Users' information-seeking behavior: What are they really doing? A bibliography

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What Are They Really Doing? A Bibliography

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The 1990s were a decade of profound change in the way library users went about seeking information and accessing materials, both within the walls of the library and beyond. At the beginning of the decade, individual CD-ROM workstations and the tape-loading of databases to be searched through library OPAC systems were beginning to lure users away from the printed periodical indexes that for decades had been the mainstay of many research trips to the library. Few at that time had heard of anything called the Web, and access to full-text resources, except perhaps through a Lexis-Nexis or Dialog password likely to be in the possession of a librarian, meant print or microform.

In 1996 and 1997 the User Access to Services Committee of RUSA's Machine-Assisted Reference Section (MARS) began to talk about the changes that were then taking place and what they meant for our understanding of users and their information-seeking behaviors. We all, of course, had a general idea of how users were functioning in this newly emerging environment, but we also had a lot of questions and wondered how much users were really making sense of what they were finding. We were aware of a long history of catalog-use studies in the automated environment, but the OPAC was now only one of many electronic resources available. The Web was beginning to explode and to be used to deliver library databases outside the library walls, further removing the access to electronic resources from the immediate purview of librarians. Users, for the most part, seemed to be embracing these changes, but what were they really doing?

This bibliography is the result of the committee's effort to discover what work was being done to study information-seeking behavior in the electronic environment, outside of the more established body of catalog-use studies. We were interested in issues of user behavior in a world of multiple citation and full-text databases, proliferating interfaces, and Web access to an ever-increasing body of information, good and bad. How were users making sense of an information environment in which the only constant seemed to be change?

Our focus throughout the project remained on user information-seeking behavior, and we excluded articles that did not have something significant to say about this. We have been interested in studies that looked at such questions as, How do users make choices among databases? How do
they move from one interface to another? How well do they search those interfaces? How do they decide what is an appropriate source of information? How do they make decisions about which documents are relevant?

We have excluded the many articles that deal with gathering management data on the use of electronic resources, or articles on the use of the Internet (or other databases) by librarians, or surveys of what kind of databases or Internet access is offered in various libraries, or surveys that merely tell us that users prefer databases to printed indexes.

And there are a lot of those! We have excluded studies that dealt only with the use of the OPAC, primarily as a way to maintain our focus on the newly emerging environment, and, since the catalog-use literature is fairly extensive, as a way to keep the project within manageable bounds and ensure that we did well what we set out to do. Exceptions were made, however, for OPAC studies dealing with children, since this population group excluded certain studies dealing narrowly with the searching of one specific database, if the result didn’t seem generally applicable and significant questions were not raised.

We have often included only a single article out of a series that reported the results of a single piece of research, if one article seemed to adequately summarize the results of that research. We have only examined articles in English, though articles dealing with non-U.S. libraries were included when they seemed relevant to our purposes. We have included theses when we were able to obtain them readily and other formats when they came to our attention. Articles on research methodology have been included selectively when they seemed relevant to our purposes.

The approach that we took was to derive citations for articles from a number of databases, primarily Library Literature. In that database, every article under the heading “use studies” (which is a very broadly applied heading) was examined to see whether it might be relevant. These articles were supplemented by searches of Library and Information Science Abstracts, Information Science Abstracts, ERIC, PsycInfo, and other databases. Articles that seemed potentially relevant were then assigned to a committee member to read and evaluate, with many more articles having been read than were included. If the article seemed within our scope, the committee member then wrote an abstract. In no cases were the authors’ abstracts used.

Frequently, a broader discussion by the committee was needed to determine whether a particular article was really in scope, and these discussions helped to refine the criteria for inclusion. While articles have been placed in the subject category where their major focus lies, many could have been placed in more than one area. In all, the committee found a great deal of exciting and revelatory work being done in the area of user information-seeking behavior, and hopes that this effort to bring together such a body of research will help further our understanding of what users are doing, both within the library and beyond the library’s walls, in a decade of rapid change.

