

Bidding for ranking in search outcome list: a heuristic-systematic perspective

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Abstract: This study explores how consumers click the searched items in different placement on the searching outcomes list through search engine. Drawing from the heuristic-systematic information processing theory, we conduct a quasi-experiment to test the consumer ordinary searching behavior and click preference. The findings reveal that, for the product which consumers are familiar with, they are more likely to look for the most self-relevant searched item; while for the products that consumers are not so familiar with, interestingly, they scan the searched items by sequence.

Keywords: Search Engine Marketing, Competitive Bidding Ranking, Dual Processing

1. Introduction

Key-word searching marketing has recently attracted a great deal of attention among practitioners. For example, companies always pay very great attention to their advertisement on search engines (e.g., Google, Baidu). One call it the world's most effective, yet least understood marketing strategy (Ghose & Yang, 2009). Marketers are particularly interested in better understanding search engine advertising because traditional forms of communication appear to be losing effectiveness (Seda, 2004). Key word advertising strategies are appealing because they prospect of overcoming consumer resistance with significantly convenience and fast delivery. However, empirical evidence is currently lacking regarding the relative effectiveness of search engine marketing in increasing firm performance over time. Previous reports and studies have claimed that top ranking of the searched items are more likely to be clicked than the subordinate

ranked items. This is also consisting with the actual behavior of the most of the companies who pay much money in order to be searched in front of other companies' of the searched outcomes.

Bidding for a good place on the key-word searched outcomes is a pivotal problem companies concerns, through which who want to obtain good attention and consumer purchase intention. It is generally believed that the top three are the best places for companies to attract consumers, and the number of 1, 2 and 3 always much easier to impress consumers. However, in engine searching area, we find that it is not always the truth from the ordinary searching behavior because to our observations, consumers do not always click the top choices after the searched items presented. Therefore, there is a dearth of understanding how consumers process the searched information presented, and why we can observe such seems chaotic behavior.

2. Theoretical Background

2.1. Dual Processing Theory

Dual process theory was introduced in the late 1970s and developed through the early 1980s and since then has profoundly influenced researchers' understandings and conceptualization of how attitudes and social cognition are formed (Chang, 2002). Dual process theory, as a general theory, has its different classification methods. Over the years, several researchers give their own views about how to express dialectical divisions to explain some causal relationships. The main theories are heuristic-systematic model (Chaiken, 1980; Serena Chen, Duckworth, & Chaiken, 1999) and the elaboration likelihood model (Chaiken & Maheswaran, 1994; Petty & Cacioppo, 1986). In present study, we adopt one of the dual process theories, namely heuristic-systematic model (HSM) as the whole theoretical supports for our explanations. This theory accentuates that a systematic view of persuasion emphasize detailed processing of message content and the role of content-based cognition, which imply a thorough, in-depth, complete, and well-advised processing of all given information (Wirth, Beking, Karnowski, & Von Pape, 2007) ; while heuristic view de-emphasize detailed information processing and focuses on the role of simple rules or cognitive heuristics (e.g. signal truth, quality, or validity of that information) in mediating persuasion. Specially, a consumer adopting heuristic process strategy will directly be affected by communicator cues which are consisting with their previous knowledge stored in memory (Chaiken, 1980; Chang, 2002; Epstein, 1991) and then make a decision in a short time, relatively less cognitive effort.

On the other hand, a consumer adopting systematic process strategy when decision maker has his ability to process the information presented and the problem is relative high self-involvement.

However, despite the increasing use of Heuristic-Systematic Model in marketing and human-computer interaction context, few Information Systems study has yet applied this theory to evaluate the effect of different processing strategy bringing different diverse decision outcomes. Prior studies have referenced another closely related but more extensive theory that share the same notion of “information processing” as the HSM has. That is, information processing theory, which describes that the whole but fuzzy information processing procedure from memory perspective (Miller, 1956). This theory has been applied to study a wide variety of technologies, such as the organizational impact to ERP systems used (Jarvenpaa, Dickson, & DeSanctis, 1985), data-integration problems in organizations (Goodhue, Wybo, & Kirsch, 1992), and balance of IT investments and worker composition problems (Christopher, 2003). While this theory has merit, it primarily focuses on the measurement of processing quality through short and long-term memory, but not provides the process procedure. The HSM compensates for this limitation of general of organization information processing theory considering the processing procedure into account, namely, heuristic and systematic information processing strategy adoption under different context and distinct issue involvement (Chaiken, 1980).

