people and a broad array of motives and goals. All people seek information, yet for some people and in some situations the stakes are much higher. Higher stakes are more likely to create situations that attract research.

To illustrate the kinds of people and situations that have been investigated over the past five decades, first let us consider several hypothetical cases. The examples below are constrained by several assumptions. These assumptions are valuable because they will help us compare situations by creating a "standard" set of reactions. However, each assumption has limitations, which will be noted. The assumptions are that information seeking behavior is highly *rational* (which is not often true), that such behavior is oriented toward making some kind of *decision* (a common, yet flawed, assumption), and that it is possible to make relatively simple judgments about the *value* of our decisions (itself a value judgment to which some people would object).

Consider the relative importance of three types of situations and information needs, as located on a hypothetical continuum (Figure 1.1). This continuum reflects the number of people ultimately affected by the search for information and subsequent decisions based on it: at one end are trivial decisions affecting few people, whereas at the other are important decisions that may affect millions of human lives.

Now, one could argue that it is anthropocentric to use humans as the sole benchmark for judging the *importance* of a decision. We could easily imagine real-world problems that involved other sentient beings (e.g., animals) or nonsentient things (e.g., tropical rain forests). If we think through the implications of such problems, we may notice that we tend to judge their importance by their ultimate impact on our own feelings or

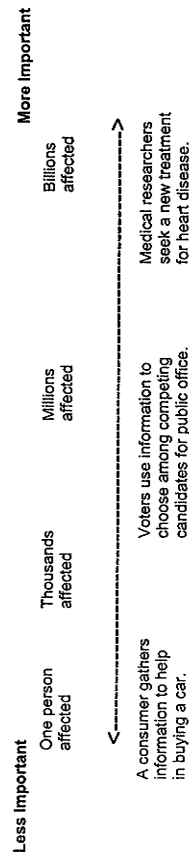


Figure 1.1: A continuum of importance.

well-being as humans. So, while recognizing that we could use other real-world objects as benchmarks, for the purposes of this discussion we will consider "numbers of people affected" as a simple indicator of importance.

First, imagine a person trying to choose between different models of a car that vary by features and price; although there are many publications (both printed and electronic) that offer just such information, the outcome of this search is simply not very consequential. Presumably this situation would fall near the "unimportant" end of our hypothetical continuum because it affects only one consumer.

Second, consider a citizen about to go to the polls, choosing among candidates based on information about their positions and past performance; electing public officials is certainly an important decision, and yet this is just one vote out of many. This situation is more important than the first, but less crucial than others we might imagine.

Third, imagine a biomedical scientist, with years of training and experience, working in an expensive laboratory, developing treatments for heart disease. This scientist must keep abreast of what other researchers are doing in the field, what discoveries have been made, what new equipment and techniques are available, and so forth. (To be more realistic, we could identify just one specific need, such as the answer to the question "What are the effects of dietary fish oil on measures of serum cholesterol?") Surely the information needs of this person are important, as judged by the investment society has made in the scientist and the potential outcomes of the work. The scientist's decisions about which research leads to follow could affect millions of people around the globe.

Laying out these hypothetical situations and judging their importance is a precursor to an explanation of why more research has been conducted on some kinds of information seeking and not on other types. We might all agree that the case of the scientist who is working on treatments for heart disease that might affect millions of lives is worthy of study. By studying the information needs of such scientists, and how they go about satisfying those needs, we just might be able to devise a tool or service that would help them reach their research goals a little sooner. In such situations, the potential for public good (and for private profit) is enormous. This is why many of the investigations the reader will encounter in this volume have focused on high-stakes and high-status occupations: research scientists, medical doctors, aerospace engineers, corporate managers, and the like.

And yet many types of information seeking behavior are worthy of study. Sometimes relatively trivial decisions, such as the automobile purchase described above, are the target of expensive investigations due to the cumulative importance of individual decisions. There is an entire industry,

commonly called *market research* that investigates purchase decisions; individual purchases are relatively trivial, yet millions of them add up to significant amounts of money.

We can see a similar logic operating in studies of voting: how a particular individual finds out about issues and candidates may not seem important, but the information-gathering habits of millions of voters may have a crucial impact on a society as a whole. Therefore, there is a sizable literature on political communication, and more specifically on what kinds of information people glean from the mass media. The listening, watching, reading, and learning that takes place in support of buying and voting — and many other daily tasks — is sometimes referred to as “everyday” information seeking. We will learn about that as well in this book.

There is another very important focus of investigation that we have not touched on yet (although the medical study comes close): “basic” research on human information behavior. Ideally, what we would really like to know is how people go about seeking (or avoiding) information in a *generic* way, free of specific contexts like heart disease research or car purchases. Unfortunately, as with other attempts to conduct basic research on human behavior, it is difficult to generalize beyond the specific type of stimulus that prompted the behavior.

