THE
ONLINE
SEARCHER

Edited by ETHEL AUSTER

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Preface

Online searching has experienced phenomenal growth since the early 1970s and is now an integral part of providing information in virtually all libraries and information centers. In recent years, searching has emerged from the confines of institutions to become directly accessible by users in their homes and offices. The availability of powerful, relatively inexpensive hardware and the advent of "user friendly" software have speeded the spread of online searching and rendered it almost commonplace among professionals and nonprofessionals alike. This popularity, however, has not come without its price. For the acceptance of online searching as a commonplace activity has tended to foster some erroneous assumptions among inexperienced staff and managers, students in faculties of library and information science, producers and vendors of databases, and end users.

For their part, inexperienced managers underestimate the level of training required by staff who will perform the searching function, as well as their need for ongoing professional development. They need to be realistic about the time required to perform a search and the costs involved. They need to understand the effect of the search service on other library operations such as journal subscriptions, interlibrary loans, reprographic services, user training, and equipment maintenance. If decisions are based on mistaken ideas, service levels may suffer.

Students enrolled in online bibliographic retrieval courses in faculties of library and information science may also harbor some erroneous ideas. They need to understand the importance of the negotiation interview, the importance of their own teaching role, and need to avoid viewing users as an amorphous mass with undifferentiated needs. Some may regard the need for such a course in online searching with skepticism while others are awed by the whole notion of online searching.

Producers and vendors, to judge from their products, would seem to think that the difficulties and users' experiences when attempting to search by themselves are due primarily to technical complexities that can be obviated by transparent interfaces. Greater attention should be paid

to the conceptual aspects of online searching or user instruction and assistance. Indeed, commercially available products need to reflect the differences between the needs of occasional and frequent searchers as well as allow for the differences in information seeking behavior among end users in diverse fields of specialization.

Users themselves are not immune to some misconceptions about online searching. They tend to misjudge the skill needed to search online. They need to know that the result of their search may not include all information available on a topic. They also need to have an accurate idea of the costs involved.

But of all the erroneous assumptions made by any particular individual or group, the most potentially harmful assumption is that online searching is simple. The ability to recognize and take into account the array of skills, knowledge, attitudes, and behavior that are the prerequisites for effective searching will make it possible to avoid many of the problems and disappointments experienced by both searchers and end users, and ensure that the full potential of online access to databases is realized.

It is obviously beyond the scope of any one volume to refute and rectify all the inaccurate perceptions on online searching held by the participants in the search process. The purpose of this book is to familiarize readers with the broad range of knowledge and issues that are involved in the provision and use of online searching. It does not teach the reader how to perform a search but rather highlights other equally important factors that must be considered in order to be an effective searcher.

The choice of topics for this particular publication resulted from my experiences as a teacher of the online bibliographic retrieval course at the Faculty of Library and Information Science, University of Toronto, as an investigator of search intermediaries, and as a former head of an online search service. The insights I gained prompted me to publish an earlier volume, *Managing Online Reference Services* (New York: Neal-Schuman, 1986), a book concerning the management aspects of implementing an online search service. This book, *The Online Searcher*, focuses on the person critical to the success of the service—the intermediary or online searcher. The articles included in this book were chosen because, in my view, they indicate the many other considerations that must be addressed by the online searcher in addition to mastering the technicalities of performing the actual search.

The book is intended for the following audiences: library school instructors and students in courses dealing with online services, such as public reference, special library, information retrieval, or special literatures; those practitioners in the field who are or are about to become online searchers; those who are responsible for managing an online

reference service; those who are contemplating introducing end-user searching into their library of information center; and end users themselves.

The Online Searcher has eight parts, each part represents an issue, concern, or program of potential interest to the online searcher. The articles chosen offer a blend of theoretical and practical material. Introductory overviews briefly summarize each of the articles and place them in the broader context of the topic under discussion.

Part I lays the foundation for discussion with two articles that present a comprehensive review of the literature on the online searcher and the different methods that have been used to study searching behavior. These two articles aid the reader by establishing bench marks for evaluating the literature of the field.

