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Usability News is a free web newsletter that is produced by the Software Usability Research Laboratory (SURL) at Wichita State University. The SURL team specializes in software/website user interface design, usability testing, and research in human-computer interaction.
Barbara S. Chaparro, Editor

Are Users Blind to Text Advertisements?

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Summary. This study examined whether the phenomena of banner blindness also applies to text advertisements. Twenty-five participants completed search tasks on a mock travel website. Search targets were distributed across content and advertising regions. Results indicate that participants are blind to text advertisements, particularly when they are located on the right side of the web page. Users actively ignore text advertising unless it is required to complete their task or it is perceived as not being advertising.

INTRODUCTION

This is a summary of an article recently published in Volume 6, Issue 3 of the Journal of Usability Studies. For the complete article, please visit "Text Advertising Blindness: The New Banner Blindness?"

Previous literature has indicated that a mixture of factors contribute to advertising blindness, particularly with web banners. In the past, users have been less successful when completing tasks that rely on advertising (Benway, 1998). Participants recalled fewer details about areas or elements associated with advertising (Pagendarm & Schaumburg, 2001). Advertisement location has been shown to greatly affect the extent of advertising blindness (Albert, 2002; Benway, 1998; Burke, Hornof, Nilsen, & Gorman, 2005; Granka, Hembrooke, & Gay, 2006; Mosconi, Porta, & Ravarelli, 2008). Participants have exhibited blindness to advertisements placed to the right of the content more than other locations on a web page (Buscher, Dumais, & Cutrell, 2010; Cooke, 2008). Areas that fall outside of the content region or that are associated with advertising, such as the region to the right of the content, received fewer fixations (Buscher et al., 2010; Granka et al., 2006; Mosconi et al., 2008). The degree of blindness has been affected by characteristics of web elements, where elements resembling banners are actively ignored except for the most salient banners (Burke et al., 2005). The type of task users complete, ranging from simple browsing to knowing the exact terms they are supposed to locate, has been shown to affect the extent of blindness as well (Pagendarm & Schaumburg, 2001; Riegelsberger, Sasse, & McCarthy, 2002; Yesilada, Jay, Stevens, & Harper, 2008). Directed tasks may lead to fewer fixations and shorter task durations (Buscher et al., 2010). Tasks with increased cognitive workload may lead to larger fixation durations (Rayner, 1998). Exploring this issue further, particularly with eye-tracking, is important because text advertising is becoming more prevalent as the highest revenue generating form of advertising currently used on the web.

Purpose

The purpose of this study was: (a) to establish whether text advertisements are susceptible to user "blindness" and (b) to determine the effects of search type (exact or semantic) and target location on the degree of blindness.

METHODS

Participants

Twenty-five participants (10 males and 15 females, mean age 23.5 years, SD 6.17 years) had Internet and computer experience, with the majority reporting at least 7-14 hours of computer use per week.

Materials

Website stimulus

A website was created for the study consisting of 29 web pages organized into seven categories. The overall theme of the website was to provide information about travelling to Hawaii and its six major islands. Each page of the website had a similar organizational structure. The center of the web page consisted of a content section that included two text advertisements at the top. Immediately to the right of the center area was a list of 5-6 text advertisements. The text advertisements were generated from Google.com searches for Hawaiian travel related topics. See Figure 1 for an example web page.

