2004

Needle in the Cyberstack: Consumer Search For Information in the Web-Based Marketspace

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Citation/Publisher Attribution
Kuan-Pin Chiang, Ruby Roy Dholakia, and Stu Westin (2004) ,"Needle in the Cyberstack: Consumer Search For Information in the Web-Based Marketspace", in NA - Advances in Consumer Research Volume 31, eds. Barbara E. Kahn and Mary Frances Luce, Valdosta, GA : Association for Consumer Research, Pages: 88-89. Retrieved from http://acrwebsite.org/volumes/8860/volumes/v31/NA-31
Available at: http://acrwebsite.org/volumes/8860/volumes/v31/NA-31

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EXTENDED ABSTRACT - With a few simple clicks, consumers can navigate the World Wide Web, move from site to site, access and examine vast amounts of information unconstrained by time and place which have traditionally restricted consumer behavior in the physical marketplace. At least, that is according to theory. Information search on the Internet should, therefore, increase since search costs are reduced. But empirical evidence seems to suggest otherwise. Why aren=t consumers searching for more information? Although the Internet reduces the cost of physical effort in moving from store to store, it may not reduce the cognitive cost of moving from site to site. Further, if consumers' motivation to shop online is to reduce effort and save time, why should one expect consumers to search for more information even if the search costs are relatively lower?

[to cite]:

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[url]:

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With a few simple clicks, consumers can navigate the World Wide Web, move from site to site, access and examine vast amounts of information unconstrained by time and place which have traditionally restricted consumer behavior in the physical marketplace. At least, that is according to theory. Information search on the Internet should, therefore, increase since search costs are reduced. But empirical evidence seems to suggest otherwise. Why aren't consumers searching for more information? Although the Internet reduces the cost of physical effort in moving from store to store, it may not reduce the cognitive cost of moving from site to site. Further, if consumers' motivation to shop online is to reduce effort and save time, why should one expect consumers to search for more information even if the search costs are relatively lower?

Several reasons suggest that conventional economic theories do not adequately explain consumer behavior in this new marketspace. First, the fundamental premise of economic theory is that information search will increase when search costs are reduced (Stigler 1961). Empirical evidence, however, has shown otherwise. Johnson et al. (2000) found that the levels of search across three product categories are fairly low, ranging from 1.1 stores for books to 1.8 stores for travel-related products. Another study by Jansen et al. (2000) revealed a similar pattern from the analysis of transaction from 18,113 users of Excite.com. Results show that Web queries are short. Most users had only few queries per search and 76% of users did not go beyond their first and only query.

Second, it is cognitive, not only physical effort, that affects online search behaviors. According to the Roper Starch Survey, it takes about 12 minutes on average before a user gets frustrated when searching the Internet. Although physical efforts (e.g., going to stores) have been reduced to finger clicks, the cognitive challenges of interacting with computers and online information remain that limit consumer information search within and between sites. This study is one of the first attempts to provide a systematic investigation of consumers' search behavior in the Web-based marketspace that provides some explanation for the discrepancy of theoretical proposition and empirical findings.

The study draws relevant theoretical perspectives from economics, psychology, and the wayfinding paradigm to investigate information search in the Web-based marketspace. The economics of information identifies two types of search costs that influence information search–external and cognitive. The costs of resources consumers invest in search, such as monetary costs to acquire information, or opportunity costs of time during acquisitions, are external search costs. Such costs are influenced by factors beyond consumers' direct control. They are exogenous and depend on situational influences. On the other hand, cognitive search costs are internal to the consumer and reflect the cognitive effort consumers must engage in to direct search inquiries, sort incoming information and integrate with stored information to form decision evaluations (Hauser, Urban and Weinberg 1993; Stigler 1991). They are influenced by consumers' ability to cognitively process incoming information.

In the psychology literature, consumers are viewed as information processors, interacting with a choice environment, acquiring and processing information and making a decision from alternatives (Bettman 1979). Bettman and Park (1980) theorized that information search depends on both one's ability and one's motivation. Either determinant without the other inhibits information search. The notion that both ability and motivation are required to process information is consistent with Bettman's (1979) model and with Petty and Cacippo's (1986) Elaboration Likelihood Model (ELM) that suggests that both the ability and motivation to process information are necessary before someone engages in effortful cognitive processing. Similarly, it is logical to posit that both motivation and ability are required to acquire information via effortful search.

Since the online environment possesses several spatial characteristics, researchers have applied the wayfinding paradigm to analyze online navigation (Spence 1999; Hodkison et al. 2000). When users engage in goal-directed navigation, they usually use three methods: landmark, route and survey knowledge (Hodkison et al. 2000). Each method is used under different conditions and depends on the navigator's familiarity with the environment. Hodkison et al. (2000) elaborate these concepts in the online environment. Landmarks are stable and conspicuous in an environment (Dillion et al. 1993) and could include search engines and a user's frequently visited sites from bookmarks or manual entry of a URL. Route knowledge consists of instructions that must be followed to arrive at the desired destination. These instructions enable navigation although the user does not really know much about the environment.

The focus of this study is on external information search directed by a specific purchase under consideration. In the information-rich Web-based environment, consumers need to be transformed as computer users as well (Koufaris et al., 2001). They must be able to identify the location of information and employ efficient search techniques, hence, personal variables such as domain and system expertise are likely to affect consumers' search for information. Further, coupled with personal variables, system factors such as interruption and information load unique to the online environment are likely to impose search costs on consumers and influence the amount of information search.

Results from the pre-experimental survey show two different perceptions of search costs between the physical and online environments. Perceived external search cost is lower in the physical environment whereas perceived cognitive search cost is higher in an online environment. In the four 2 x 2 online experiments, using a custom-designed Web browser, domain expertise was found to be negatively related to perceived cognitive search cost, thus affecting information search between and within sites. In addition, subjects with a lower level of domain expertise search for more information among brick-and-click retailers. System expertise was found to significantly affect information search between sites only in the interruption experimental condition. No significant main effect of system variables–information load and interruptions–on information search was found. Overall, these findings suggest that although physical efforts have been reduced to finger clicks, the cognitive challenge of interacting with computers and online information limits consumer information search in the Web-based marketspace.

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