The abstracts are not being included in this version of the bibliography; they will be included, however, in a RUSA Occasional Paper to be published in the near future. The goal all along has been to raise awareness of what users are doing. As a result of all the research represented in this bibliography, we are on better ground when we talk about our users and their information-seeking behavior.

Adoption of Technology

Knowledge of technology adoption is basic to understanding information-seeking behavior. This category explores why people decide to use a technology, the resources they select, and how they use them. Constantly changing technology requires ongoing adoption, so these articles span the decade. CD-ROM databases were the initial technology focus and were studied through the mid-1990s. Beginning in 1994, the research scope widened to include the Internet, database workstations, and other networked resources. Two subcategories further define the category. User Groups looks at technology adoption by specific groups (e.g., rural physicians, science/engineering faculty, adult literacy practitioners). The Impacts articles study the effect of new technology on users, their search behavior, and library services and collections. User populations for most of the research were university students or faculty, but specialized groups, like those above, were also studied. Methods included online and print surveys and questionnaires, transaction logs, and anecdotal evidence.

Adoption of Technology—Impacts


Adoption of Technology—User Groups


Rosen, David J. "How Easy is it for Adult Educators to Use the Information Superhighway?" Boston: Adult Literacy Resource Institute, 1996. ERIC, ED392964.

Digital Library Services—Electronic Journals and Full-Text


Malone, Debbie, and Carol Videon. "Assessing Undergraduate Use of Electronic Resources: A Quantitative Analysis of Works Cited (Study of ten undergraduate institutions in the greater Philadelphia area)."

Digital Library Services—Gateways


Digital Library Services—Remote Access


Hypertext Usage

Research focusing on the increasing use of hypertext interfaces to resources and systems began to show up in the late 1990s (1996 onward), as hypertext became widespread. Combinations of log analysis, interviews, user observation (with and without asking the subjects to verbalize their thought processes) were employed: none of the research pointed to a single method used alone. Study foci included explicit interface design questions (Baron et al., 1996), modeling of user behavior (Chen and Ford, 1998; Ching, 1997), and satisfaction measures (Wolfram and Dimitroff, 1997). As interest in hypertext grows, and the use of the Web as an interface delivery tool continues, these studies will tend to merge with Web interface studies, such as Hill (1997) and Nahl (1998).

Hypertext Usage—System Log Analysis and Interviews


Hypertext Usage—User Observation


Interface Design

This category includes articles regarding the interface design of electronic resources and the way users interact with the interface. The articles may deal with general issues, or one of the other subheadings, including graphical user interfaces (GUIs), individualization, or navigation. Studies on interface design begin in the early 1990s, with articles such as Puttapithakpon’s "Interface Design and User Problems and Errors: A Case Study of Novice Searchers" (1990). Many of the early articles deal with CD-ROMs and how librarians can provide better training to users to overcome interface design problems. In the mid-1990s, studies began focusing more on interfaces designed by librarians, and how to make better interface designs based on surveys and user
studies. Common methodologies include user observation and user studies. The populations range from library staff to patrons of the libraries (including remote users). Topics under graphical GUIs may include metaphorical usage of graphics (for example, a picture of a magnifying glass to symbolize "search"), or discuss problems with graphics, such as loading time. Individualization includes topics such as creating various interfaces dependant on the user, and navigation includes topics such as how an electronic resource is structured for navigation; for example, studying the various links on a Web site.

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**Interface Design—
General Issues**


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**Interface Design—Graphical User Interfaces**


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**Interface Design—
Individualization**


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**Interface Design—
Navigation**


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**Models and Theory**

This category includes theoretical papers, literature reviews, and research models for user studies. Beginning in the early 1990s, the user studies range from surveys to observations of users and are informative as they reveal characteristic user behavior.

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**Models and Theory—
Development**


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**Relevance**

Assessing the relevance of the results of a search has always been an important but difficult to explain aspect of searching. Relevance can be defined in two very different ways. First, can users formulate strategies that will produce the results that will answer their basic queries; second, can users select the most relevant articles from their retrieval set? The articles in this category look at both search formulation and article selection related to determining relevance.