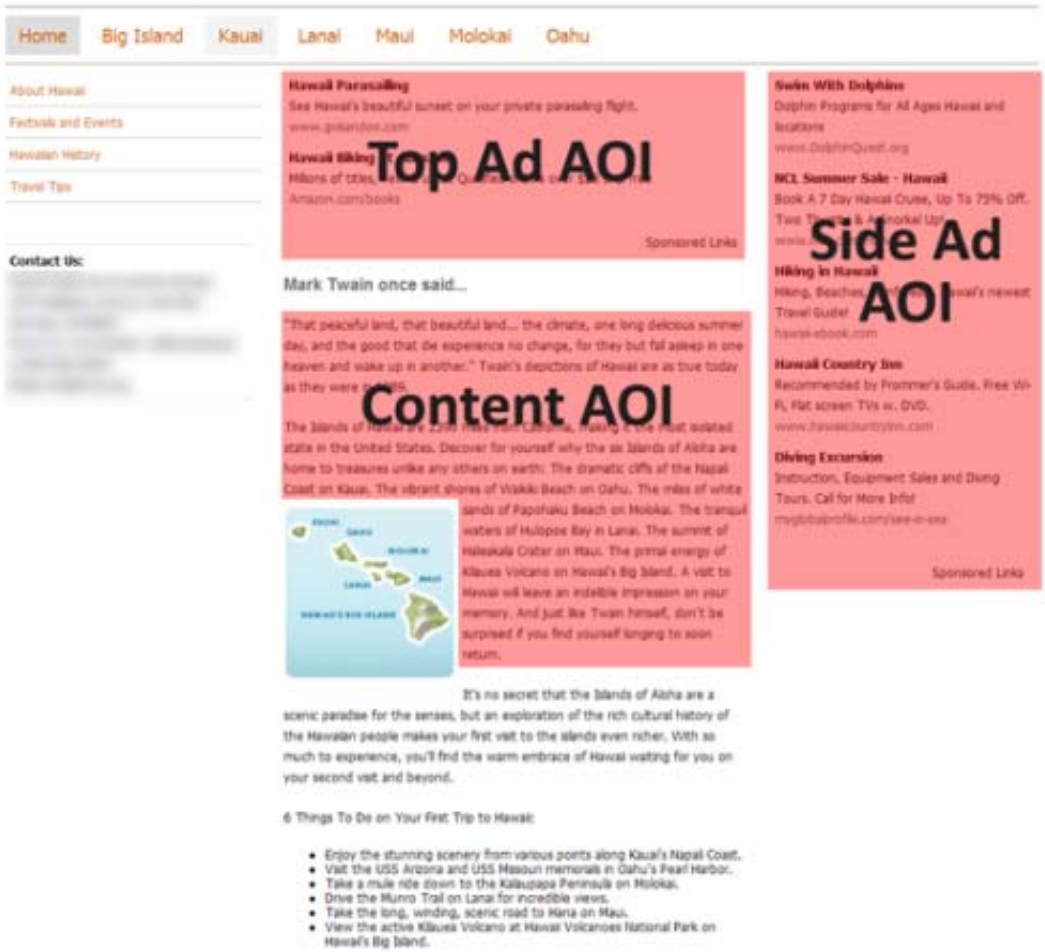

Figure 1. An example of a web page with the Content AOI, Top Ad AOI, and Side Ad AOI, the target was always located above the page fold.

Tasks

Two types of search tasks were used in the study: exact and semantic searches. Exact searches directed participants to find an exact target in the website. Semantic searches instructed participants to find a target within the website with information semantically related to the goal. Overall, participants completed 16 target-present search trials: eight target locations in the Content section, four target locations in the Top Ad section, and four target locations within the right Side Ad section. Within the content of the page, the target location was positioned either in the first or second paragraph, which were always located above the page fold.

Eye-tracking apparatus

A Pentium IV-based PC with a 96 dpi 17" monitor with a resolution of 1280 by 1024 pixels integrated with the Tobii 1750 eye-tracking system running at 50Hz was used to capture eye-tracking measures. Tobii StudioTM software was used to record and provide fixation and AOI eye-tracking data of the participants. Custom software was created to analyze and generate summary statistics from the eye-tracking data collected from Tobii StudioTM.

Questionnaires

A background questionnaire was used to collect demographic information and Internet/computer experience.