Effective searchers have to possess sophisticated skills, and the training options available are varied. They are discussed in three articles in Part II: one on how people learn to search, another outlining what they should learn in an introductory course, and a third examining in-house training and staff development programs.

Various perspectives on the online search process are offered by the four articles in Part III. They identify problem areas, discuss ways of developing productive patron relationships, argue the position that staff philosophy determines the quality of public library search service, and reveal some areas that have been neglected but must not remain so.

In Part IV, the end user as searcher is discussed. Although a topic of concern to librarians, some believe this issue presents an opportunity. In order to provide the right services to library users, thorough evaluation of the services available must be made before the complex planning process of providing for effective end-user searching is undertaken.

Part V emphasizes that users are not a homogeneous group. To serve their needs, vendors have developed an array of products to be evaluated. The information presented provides an indication of the options that have been created to facilitate end-user searching.

Part VI, aptly entitled "Programs That Work," shows the reader online information systems that have been installed in corporate, academic, and research libraries, and as a part of a network.

There are the issues that go beyond searching to the ethical and legal problems raised by online systems. The four articles in Part VII will alert searchers to the areas where they may be vulnerable.

In Part VIII, the factors that will shape the future of online searchers are described. These issues and the technology that will determine future direction are explored in this exciting concluding section.

Because the number of articles that can be included is limited, a selected bibliography is provided at the end of each part to alert the reader to other relevant items. A list of contributors and name and subject indexes are included to assist the reader.

Acknowledgments

Few people who have not actually edited a book themselves can be aware of the amount of work that is involved and the attention to detail that is required. First, the literature must be reviewed thoroughly. The intellectual choices notwithstanding, this involves sifting through indexes, locating journals, browsing shelves for issues not yet indexed, duplicating articles, submitting interlibrary loan requests, and, of course, constant updating. Once a framework for the book has been decided upon and articles chosen, permissions from publishers and/or authors of the original articles must be sought. In many cases, this involves several follow-up attempts not to mention accurate record keeping. Invariably, articles once thought indispensable are rejected in favor of others now considered more appropriate and the whole process needs to be repeated. Often publishers request that they be acknowledged in a particular way. This, too, must be kept track of and complied with. Contributors' most recent job titles must be checked and special requests for acknowledgment fulfilled. Articles must be made accessible to readers through name and subject indexes. For all these activities, as well as others too trivial to mention yet vital nevertheless, I express my gratitude to Mary Land. It is not too much to say that without her this book would not yet have been published. Wayne Daniels helped standardize the bibliographic styles of the articles.

I also thank the Faculty of Library and Information Science, University of Toronto for ongoing support; Marcia Chen, who made sense of often indecipherable scribbles; and Ellen Mangin at Neal-Schuman, who never lost faith even when the manuscript seemed to be hopelessly overdue.

I especially appreciate the publishers and authors who granted permission to use their material. Without their cooperation and generosity this book would not have been possible.

Finally, a word of explanation. Readers may wonder why the book contains no articles from either *Online* or *Database*, two prominent journals in the field. Unfortunately, the publisher of these two journals

refused to grant permission to include their articles. For readers' convenience, relevant articles from these journals are included in the Additional Readings that conclude each part of the book. While these articles are excellent and should be consulted for further information, I did include alternate articles that essentially cover the same ground. While the publisher's decision is indeed regrettable, I feel that the strength of the articles included here will establish the value of this collection.

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Background

INTRODUCTION

Much has been written by, for and about online searchers. Searchers themselves have written about their own experiences: They have described the kinds of services they provide, their preferred search techniques and databases, their charging and marketing strategies, and their solutions for coping with growing numbers of end users and rapidly changing retrieval technologies. They have commented on the adequacy of their training and speculated about the future of their role. These writings serve some useful purposes: They provide readers with glimpses into the real world of practitioners; they suggest to educators issues that should be incorporated into their course for training novice searchers, and they highlight for scholars areas that could benefit from rigorous research. However, as with all accounts that rely on personal experiences these suffer from a lack of generalizability. It is left to the reader to assess what is appropriate to any particular situation.