HSM in our context is to explain that why consumers adopt different information processing strategy in different product searching and how they present different searching behaviour. More detail, consumers do not continuously adopt an identical processing strategy in all the decision procedure, instead, they prefer to adopt different processing strategy in different status. For instance, heuristic information processing strategy is much easier to be aroused in the unfamiliar product searching may as their cognitive constrains or limited knowledge to process attribute related information.

2.2. Competitive Ranking

Search engine marketing is the fastest growing sector in online marketing, more and more people are looking to the web when making both on and offline purchase decisions. How does this mechanism work? In sponsored search, firms that wish to advertise their products or services on the Internet submit their product information in the form of specific keyword listings to search engines. Bid values are assigned to each individual ad to determine the position of each

competing listing on the search engine results page when a user performs a search. When a consumer searches for a term on the search engine, the advertisers' webpage appears as a sponsored link next to the organic search results that would otherwise be returned using the neutral criteria employed by the search engine. By allotting a specific value to each keyword, advertisers only pay the assigned price for the users who actually click on their listing to visit their websites in the most prevalent payment mechanism, known as cost per click (CPC).

However, search engine marketing can be highly complex. It is generally believed that top-ranking specially the top three will attract more attention, and be able to get a higher click-through rate(CTR)(Zhao & Wang, 2009). So, the advertisers always pay the highest to buy the same keywords could be ranked top so that its web page could be seen by consumer earliest (Dou, Song, Yuan, & Wen, 2008). Contrary to a somewhat popular belief, search engine marketing can be very expensive. According to an illustration, the cost per click for the top three are more expensive than the other positions. The top positions will appear on the first page of results on these sites, though the specific number of positions varies by site. Google does not reveal keyword bids, but top positions in Google AdWords are comparably expensive (Brooks, 2004). So, it means that you only have to pay a lower price when a person clicks. Previous studies have indicated that profits are not necessarily monotonic with rank such that keywords that have more prominent positions on the search engine results page and thus experience higher click-through rates as well as higher conversion rates are not necessarily the most profitable ones(Ghose & Yang, 2009).

2.3. Research Framework and Hypotheses

This research framework for explaining consumers' searching behaviour in their getting information or knowledge on the base of search engine incorporates manipulated variables from reality (see figure 1). Previous studies have emphasized the importance of placement (d'Astous & Seguin, 1999; Wiles & Danielova, 2009). Prior researches also highlighted the importance of ranking in the top in attracting consumers to click into (Barnard & Ehrenberg, 1990; Fine, 1980). Therefore, the placement and product type are hypothesized to impact choice.

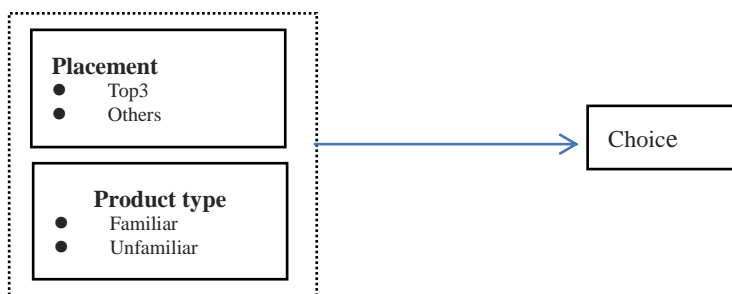


Fig. 1: Research Framework

Consumers in searching information via search engine always adopt different information processing strategies (Wirth, et al., 2007), which base on consumers previous product knowledge, decision and judgment involvement as well as their information processing ability (S Chen & Chaiken, 1999; Serena Chen, et al., 1999). In the lens of heuristic and systematic model, we can identify that in the searching process, consumers may process the information by both heuristic and systematic information processing strategy depending on international and external conditions. We assume that all the participants in our study are in high involvement because they are asked to do so. Thus, product knowledge and ability to process information, likely as the only variables can influence consumers' cognitive process in adopting information processing strategy. Drawing from the theoretical lens of HSM, for the products consumers are unfamiliar with, consumers cannot judge its quality on the base of the information presented in the searched items, as a result, it is more likely for them to process this information resorting to cues and do a relatively cognitive effortless superficial heuristic information processing strategy. Moreover, in this study, searched outcomes list in the website, people always consider that the former the information presented, the more believable and truth of the information. Thus, consumers may make their judgments depending on this cue and thus the top listed information is preferred by them. Thus, we hypothesize that:

H1: Consumers are more likely to click the searched items by sequence for unfamiliar product searching.