Procedure

Participants each completed eight semantic searches, eight exact searches, and one target absent search in random order. The study was portrayed and advertised as a website evaluation study to prevent participants from determining the actual purpose. Participants were calibrated on the Tobii 1750 eye-tracker using a nine-point calibration process. If the participant was not able to calibrate accurately, they were dismissed from the study. All participants completed the practice trials first. The order of the remainder of the tasks was counterbalanced across participants. All trials were limited to a maximum duration of 105 seconds (determined through pilot testing as a reasonable amount of time to find the target). After the trial was completed, participants were asked to provide a task difficulty rating using the 5-point Likert scale. In addition, participants were asked to recall the overall web page design used within the website and sketch a wireframe representation on paper of the pages they visited during their tasks.

RESULTS

Task Success

Participants were most successful at identifying targets in the Content AOI (82%), followed by the Top Ad AOI (52.9%), and then the Side Ad AOI (36.8%). Analysis of search type indicated that participants were more successful in exact searches (67%) than semantic searches (60%). The results of both Chi-Square tests indicate that target location, but not search type, has an effect on the success of the trial. See Figure 2 for more details.

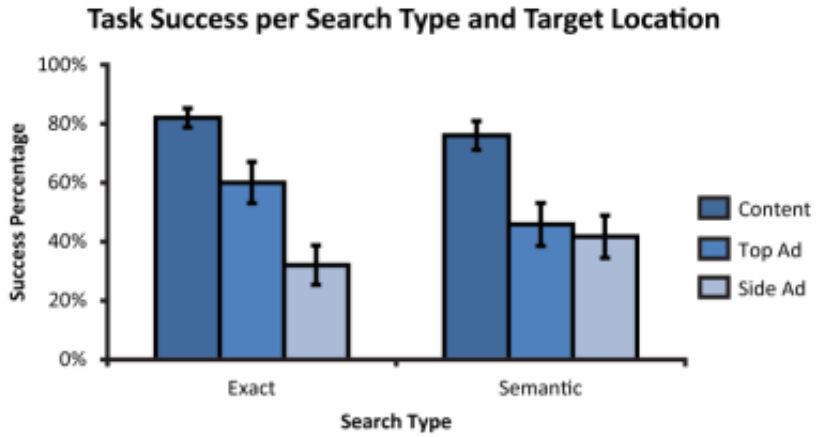

Figure 2. Percentage of task success for search type and target location, error bars are + / - one standard error.

Participants successfully located more targets in content than top and side advertising regions.

Ad Recall

If one considers the implication of text advertising blindness to be that users ignore areas resembling text advertising, ad recall should be in sync with the task success results. Overall, 12 of 25 participants recalled advertisements located in the Top Ad AOI. When ads were not recalled, participants typically reported that the Top Ad AOI contained information related to the content, such as related links. Twenty-four of 25 participants reported that the Side Ad AOI contained advertisements.

Task Duration

If participants were experiencing text advertising blindness, task duration for search tasks where the target information was located in advertising areas should have been longer than non-advertising areas. Results showed that exact searches in Content target trials were the quickest and exact searches with Side Ad targets were the slowest (See Figure 3). There was little difference in task duration across target locations for the semantic searches.

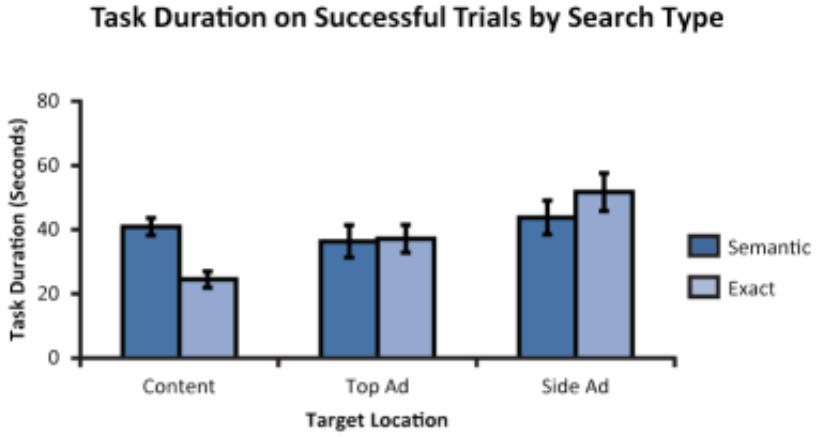

Figure 3. Task duration in seconds for search type and search target for successful trials, error bars are + / - one standard error.