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**Resource Selection Behavior**

This category delves into how and why electronic information sources are chosen and the appropriateness of the choices for particular tasks. The articles typically focus on users selecting from among different electronic resources or deciding between print and electronic materials. A majority of the articles include either external or internal judgments of the selections' appropriateness.

Research on resource selection behavior emerged early in the 1990s, a time when electronic sources were growing in popularity and use. As electronic information became more common through the decade (e.g., the proliferation of Web-based resources), research on this topic also increased. The articles range from a 1990 study on students selecting from multiple CD-ROM databases to a 1999 article on factors influencing Web search-engine selection. User populations examined are largely university students and faculty, with one study focusing on business students. Surveys, questionnaires, user observations, results analysis, and interviews were the methodologies employed.

Allen, Gillian. "Database Selection by Patrons Using CD-ROM."

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Satisfaction and Affect Factors

In the 1990s, the literature on how users feel about the results of their searching, including issues of confidence and satisfaction, covers the study of a wide range of affective factors, from user confidence levels to perceived interface ease-of-use. A number of studies focused on user expectations, perceived effectiveness of the database interface, the effect of user instruction, level of user's experience, and the effect of feedback from the system. The populations covered are college and university students and faculty. Methods used were surveys and user observations.

Satisfaction and Affect—Surveys

Ashoor, Mohammad Saleh, and Athanase B. Kanamugire.

Search Strategy—Interviews

Spink, Amanda. "Multiple Search Sessions Model of End-User
Search Strategy—Log Analysis


Search Strategy—Surveys


Search Strategy—User Observation


Special User Groups/Subject Specific Resources

Special groups were studied to determine information-seeking behavior and interaction with electronic resources. Elementary school children were the most frequently studied group. During the early 1990s, studies of children were focused on their use of an online catalog. More recently,
researchers have studied children’s use of the Web and multimedia resources. Researchers have primarily relied on observation and have concentrated on children’s search methods, their ability to structure a search task, persistence, and the quality of search results. There have been a small number of studies related to users in particular subject disciplines, particularly business. For the most part, these studies have relied on questionnaires and interviews and have focused on database use. There were no discipline-related studies of the Web.

Special User Groups/Subject Specific Resources—Children and Youth


Special User Groups/Subject Specific Resources—English as a Second Language


Special User Groups/Subject Specific Resources—Investment


Special User Groups/Subject Specific Resources—Novice Searchers

Training, User Instruction, and Online Help

While the library instruction literature of the 1990s is voluminous, we have chosen to include those studies that focus primarily upon issues of user behavior rather than the evaluation of instruction. Most of the studies were surveys of users that focused on database use, looking at interest in instruction sessions, and satisfaction with search results. All were done in college and university library settings.

The surveys covered such issues as the need for additional instruction, willingness to attend instruction sessions or to use online help, and the types of problems that instruction might solve. A very few studies involved user observation, using content analysis, and review of search results to identify the impact of instruction on users’ search strategies and confidence levels.

Training, User Instruction, and Online Help—Surveys


Training, User Instruction, and Online Help—User Observation


The Web

The Web and the Internet came into common usage in the early 1990s. Articles on Web usage began to appear in the literature in 1994, and have progressed from mainly demographic studies (what type of people are using the Web for what reasons, and how often) to more in-depth analyses of user strategies and information-seeking behaviors. Included in our bibliography are two subcategories: Web Statistics programs, which covers machine-driven programs for measuring Web usage, and Web and Internet Use Studies, which covers studies of specific user populations and their Internet use. The second category includes many articles, ranging in dates from 1994 to 1999, and moves from a study of a U.S. Representative’s Web site, to gender differences in users, to analysis of search engines. Populations covered range from general to students in both high school and college, to public library patrons. Methods used were surveys, questionnaires, user observations, and interviews.


Vaughan, Jason B. “Considerations in the Choice of an Internet Search Tool (Survey of Graduate Students and Librarians at the University of North Carolina at Chapel Hill).” *Library Hi Tech* 17, no. 1 (1999): 89–106.

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