The writings of researchers are at least as plentiful as those of practitioners. Studies have attempted to relate the characteristics of the searcher to the quality of the search, the negotiation interview to the satisfaction of the user, the search process to the outcome. Comparisons have been made between human and computer-based intermediaries, between controlled and free-text searching, between free and for-fee searches, and between searcher-mediated and end-user searches. Age, education, training, experience, organizational context, type of search, number of commands, system features, precision, recall, time, and price have been some of the variables used. With so much research activity focused on the searcher, it might be expected that a great deal of reliable and valid information is readily available. Unfortunately, such is not the case. For although much has been written, and the scholarly findings are by and large easily available to the interested reader, they are not as enlightening as one might expect.

The dearth of genuine knowledge about the online searcher is due to several factors. Perhaps, the most important of these is the lack of accepted definitions to describe the search process itself. Exact demarcation between pre-search, search, and post-search activities tend to differ across studies making comparisons difficult. Differences in terminology used to describe similar actions—search commands have been referred to as decisions, moves, statements, strategies, tactics, techniques—create confusion. The absence of accepted standards for searcher performance and quality of output undermine the findings of evaluation studies. Studies conducted for different purposes and from varying viewpoints cannot easily be compared. The diversity of variables used to study the same phenomena combined with dissimilar methodologies prevents the aggregation of knowledge that becomes possible only when current research builds upon previous work.

In view of this burgeoning but problematic literature, then, it becomes all the more important to try to differentiate what, in fact, we do know about the online searcher from popular but unsubstantiated opinion and to identify those methods of discovery that are most likely to contribute toward furthering our knowledge.

The first articles by Trudi Bellardo and Raya Fidel set the context for the rest of the book. Bellardo presents a comprehensive review of the literature on the online searcher. She begins by identifying those personal traits that some believe distinguish the good online searcher from everyone else. She then summarizes findings from research investigating the relationship between searcher traits and searcher performance. She focuses on causal factors such as training, experience, aptitude for online searching, creativity, and searching style. She then presents a summary of the findings of the research literature: nine statements that encapsulate what is really known about the online searcher. She concludes with some advice to researchers as to how they might improve the quality of their research.

Whereas Bellardo concentrates on what we know about online searchers, Fidel focuses on how we came to know it. She examines the different methods that have been used to study searching behavior. Her basic premise is that experimental research is ill-suited to investigating the search process. She argues that the use of independent and dependent variables are inadequate for measuring or explaining the intellectual processes involved in answering a search request. She urges the use of more flexible and hence more fruitful research techniques.

Taken together, these two articles supply the reader with a critical lens through which to view the sizable and sometimes confusing literature of the field. The Additional Readings provide the reader with basic information about online searching, the searcher, and the search. They also serve as background for the more specific topics that follow.

What Do We Really Know About Online Searchers?*

Trudi Bellardo

INTRODUCTION

Many panel discussions and public presentations and miles of lines of print have been devoted in recent years to the question of what distinguishes a good online searcher from everyone else. Much of this verbiage appears somewhat self-aggrandizing; searchers have been telling other searchers that it requires an extra special sort of person to do this job well. Online searching, it has been claimed, demands the very best people—intelligent, self-confident, but also sympathetic and understanding, creative, and so on. Ordinary librarians cannot hope to excel at this complex and challenging task.

Is this really true? Possibly not. Despite the frequent repetitions of this opinion, there is a small but growing body of research evidence that suggests that these assumptions about good online searchers have been overstated. This paper will review the opinionative literature and also the research studies, with the aim of clarifying what we really do and do not know about skills in online searching. The implications of this methodical examination of the true state of our knowledge on the subject will be discussed at the end.

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1. WHAT ARE THE PERSONAL TRAITS OF THE BEST ONLINE SEARCHERS: THE OPINIONS

Many experienced professionals in the field of online literature searching have expressed the opinion that only the most intelligent and personable of information professionals can be good search intermediaries, as online searching is a difficult and demanding task, involving both cognitive and communicative challenges.

