

Clicking instead of Walking: Consumers Searching for Information in Electronic Marketplace

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In theory, the Web provides vast possibilities for information search and comparisons unconstrained by time and place which traditionally restricted consumer search behavior in the physical marketplace. Because of such reduction of search costs, studies have taken the economic perspective in analyzing the efficiency of electronic market (e.g., Brynjolfsson & Smith, 2000) and implications for consumers searching for information online (e.g., Hoque & Lohse, 1999; Wu, Ray, Geng & Whinston, 2004).

Several reasons suggest that conventional economic theories do not adequately explain consumer online search behavior. First, the fundamental premise of economic theory is that the amount of information search will increase when search costs are reduced. Empirical evidence, however, has not shown such a prediction. For example, by examining the shopping patterns of online users over time, Johnson et al. (2004) found that the amount of online search is actually quite limited. On average, households visit only 1.2 book sites, 1.3 CD sites, and 1.8 travel sites during a month in each product category. Another study by Jansen et al. (2000) revealed a similar pattern from the analysis of logs containing 51,473 queries posed by 18,113 Excite users. The 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 physical effort that affects consumers searching for information online. Although physical efforts (e.g., going to stores) have been reduced to finger clicks, it is possible that the cognitive challenges of interacting with computers and online information exist which potentially limit consumer information search in the electronic marketplace.

In addition, the Internet has transformed consumer behavior in two ways: (1) transformation of consumers into online shoppers requiring the usage of computers, and (2) transformation of the physical stores into online marketplaces that is information technology intensive. In order to understand consumer online search behavior, it is necessary to include the interaction between the combined roles of consumer/computer user and information technology provided by the online stores. These factors impose certain search costs on consumers and influence their online search behavior.

This article provides some brief results from surveys that compare search cost between online and physical environment. Additionally, using online experiments, the effects of personal and system factors on information search between and within sites are reported.

Information Search

Information search is a stage of the decision making process in which consumers actively collect and utilize information from internal and/or external sources to make better purchase decisions. Internal search occurs when consumers access information previously stored in memory. It is the primary source used for habitual and limited decision-making. On the other hand, external search, which is the focus of this article, involves searching for information from sources outside of memory because the required information was not previously acquired or cannot be recalled from memory. Sources such as friends, advertisements, and magazines such as Consumer Reports are often utilized by consumers to facilitate their decision-making. Lately, the Internet has joined other traditional media and become a major source of information

for many products and services for consumers because of its abundance of information and convenience.

To explain information search, 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. They are influenced by consumers' ability to cognitively process incoming information.

Searching information online requires consumers to change their conventional behavior. Behavioral change is difficult and often requires incentives such as explicit monetary savings or increased convenience. Past studies have found that convenience is the single most salient benefit of online shopping and consumers look for new way to find information and buy products that are faster and more convenient. For consumers to search for information online, perceived external search cost is lower in an online environment than in the physical market.

In the electronic marketplace, external search costs have been significantly reduced to finger clicks. However, information in such an environment is highly visual and perceptual. It increases cognitive search costs that affect consumers' search for information. In addition, information search online is characterized by human-computer interaction requiring consumers' ability and knowledge to acquire information (Hodkison et al., 2000). In order to search online, consumers must not only be able to locate the web sites of interest and move between sites but also to acquire information within the sites. There are several ways to identify the location of Web sites: (1) via search engine, (2) via manual entry of a URL, and (3) via memory-aid of a browser such as bookmarks. Given the vast amount of information available on the Internet, these search techniques will affect consumer information search. As a result, the Internet imposes a certain degree of cognitive search cost on consumers, negatively impacting the amount of information searched.

Effects of Personal and System Factors

From the consumer perspective, the Internet has changed the relationship between buyers and sellers because of the unprecedented increase in the number of choices and levels of control over the message. It has also changed the decision-making environment by the amount, type, and format of information available to consumers because it provides tools for information storage, for information search and for decision analysis. Tools such as bookmarks, search engines, and decision-aids (e.g., shopbots) are likely to influence consumer information search behavior. Personal factors such as domain (ability to identify information in the product category) and system expertise (skills of using computers and WWW for information search) as well as system factors such as information load and interruptions impose certain search costs on consumers and influence online information search.

Analysis and Results

Results from surveys 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. Using a custom-designed Web browser in online experiments, domain expertise is negatively related to perceived cognitive search cost, thus affecting information search between and within sites. In addition, participants with a lower level of domain expertise search for more information among brick-and-click retailers. System expertise significantly affects information search between sites.

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 electronic marketplace.

Conclusion

The online market offers consumers vast opportunities because it reduces physical efforts of information search and provides access to a large amount of information and choices. What may have been substituted, however, is the cognitive effort required by the consumers to interact with computers. This effort may prevent consumers from taking advantage of the opportunities to search for more information.

There are several unique characteristics of the Internet that make it a fruitful environment in which to study search behavior. Its rapid growth makes it a vibrant marketplace that competes with all other conventional channels. As the Internet evolves, consumers' online search behavior will accompany changes. The implications for consumers in terms of availability of information, access to greater numbers and sources of product information, privacy and security issues, to name a few, will require continued attention and investigation.

Additional opportunities to examine information search also include other possible personal and computer system variables, effects of Web site position on a Web page and "location" of the site in the cyberspace, and most importantly, the use of a custom browser to better understand the dynamic and complex process of information search in electronic marketplace.

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