

Chapter 7

Bates' Berrypicking Model (1989, 2002, 2005)

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ABSTRACT

Bates' model integrated a biological and a socio-cultural perspective to argue that, in practice, information seeking does not follow a systematic search process but more commonly takes the form of "berry picking", or finding information bit by bit using a range of sources. According to her theory, humans collect most of their information through passive, undirected behavior, while the remainder is generated using three types of behavior defined as monitoring, browsing and directed search. Bates argued that a process of sampling and selection that she refers to as "berry picking", underlies most browsing and directed searches, and has evolved from traditional mating and foraging behaviors. The chapter discusses the diverse theoretical perspectives on which Bates' model is based, and its key contributions to Information Science.

INTRODUCTION

For many years, research on information retrieval was focused on the system rather than on the user. The idea was that of one query, one use. What this means is that researchers made the assumption that the user submitted one question to an information system and that the system would respond with an answer to that question. Of course, if the answer was not quite what the user was seeking, the question may be altered by the user or even by the system, but still, when the best answer

was found, it was assumed the user would print out the records and the search was over (Bates, 2005, pp. 58-59).

Assumptions were also made that trained librarians would be searching the online databases available and would obtain all necessary results in one search using one search language. The appearance of research that showed how people really searched for information, specifically social science and humanities scholars who employed more a more complex method of seeking information, pinpointed the flaws of the one query, one use

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model. These events, coupled with the appearance of online catalogs that were designed for the end user with little to no search training led Bates to develop her 1989 model of the berrypicking search that underlies design features she thought might aid the end users in accomplishing successful searches (Bates, 2005, pp. 58-59).

In his book, *Ambient Findability*, Peter Morville (2005) credits Bates with furthering our understanding of information seeking behavior through her berrypicking model that exposed the inadequacy of the classic information retrieval model by illustrating that queries and information needs evolve as users interact with documents and systems (p. 59). "Each new piece of information they encounter gives them new ideas and directions to follow and, consequently, a new conception of the query" (Bates, 1989, pp. 409-410). So, not just search terms but the actual query might be changed with each new document discovered. Bates calls this an "evolving search" (p. 410). The different bits of information discovered at each stage of the ever-changing search scattered throughout different sources are compared to the way berries are scattered on bushes, not coming in bunches. Thus, Bates (1989) called this "bit-at-a-time retrieval" berrypicking and believes it to be "a realistic model of how people go about looking for information..." (p. 421).

The model has four differing elements from the traditional information retrieval model that illustrate how users move smoothly between searching and browsing:

1. The nature of the query changes and evolves because new information gives the user new directions to follow which results in not just a change in search terms but in a change in the query itself.
2. The nature of the overall search process changes in that users don't obtain a single final set of retrieved items but obtain bits of information at each stage of the search as it changes, following a berrypicking pattern.

3. The search techniques employed change from the usual model of subject searching in databases to a variety of techniques including but not limited to footnote chasing, citation searching, journal run, area scanning, subject searching in bibliographies and abstracting and indexing services, and author searching.
4. The information domain where the search is conducted changes meaning that people search in different sources than had originally been thought in the research meaning that the berrypicking search moves from source to source and from technique to technique. (Bates, 1989; 2005)

Bates (1989) emphasizes the importance of browsing as it relates to each of the search techniques listed in Item 3 above stating that the ever evolving berrypicking search "changes our sense of what browsing capabilities should be like in online systems, and how the database and the search interface should be designed" (p. 414). She presents key database design features for each technique to enhance berrypicking and browsing. Bates makes it clear, however, that browsing and berrypicking are not the same. She asserts that "berrypicking involves the use of a wide variety of techniques, some of which are very standard, and others which involve a considerable amount of browsing" (p. 415).

RESEARCH USING THE BERRYPICKING MODEL

In her chapter on berrypicking in the 2005 book, *Theories of Information Behavior* (Fisher, Erdelez, & McKechnie), Bates indicated that her 1989 article had been cited 148 times by Spring, 2004. As of this writing in March 2014, the berrypicking model article by Bates (1989) has been cited 414 times according to the "ISI Web of science" (<http://wokinfo.com/>). According to the ISI Web of Science data analysis in March 2014, the most

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