Keyword advertising is not what you think: Clicking and eye movement behaviors on keyword advertising

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ABSTRACT

This study examined the behavior of online searchers in relation to keyword advertising according to the theory of advertising avoidance. A total of 451 volunteers were recruited for an experiment. A computer program and an eye-tracking device were used to measure the number of clicks and eye movements. The findings show that the number of clicks for to obtain organic search results is higher than that for keyword advertising. There is no difference in observation count between the area of keyword advertising placed above the organic search results and the area of the organic search results themselves. However, observation counts for the organic search results and keyword advertising placed above the organic search results are higher than for the keyword advertising placed at the right-hand side of the page. Searchers seem to spend the longest observation time on the organic search results, then on the keyword advertising placed above the organic search results, and finally on the keyword advertising placed at the right-hand side of the page.

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1. Introduction

With the rapidly evolving Internet technologies, people rely on the Internet to search for and find information. About 70% of Internet users use a search engine each day (Jansen 2010). Along with the growing use of search engines, keyword advertising has become popular among advertisers and is now one of the fast growing types of online marketing (Search Engine Marketing Professional Organization 2009).

Keyword advertising is a premium service offered by such search engines as Google, Yahoo! and MSN. The service assists advertisers in choosing specific keywords to include in their advertising text. When online searchers use these keywords to search for information, related advertising appears on the *search engine results pages* (SERPs). This type of advertising, which is also called *sponsored advertising, paid results* (Gauzente and Roy 2012), *sponsored links* (Naldi et al. 2010) or *paid placement* (Chen and He 2011), usually appears at the top, bottom, or in the column to the right of the organic search results area. Because keyword advertising can satisfy a searcher's information needs, it often generates higher advertising effectiveness (Yoo 2009, Kim et al. 2012) than do non-targeted banners.

Although many studies have discussed what type of advertising creates better advertising effectiveness, some researchers have proposed that people avoid looking at advertising. Especially in the online world, the Internet provides users with environments such as social networking sites, online games, news, and search engines that users generally enter with specific goals in mind (Duff and Faber 2011). When online advertising appears in high goal-oriented environments, it obstructs the user's task, interrupts their focus, and even terminates their viewing of the content, thus causing a negative attitude toward ads (Speck and Elliott, 1997, Cho and Cheon 2004). To decrease the interference from so much ad content and to eliminate their exposure to ads, online users adopt behaviors such as ignoring or skipping the ads. This type of behavior is called advertising avoidance (Speck and Elliott 1997, Duff and Faber 2011).

Because the behavior of searching online is a highly goal-oriented task, advertising avoidance may appear obvious. When searchers enter the search engine results pages, they may purposefully focus on information that appears in organic search results to avoid keyword advertising interference. Hence, the purpose of the present study is to verify that consumers ignore keyword advertising when searching online. We observe two modes of advertising avoidance – *physical ad avoidance* and *cognitive ad avoidance* – in both the sponsored search results and the organic search results on the search engine results pages. We propose that searchers are more inclined

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Table 1
The results of clicking on the search engine results pages (SERPs).

Product	SERPs		Number of clicks	χ^2	Degrees of freedom	*p*-Value
iPhone	Organic search results	AOI 2	149	116.578	1	0.001[*]
	Sponsored search results	AOI 1	12			
		AOI 3				
Google Glass	Organic search results	AOI 2	122	88.007	1	0.001[*]
	Sponsored search results	AOI 1	13			
		AOI 3				
Lytro Camera	Organic search results	AOI 2	146	121.090	1	0.001[*]
	Sponsored search results	AOI 1	9			
		AOI 3				

[*] *p*-Value < 0.05

to click on organic search results than sponsored search results as physical ad avoidance, and that they will take no notice of sponsored search results as cognitive ad avoidance. Thus, the observation counts and observation lengths of viewing keyword advertising are expected to be lower than those for the organic search results.

This study conducted a laboratory experimental method to understand the behavior of clicking and eye movement on keyword advertising. After recruiting participants for the experiment, we instructed them to search for information using a mimic Yahoo! search engine for the assigned task. Participants' click-through behaviors were recorded by the computer program, and the browsing route over the search engine results page was recorded using an eye-tracking device.