However, for the products consumers are very familiar with, facing with the searched outcomes, consumers are likely to process this information with systematic process strategy as they have this ability. Take digital camera as an example, when a relatively expert who want to buy this product and asked to search the product-related information by google.com or baidu.com, he will scan the searched outcomes as his previous knowledge and do some processes,

and as a result, choose the most perceived useful item to make a click. Meanwhile, they are very averse to click top items as top items are always for advertisements. Therefore, we can elicit the following hypothesis:

H2: Consumers prefer to click the item not belonging to the top items for the familiar product searching.

3. Research Methodology

A quasi-experiment was conducted to investigate consumers' freely information searching and learning behavior. The placement in the experiment was operationalized as top 3 and others, and product type we manipulate this variable as familiar and unfamiliar product types. We measure the effect with coding results of the experiment.

3.1. Subjects and Incentives

One hundred subjects were recruited from the undergraduate student population of a large public university. Participation in the study was voluntary. To encourage participation, students were given a cash reward. Their average age was 21 years, and 60 percent were female. Twenty experiment sessions were conducted over four days with five sessions per day in an electronic commerce laboratory with 40 identical PCs connected to the Internet. Aside from the monetary incentives for participation, the subjects were also given an opportunity to win a lucky draw to buy anything in the supermarket in the school campus with the in the required amount.

3.2. Pre-Test and Experiment Product

Before the actual experiment, we conducted a pre-test to ascertain the product choosing. We chose sixteen products which including clothes, digital camera, notebook, frisbee and others. We randomly chose 20 students (10 male and 10 female) to participant the pre-test, and they were asked to choose two of them, the ones they are most familiar with as well as incline to buy in the later future. After they submit the papers, they were again asked to choose the other two they are most unfamiliar from the rest of fourteen products. They were thanked with a souvenir and debriefed. After the pre-test, we choose four products, including two of them they are most familiar and the other two they are most unfamiliar. Cell phone was chose as the most familiar product by 18 students, while headset was chosen by 12 students as one of their choice as the most familiar product. Meanwhile, the other two products, frisbee (16 students chose)

and fish pole (11 students chose) as the most unfamiliar products. Thus, we chose these products as our experiment products because the participants in the pretest are the same as the ones who attended the actual experiment.

3.3. Independent Variable

Searched items placement: companies always consider that top 3 are the best placements for their advertisements in the searching outcomes, thus they are often pay twice even more than the others to bid these three placements. In line with the ordinary thinking, in our study, we also separate all the placements into two parts, the top 3 and others. Note that, all the placements in our consideration are in the first searching page.

Product type: researchers always give different criteria to compartmentalize products, a seminal division is provided as searching and experience products by Nelson (Nelson, 1970, 1974), utilitarian and hedonic products by Batra et.al (Batra & Ahtola, 1991; Batra, Ramaswamy, Alden, Steenkamp, & Ramachander, 2000), durable product and easily-consumed products product (Bain, 1942; Stone, 1954). Even though there are amount of classifications of products, there is no absolutely one-side product (e.g., search product, utilitarian product), every product has its bilateral features in it. Take camera as an example, from the definition of search vs. experience product, researchers identify an experience good as one in which it is relatively difficult and costly to obtain information on product quality prior to interaction with the product; key attributes are subjective or difficult to compare, and there is a need to use one's senses to evaluate quality. While for a search good, it is relatively easy to obtain information on product quality prior to interaction with the product; key attributes are objective and easy to compare, and there is no strong need to use one's senses to evaluate quality. Thus, we can conclude that camera is more incline to search product because we can understand its quality just from its attributes, like number of phases, focus and others before experience it even though maybe there are someone could argue that I can't sure the quality of the camera before I use it. Although many products involve a mix of search and experience attributes, the categorization of search and experience goods continues to be relevant and widely accepted (Huang, Lurie, & Mitra, 2009). Products can be described as existing along a continuum from pure search goods to pure experience goods. In present study, we will step into a new path that compartmentalize from consumers' experiences, we argue that we can category some product into the customer-familiarity products (e.g., cell phone), while others are customer-unfamiliarity products (fish pole).

3.4. Dependent Variables

We take the consumers' actually choice as dependent variable to investigate their searching behavior and plan to code what they think to support our hypotheses.

