

# Chapter 51

## Studying Web Search Engines from a User Perspective: Key Concepts and Main Approaches

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### ABSTRACT

*This chapter shows that the wider use of Web search engines, reconsidering the theoretical and methodological frameworks to grasp new information practices. Beginning with an overview of the recent challenges implied by the dynamic nature of the Web, this chapter then traces the information behavior related concepts in order to present the different approaches from the user perspective. The authors pay special attention to the concept of “information practice” and other related concepts such as “use”, “activity”, and “behavior” largely used in the literature but not always strictly defined. The authors provide an overview of user-oriented studies that are meaningful to understand the different contexts of use of electronic information access systems, focusing on five approaches: the system-oriented approaches, the theories of information seeking, the cognitive and psychological approaches, the management science approaches, and the marketing approaches. Future directions of work are then shaped, including social searching and the ethical, cultural, and political dimensions of Web search engines. The authors conclude considering the importance of Critical theory to better understand the role of Web Search engines in our modern society.*

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## INTRODUCTION

A simple technical definition of a Web search refers to an information retrieval system (IRS) which allows keywords searches in textual and multimedia distributed pieces of content over the Web. But when asking people what a search engine is, they more likely answer that it is the first step to enter the Web to find the useful and relevant information they look for, to check an already known but forgotten information, to verify the spelling of some complicated words or even to point out the major interest trends through search streams. These definitions, both on the technical and the user sides, show that studying search engines and, more generally, online information searching systems refers to several academic fields, in particular information science, cognitive psychology, linguistics, computer science and artificial intelligence.

The number and diversity of studies focusing on Web searching give valuable insights regarding the importance of this activity. An overview of these results is presented in various review articles (Su, 2003; Spink & Jansen, 2004; Bar-Ilan, 2004; Martzoukou, 2005; Ihadjadene & Chaudiron, 2008; Waller, 2011). Interesting findings of these studies include topic trends in Web searching, structure of the Web queries, multilingual searching, video and image searching, categorization and visualization of the results, query reformulation, search tactics and strategies, mobile, real time and social searching, use of search engine by various populations, etc. But beyond the functional aspects, Web searching has become a large socio-economic, political and cultural phenomenon. Web search engines (now WSE) play a central role in the evolution of users' information behavior as they are not any more used only in professional contexts but in everyday life contexts for different purposes such as looking for a hotel, having a good price for a trip, finding a doctor or a babysitter. WSE still allow people to access information but they also drive search traffic towards particular sites

(Search Engine Optimization), influence marketing strategies and consumer behaviors (*Google AdWords*), inform about people interests with *Google Trends*, and they even may be considered as a new media.

The rapidly changing nature of Web searching brings scholars to reconsider the theoretical and methodological frameworks to grasp new information practices. On one hand, WSE are designed with new searching and browsing functionalities and deal with different digital collections (textual, music and video corpora, bibliographic records, etc) and new information channels and sources (blogs, chats, social networks...). As a consequence, they tend to change very quickly and are more and more integrated in wider devices such as commercial websites. On the other hand, the advent of the Internet has created a diversity of small digital interconnected worlds, allowing millions of users to produce, navigate and search for information. These users have various backgrounds with different levels of ability and knowledge. The growing place of digital environments brings major changes on Information Retrieval (IR) systems, on user behaviors and on information practices. One major issue for researchers is to understand how they really use these technical devices, how they adapt themselves to the technical constraints, what kind of knowledge they mobilize during search sessions, etc.

The aim of this chapter is to present an overview of the theoretical and practical models which are used by scholars to study Web searching practices. To achieve this goal, we first rapidly shape recent challenges in search engine evolution pointing out the major current issues which impact searching behavior. In the second section, we introduce the main concepts in user-oriented approaches with a special attention to the concepts of "information practice", "use" and "behavior" which are used with different meanings. The goal of this section is to provide a conceptual questioning as an attempt to clarify how scholars and practitioners use these terms in their studies. In the third section, based

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