Differing from previous keyword advertising related research, the following are the unique findings of this study. First, many previous studies on keyword advertising effectiveness compared keyword ads with only other types of online ads. This study focuses on the media context of the search engine results pages in which keyword advertising is embedded and compares the difference between sponsored search results and organic search results. Within the context of the search engine results pages, we can precisely understand consumers' true response to keyword advertising. Second, previous studies have argued that the click-through rate on keyword advertising is high. However, advertising avoidance behavior causes the keyword advertising click-through rate to be lower than that of organic search results. Finally, advertising avoidance is usually measured by self-reporting, which easily lends itself to bias and distortion as the advertising avoidance behavior is a subconscious process. This study provides more precise and complete results by objectively recording the searchers' clicking behaviors and the paths of their eye movements while browsing with system programming and an eye-tracking device.

2. Theoretical background

2.1. Keyword advertising

Keyword advertising is one mode of *search engine marketing*, which is a form of Web advertising that companies use to promote their products and services on search engine results pages (Jansen and Schuster 2011). Search engine websites provide slots to advertisers who are willing to purchase space for placing keyword advertising. Advertisers can bid on key phrases for the product or service they provide. When searchers enter a query containing the specific key phrase, ads related to the key phrase will display on the search engine results pages (Jansen and Schuster 2011, Naldi et al. 2010).

There are two types of results on the search engine results pages, organic search results and sponsored search results (Battelle 2005, Naldi et al. 2010, Gauzente and Roy 2012). *Organic search results*, also referred to as *editorial results*, are generated through the search engine's basic searching and indexing activities. *Sponsored search results*, where keyword advertising is placed, appear because the advertiser has a paid agreement with the search engine company priced according to the number of previously defined keywords used (Gauzente and Roy 2012). Sponsored search results generally appear at the top, bottom, or to the right-hand side of the organic search results and are labeled "sponsored results" in the header.

Keyword advertising results are based on the search phrases that consumers enter in the search engines to find what they want. Accordingly, keyword advertising is understandably more precise in exposing product information to potential customers than are other types of advertising. Furthermore, the payment mechanism of keyword advertising has better measurability (e.g., pay-per-click), as advertisers pay only when a user clicks on an ad. Thus, it is not surprising that keyword advertising has come to dominate online advertising (Gopal et al. 2011).

Advertisers can buy keyword advertising through the search engine system at Google AdWords, Microsoft AdCenter, and Yahoo! Search Marketing. Advertisers bid on keywords or keyword phrases and then pay the accepted bidding price to the search engine for each click that brings an online user to their landing page. This payment mechanism is called *pay-per-click* and also *cost-per-click* (Jansen and Schuster 2011). The main advantage of pay-per-click is that advertisers can easily track the input and output, namely, every payment that the advertiser inputs should reflect on advertising performance. However, it comes with an inherent disadvantage – to increase the advertiser's payment, automated agents of competitors may click the ad incessantly. In spite of this malicious behavior, the PPC mechanism is still popular among advertisers and commonly used on search engines (e.g., Google and Yahoo!) (Naldi et al. 2010).

With respect to advertisement ranking, bid price and quality score are the two factors that influence slot position. The search engine system provides the advertisers who bid the highest price the most attractive sponsored advertising slots at the top of the web page. Accordingly, click-through rates and slot position have a positive relationship. That is, the higher the slot position, the higher the click-through rates and the better the revenue (Naldi et al. 2010, Huang and Kauffman 2011). Thus, if advertisers want their advertising to be positioned at the top and above the organic search results, the bid price must be enhanced (Naldi et al. 2010). Quality score also influences slot position. This score is used to measure how relevant the keyword is to the ad text and to the user's search query (Jansen and Schuster 2011). The higher the quality score, the stronger the advertising relativity and the better the performance of the search engine. Thus, to maintain and improve the quality of ads listed on their sites, search engines place keyword advertising with high quality scores at the top of the web page yet charge a lower fee as a reward.

Keyword advertising is receiving increasing attention from academic researchers. Of the previous studies on online