3.5. Procedure

The experiment was conducted in an electronic commerce laboratory. After the participants coming, they were asked to sit in a computer with camera and Morae software in order to record the whole screen and subjects' emotions. At the start of each experiment session, the subjects were told that all the instructions were provided by paper and that they should read the instructions carefully and complete the experiment independently. Next, they were told the assignment that everyone participating this experiment who should image they want to buy four products tomorrow and have to get some information and knowledge about these products now. The information they were going to get related to the products being pretested (i.e., fishing pole, earphone mic, cell phone and fresibee). Moreover, they were also told that they have to search the information just via two most famous search engines (i.e., Google and Baidu). Meanwhile, they could search these four products randomly, with no certain sequences. Participants were debriefed and thanked with the award after they finish the experiment. All the experiment sessions were administered by two same experimenters following a standard protocol.

4. Results

The protocols were analyzed by two independent research assistants who were blind the research hypotheses and participants' group memberships. There were only valid 95 data because the rest 5 Morae files could not be opened with the software (Morae Manager). Mean (unfamiliar) =2.76, Mean (familiar) =6.16, $F=103.873$, $p=.000 < .001$. The first hypothesis posits that consumers are more likely to click the searched items by sequence for unfamiliar product searching. As predicted, the result indicts that for unfamiliar products, consumers do click the searched items ranked relatively top (mean unfamiliar =2.76). As regard to the second hypothesis, which posit that Consumers prefer to click the item not belonging to the top items for the familiar products, is also supported by the analytical result (mean familiar =6.16). Further, we can conclude that the free searching behavior of consumers is significantly different under the provision of familiar and unfamiliar products ($p < .001$).

5. Discussion

The findings of this study largely validate and testify the proposed research model under the explanation of heuristic and systematic information process theory. The findings show that consumers are prone to click the searched items with sequence when they are asked to inquire unfamiliar product information; while they prefer to click more rich content items when they are asked to inquire familiar product information, moreover, the top 3 items are clicked with a very low probability. Thus, our study enriches the consumers' behavior in search engine information seeking, and the following are research and practical implications.

5.1. Research Implications

In recent years, there has been an increased interest in studying the key word search marketing. It is generally agreed by various disciplinary researchers that the search engine advertisement investments plays an important role in impacting consumers' online searching and clicking behavior and attitude toward the companies (Ghose & Yang, 2009; Seda, 2004). Our research contributes to this literature in following important areas. First, although it is generally acknowledged that consumers click behavior are impacted by different placements of the searched items (Croft, Metzler, & Strohman, 2009; Gandal, 2001), there is little research into investigating this effect are also affected by different product type. Second, this study applies the heuristic systematic information processing theory to examine consumer information processing behavior and provides evidence of match between placement and product in this context. Previously, heuristic and systematic information processing was used extensively in people cognitive process domain of traditional marketing and organizational researches (Meyers-Levy & Maheswaran, 2004), as well as information systems research (Majchrzak & Jarvenpaa, 2010). However, it is scarce used in consumers' information processing in search engine marketing literature, especially investigating the effect moderated by different product type. The third contribution of this study is conducting the study under uncontrolled environment to investigating the free cognitive process, which guides the future researches to apply identical approaches to identify more reality.

5.2. Practical Implications

Previous research has found that search engine advertisements are very concerned by most of the current companies who want to promote their own image and sell products. Meanwhile, there are also other studies investigating how to invest the advertisements in search engine platform. However, yet there is little researchers focus their attention on consumer behavior perspective, and a large quantity of companies, especially SMEs (small and mediate enterprises) still do not know what the actually behavior of consumers in their searching process. The results of current study provide a very different lens of search engine advertisement investments for companies, especially the companies which are not so famous or at the beginning of their way. This is very important for companies who make decisions about how to invest their advertisements in search engine market combining consumers searching behavior and their own product type.

6. Conclusion

This study examined the role of searched items' placements in influencing consumers' different attractiveness and choice with depending on product type. Utilizing the heuristic and systematic model as the theoretical framework, our analysis suggests that consumers' information searching behavior is influenced by both the information presented placement and the product type. By matching the placement and product type of searched outcomes, the choice people click the top items listed in the website for the product they are not so familiar with because they process the information with a heuristic information processing strategy as the limitation of process ability and knowledge. However, consumers prefer to click the searched items they are believable wherever they placed (i.e., top and other placements).

Future research can build on the finding of this study in other settings using different intervening variables. For an example, they can examine whether different famous level searching engine (e.g., Google vs. non brand) can cause different searching behavior in order to give suggestions to those new growth companies. Moreover, the effect of other characteristics, such as the degree of attractiveness of the searched items adding this study, can be investigated. The predictive power of the heuristic and system information processing model on other searching behavior caused by information presented can also be further explored. Continuing research will contribute to a better understanding of the role of the consumers' searching behavior in their searched item choice.

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