

CHAPTER 11

LEARNING AND TRAINING TO SEARCH

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1. INTRODUCTION

Online searching was once the province of professional search intermediaries who had received formal training in information retrieval (IR). Today's searchers no longer fit a standard profile, ranging from school-age children to retirees, the majority of whom have received no training in search. While entering a simple query to a commercial Web search engine may not require any specialized skills, a basic understanding of the search process and successful search techniques and strategies, particularly for non-trivial queries, can result in more productive searches and a more enjoyable search experience. Despite recognition of the growing need for search training that supports the cognitive processes and learning styles of individual searchers, there has been relatively little response from the academic community to date.

In this chapter, we review the existing literature on search training. We also propose the development of a search training framework based on models of the search process, research on search errors, and models, methods and approaches gathered from research on training and learning within other, related disciplines.

2. BACKGROUND

The main focus of this chapter is on training that is intended to help those whose main profession is not performing information searches to improve their online search skills and their understanding of the search process. In our context, online search includes a number of different search environments: the public Web, proprietary databases available either through the Web or on private networks, online public access catalogs, corporate knowledge management systems, etc. The ability to use online search tools effectively has become an integral part of every knowledge professional's skill set and, therefore, it is critically important to understand how these skills can be best developed.

Recent research from Pew (Fallows, 2005; Fallows, Rainie, and Mudd, 2004) indicates that 84 percent of Americans who have used the Internet have also used one or more search engines. According to this study, more than 38 million Americans use a search engine every day, and over 90 percent feel either very or somewhat confident about their abilities as users. As will be discussed later in this section, academic research suggests that this confidence is not always well-founded. This is also supported by additional findings by Pew (Fallows, 2005): for example, 62 percent of the searchers were not aware of the general difference between paid and unpaid search results, which raises questions about their general understanding of the search environments being used.

The information-seeking process has most notably been characterized by Kuhlthau's Search Process Model (Kuhlthau, 1993), which defines six stages of information seeking: task initiation, topic selection, prefocus exploration, focus formulation, information collection, and search closure. These findings are based on studies of library patrons and do not include IR system usage. Marchionini (1992) divides the information-seeking task of IR system end users into five functions: defining the problem, selecting the source, articulating the problem, examining the results, and extracting the relevant information. While this is more closely aligned with our interests, our focus is still more narrowly defined on information searching, rather than the broader context of information seeking (Bates, 1985).

The end user, in this case, is the searcher who is already cognizant of the information need and available search repositories and is faced with the task of searching via queries for answers to that need. Thus, the process of finding search repositories and choosing between them lies outside of our focus. We are interested in identifying the skills searchers can learn and methodologies for teaching those skills in order to increase their effectiveness at searching.

Studies have shown that a searcher's ability to get desired results is often very weak (Spink et al., 2001; Lucas and Topi, 2002). Key among these findings is the inability of searchers to choose correct search terms and to correctly use operators. It is well known that searches tend to include very few terms in their queries and seldom include Boolean operators, and that the correct usage of those operators is even less frequent. Taking a higher level perspective, searchers are often not aware of a good strategy to pursue for a successful search process and have little knowledge of the intricacies of that process.

At the same time, search is increasingly important for both individuals and organizations because of the growing number of electronically stored non-structured and semi-structured documents, such as corporate memos, PowerPointTM presentations, Web blogs, online news content, knowledge management resources, etc. While the amount of available information has continued to grow exponentially, advances in human ability to store and process information have not been equally impressive. Therefore, online search environments have become essential tools, and it is vitally important for a knowledge professional to be able to use them effectively.

3. MOTIVATION

The ubiquitous availability of the Web and other online data sources has created a situation in which, in practice, all knowledge professionals have to be capable searchers in order to perform their primary job functions well. The designator of "knowledge professional," in this context, covers a large swath of the population, such as:

- A marketing executive looking for information about competitor's products.
- A development director at a non-profit searching answers to questions about a new target country.
- A low-income citizen using the Web to search for information about earned income tax credit.
- A middle-school student writing a research paper.
- A sports enthusiast investigating a career of a favorite player.