According to this view, only the elite should be selected for this kind of work. Fenichel and Hogan (1981), for example, specified the need for a

> "...high degree of intelligence, resourcefulness, excellent interpersonal skills, diligence, problem-solving ability, organization, and a careful approach to tasks ... One simply works with the best people available." (p. 87)

In an essay on the qualities of a good searcher, Hock (1983) discussed eight general traits: a logical, analytical mind; communication skills; enthusiasm; economic attitude; courage; ability to make quick decisions; being a good student; and a rudimentary typing ability. In Hock's opinion, the quality of search results depends largely on who is searching and therefore the selection of searchers is a grave responsibility. It is imperative, he felt, to get the very best people to the terminal.

Henry, Leigh, Tedd, and Williams (1980) echoed the opinion that a competent intermediary is the key to successful searching. They also listed a wide variety of necessary searcher traits, including a "suspicious mind" which notices everything, reacts to all clues, and investigates all search possibilities. They further stated,

> "There are some people who, while being very competent librarians or information officers, will never be good intermediaries, because, for reasons which no one as yet clearly understands, they are very frightened and perturbed when using a terminal linked to a computer. This reaction should be recognized by managers, so that such people are not forced into becoming intermediaries." (p. 99)

In discussing some of the problems in training certain individuals to be searchers, Crampon (1980) identified some personality and intellectual traits that would make it difficult to successfully train and might even warrant excluding that person from searching. For example, an individual who suffers from "terminal phobia"—fear of searching and fear of the computer—is not, in Crampon's opinion, worth training. Other personality flaws which would disqualify a potential trainee include reluctance on the part of the trainee due to disinterest or arrogance or inability to admit ignorance. Intellectual flaws include a blind spot on one particular aspect of searching that is basic to the whole process, e.g., an

inability to distinguish AND or OR Boolean operators, or an inability to think beyond controlled vocabulary terms for free text searching. (It may be noted here, however, that a research study by Wanger, McDonald, and Berger (1980) observed this last trait in some of the most experienced Medline searchers.)

In regard to the specific personality traits that distinguish the expert search intermediary, Dolan and Kremin (1979) emphasized self-confidence; "timidity and self-doubt have no place at the terminal" (p. 9). Hammer (1982) highlighted empathy, rapport, open-ended questions, skillful listening, and perseverance. Van Camp (1979) stressed a service-oriented outlook, human communication skills, perseverance and patience, and self-confidence. Wanger (1977) dubbed the traits of a good intermediary "it" and included in her definition the ability to relate to people, to listen, and to feel confident about entering another person's world of interest and expertise. Lastly, Jackson (1982) proposed that the key personality trait is internal locus of control. Locus of control refers to whether an individual perceives events as determined internally, by his own behavior, or externally, by fate, luck, external forces. Jackson conjectured that searchers with internal locus of control are more likely to feel that they have an important role in reducing the barriers to information, and are more likely to give users what they need rather than just what they say they want. Such searchers also are less likely to be afraid of computers.

Not all writers in the field have agreed, however, that personality factors are critically important. Knapp (1978), for example, downplayed the impact of the personality variables and suggested that simple good manners and a sincere interest were probably sufficient. She emphasized instead intelligence, and specifically the need for the intermediary to be thorough, analytical, probing, and to be able to understand requests in "meaningful" ways. This meaningful understanding, in Knapp's opinion, is greatly dependent on verbal intelligence, the ability to make analogies, and the ability to "cull essential aspects and their relative importance from long, involved statements of users' needs" (p. 322).

Many of the writers cited above who were concerned with personality factors also stressed the need for general high intelligence or specific intellectual traits. Van Camp (1979) proposed that a logical mind and a retentive memory were necessary. Dolan and Kremin (1979) listed the ability to break a problem into its components, to think in synonyms, to anticipate variant word forms and spellings, and to be flexible in thinking. Jackson (1982) also had an opinion about intelligence:

"Abstract reasoning ability is probably the key to whether a searcher is able to progress from understanding the processes of searching to synthesizing all of those procedures into a search" (p. 52).