Participants located targets quickest during content target searches, but slowest during side ad target searches.

Fixation order by AOI

If an area on a web page was related to advertising and users actively ignored it, then it was expected that those areas would be fixated after the main content area of the page, if at all. The rank orders of AOIs in successful trials indicated that the Side Ad AOI was viewed after the Content and Top Ad AOIs (See Figure 4). This supports the notion that participants fixated on regions unrelated to advertising before advertising related regions. Additionally, the rank orders of AOIs in unsuccessful trials indicate that the Side Ad AOI was viewed after the Content and Top Ad AOIs, as in the successful trials analysis.

Whether top ads were considered content was also examined. If the Top Ad region was perceived as being related content, participants began their searches in this region. In comparison, if they considered it advertisements, they started searching in the true Content region and fixated more on the Content AOI.

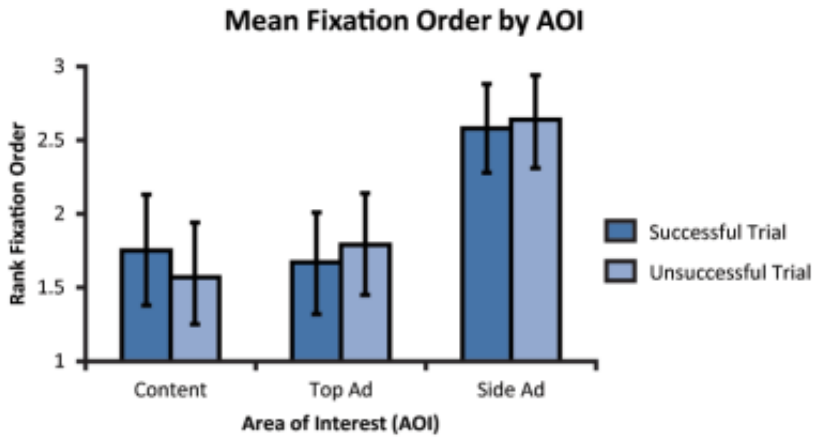

Figure 4. Mean rank fixation order for successful and unsuccessful trials by AOI, shorter bars indicate the region was fixated earlier. For both successful and unsuccessful trials, the Side Ad AOI was viewed after the Content and Top Ad AOI. Error bars represent 95 percentile Bootstrap Confidence Intervals.

DISCUSSION

In this study, target information was located either within the content of the web page, in a top text ad region, or in a side text ad region. Participants were most successful when the target was located in the Content (82%) versus when it was locatd in the Top Ad location (52.9%), or the Side Ad location (36.8%) The high failure rates of locating targets within the advertising areas suggest that users tend to ignore areas that are related to text advertising. Several metrics, including task success, task difficulty, task duration, fixation count, fixation duration, and AOI rank order support the notion of text advertisement blindness.

If participants were ignoring advertisements, it would be expected that the Top Ad AOI would be searched after the Content AOI was scanned and few differences in task duration would be noted. Instead, rank order analysis of first fixations in AOIs indicated that there were no differences in rank for Content and Top Ad AOIs. Perhaps a more plausible explanation for the observed behavior is that participants treated the Top Ad AOI as part of the content resulting in a less thorough search of the region. This seems likely given less than 50% of participants reported recall of advertisements in the Top Ad AOI, while 92% of participants reported advertisements in the Side Ad AOI.

CONCLUSION

Text advertising is subject to the same “blindness” effects as banner advertising. Users actively ignore text advertising unless it is required to complete their task or it is perceived as not being advertising.

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