There is some doubt as to how deeply researchers can investigate truly basic human behaviors regarding information. Certainly some psychological investigations of perception, human information processing, and pattern recognition are relevant to basic considerations of information seeking. Such studies deal with the fundamental question “What is information?” and are discussed in Chapter 3 of this volume. Suffice to say that, for this book, I am concerned also with a social element: information seeking is *interpersonal* as well as *intrapersonal*.

In the latter sense, perhaps the closest we come to basic research on information seeking are studies of communication in dyads and small groups in laboratory settings. Social scientists conduct these studies to understand how individuals solicit, process, and interpret data and cues they receive from others. Even in closed laboratory settings, the nature of the information itself may intrude. I will say more on this point as we review specific studies.

Finally, one important distinction that is made in the literature on information seeking is between *formal* and *informal* sources of information. The prototypical formal source is a printed one — a textbook, encyclopedia, or daily newspaper — but may also be exemplified by the words of an acknowledged expert on a subject. Informal sources tend to be friends, colleagues, and family, but in the view of some they could encompass what we learn from popular culture as well: TV programs, songs on the radio, Internet discussion lists, Facebook, tweets, and so forth. I will make use of

this formal versus informal distinction in reviewing some of the findings on information behavior.

1.1.5. The Contexts in Which Information Behavior Is Investigated

The previous section raised the issue of context with considerations such as individual situations, motives for seeking information, the specific activities and kinds of information, the surrounding environment, the types of people, and the size of the social group involved in the investigations. There is no nice, neat, logical delineation of these factors, as human behavior itself is not completely rational or uniform. The examples used later in this volume have been selected with an eye toward the literature that actually *exists* — that is the patterns of studies that have been conducted, particularly since 1990.

There are a variety of approaches that we could use to consider the vast literature on information seeking and related topics. I could, for example, review studies chronologically, showing how they shifted in focus and method. Or investigations could be selected on the basis of the discipline in which they were published, whether in information studies, communication, management, medicine, and so forth. In fact, both *historical* (in this chapter and the final chapter) and *disciplinary* (in most of the other chapters) categorizations are sometimes invoked in this volume, but they take a back seat to three other ways of considering the literature: by theory, methods, and context.

What is meant by “theory” and “methods” may be obvious to most readers, but “context” warrants some further explanation (see Chapter 10 for more details). For the purposes of organizing this book, *context* will be taken to mean the particular combination of person and situation that served to frame an investigation. In Chapters 11 and 12 I review information seeking investigations under three general categories: the *occupation* studied (e.g., manager, doctor, social scientist, and chemist), the *social role* of the persons under investigation (e.g., consumer, voter, student, patient, and television viewer), and the *demographic* groupings (e.g., by age, gender, race, ethnicity, and geography). Although a respondent could easily represent an occupation, a role, and a demographic group at the same time, as well as illustrating the use of any number of information sources, investigators typically choose to frame their research questions and respondent samples in terms of one of these three ways. In Chapter 12, for example, I will describe a study of the “urban poor” (a demographic group) that approached its topic by sampling janitors (an occupation). The bulk of investigations that fall under the heading of “information seeking” have concerned the information needs and uses of a specific occupation, role, or demographic group.

1.1.6. The Scope of "Information Behavior"

Information seeking is a topic that has been written about in thousands of documents from several distinct disciplines. Because almost everything to do with humans is potentially relevant to this topic, I have trimmed the scope of this book to highlight aspects of information behavior that have become more important in recent years.

For starters, there are two things that this book primarily is *not* about. I refer to the time-honored topics of "library use" and "information retrieval." Both of these (particularly the first) do indeed have strong connections to human information seeking, but each topic has a voluminous literature of its own that is really more about systems (continuing documents or computer files) than it is about people. One could also say that these have received too much emphasis in the "information needs and uses" literature. Generally speaking, the research described here is *not* well representative of pre-1980 information seeking research, which tended to focus on the use of libraries and paper documents or databases; I say little about such studies here. Relatedly I pass by the many thousands of studies on learning and the education of students, even though they do involve issues of information acquisition.

I have also narrowed my review by time period. Nearly a quarter of the publications discussed herein (over 300 items) date from 2007 or later; most of the rest were published during the 1990s and 2000s. Although I make citations to some earlier, seminal discussions and definitions of the concepts discussed in this volume, those are merely included to ensure proper credit and historical perspective. Most of the examples and references in this book are taken from the past three decades of published literature. As is emphasized here and in the concluding chapter, recent investigations of information seeking focus more on the *seeker* and less on the *sources* or *channels* they use, although it is not possible to ignore the latter entirely.

I have chosen to highlight certain aspects that have received too little attention from mainstream investigators of information seeking; among these less-examined topics are the connection between entertainment and information; passive and accidental information acquisition; sharing of information among peers; and ignoring and avoiding information.

My examples are taken chiefly from the disciplines of information studies, communication, psychology, and professional fields like management, business, medicine, and public health. The investigations used to explain typical findings or methods are taken from a variety of contexts. I am aiming for a multidisciplinary understanding of the concept of information seeking. I hope I have succeeded in reaching that goal.