



The Effect of the Positioning of Webpage Banner Advertisements on Implicit and Explicit Memory

Diya Anna John¹ & Dr. Anuradha Sathiyaseelan²

Department of Psychology, Christ University, Karnataka, India

Abstract

The internet has become an important advertising medium for advertisers and publishers alike. However, declining click-through rates have led these professionals to question the effectiveness of webpage advertisements. Nevertheless, research shows that unclicked banner ads can also be effective, and so click-through rates may not be the best measure of effectiveness. Memory is one measure that could help in studying the effectiveness of banner ads beyond click-through. This study aimed to find if the position of webpage banner ads affects the implicit and explicit memory of brands. Its objective was also to examine whether there is a difference in explicit and implicit memory for each position of the ad presented. There were 4 groups in a random groups design. Participants in each group were shown slides consisting of webpages with one ad on each webpage, in one of four positions. Participants were instructed to read the article on the slides. An implicit memory word-stem completion task and a recognition (explicit memory) task were then administered. Statistical analysis showed that the top position of ads was most effective, and the right position was least effective in terms of explicit memory, but no significant difference was observed in terms of implicit memory. Explicit memory was significantly higher than implicit memory for each position. Implications and suggestions for further research are discussed.

Keywords: Webpage banner ad position, Advertising effectiveness, Implicit memory, Explicit memory.

Introduction

Over the last few decades, advertising has become an unavoidable part of everyone's lives. Advertising is defined as "a paid persuasive communication that uses non-personal mass media--as well as other forms of interactive communication--to reach broad audiences to connect an identified sponsor with a target audience" (Wells, Burnett, & Moriarty, 2002, p. 5).

With the economic slowdown, marketers have become increasingly concerned about the return on advertising investment. Effective ads are those that deliver the intended message and those to which consumers respond in the way the advertiser desired. In order to achieve this, the ad should be successful in attracting attention, sustaining interest and impacting attitudes or purchase decisions. (Wells, Burnett, & Moriarty, 2002).

In recent times, an increasing amount of money is being spent on Internet advertising. Expenditure on advertising globally had increased from a mere 1% of total advertising expenditure in 2005 to almost 7% in 2012 (GroupM, 2012).

Out of the different types of online advertising, this study deals with webpage banner ads. The Interactive Advertising Bureau defines a banner ad as "a graphic image or other media object used as an advertisement" (IAB, n.d.).

The placement of ads in different positions can be chosen by the website based on their individual requirements, but some common standards are generally used. These positions include ads within the content of the website, within the heading (on top), on the left side, on the right, and below the fold (at the bottom) (Howe, 2010).

A commonly used method to measure the effectiveness of a webpage banner advertisement is finding the number of clicks on a banner in relation to the total number of displays. In addition to click-through rates, as this ratio is called, eye-tracking studies have been used to study the effectiveness of banner ads in different positions.

A study using click-through rates showed that ads that are located at the lower right corner of the webpage, close to the right scroll bar, generated a 228% higher click-through rate than ads at the top of the page (Doyle, Minor, & Weyrich, 1997). It can be pointed out, however, that it is possible that most participants tended to scroll down the page and so had a higher likelihood of clicking the ads close to the scroll bar and those at the bottom of the page, even if this was by accident.

It is clear that there are several problems with some of these existing measures of webpage banner effectiveness. The average click-through rate is now only between 0.1 and 0.2 percent (Goodrich, 2007). Consumers have been found to ignore these ads, a phenomenon referred to in advertising literature as "banner blindness" (Benway, 1999). In Benway's research, it was found that banners that were located higher on the webpage and further from other links were avoided more often than those lower on the page and closer to other links. In addition, the extent of banner blindness was the most when clicking the banner was not necessary for the completion of some task. Cho and Cheon (2004) further theorized that perceived goal impediment would also influence banner avoidance. If online consumers perceive the ads to be a barrier or impediment to their goals, they would avoid them. They suggest that context-congruent ads and less intrusive ads could help solve this problem.

As a result of the low click-through rates, less than 10% of the top management of businesses believe that banner advertising is effective in attracting new customers (Forrester, 2006). The consequence of this is that internet firms like Yahoo and DoubleClick that obtain a major portion of their revenue from banner ads have been facing problems. To

compensate for the limitations of conventional measures, industry experts suggest the consideration of other measures of ad effectiveness rather than relying on click through (Mitchell & Valenzuela, 2005).

Ads that are not clicked could also have an influence on consumers. For instance, research shows that mere exposure to Internet ads can result in positive attitudes towards brands even if consumers cannot recognize having seen the ads previously (Janiszewski, 1988). Other research has shown that ads that have not been clicked have both direct effects on the perception of the brand that has been shown in the banner ad, and indirect effects on judgements about competing brands (Mitchell & Valenzuela, 2005). In fact, mere exposure to a brand name or product package can result in a more favourable attitude towards the brand, even for ads in other media such as print ads (Janiszewski, 1993).

The position of banner ads on webpages has been shown to affect memory. For instance, research shows that whether advertisements are placed to the right or left of text makes a difference to attention and later memory of the ads (Janiszewski, 1993; Goodrich, 2007).

This is based on the concept of hemispheric lateralization. This is the phenomenon in which the right and left brain hemispheres each have different processing units for different types of information. In general, under hemispheric processing the right side of the brain is more compatible with visuospatial information and is better able to represent pictorial stimuli, while the left hemisphere can better represent verbal and integrative stimuli. Thus the location of different types of material in the visual field, i.e. whether it is placed on the right or on the left, determines which hemisphere it is processed in. It was thus found that picture ads on the left were more effective than those on the right, and text ads on the right were more effective than text ads on the left (Janiszewski, 1988).

The matching activation hypothesis also aims to explain the effect of position on advertising effectiveness. It states that when one hemisphere is activated by its corresponding type of information or material (picture or text for right or left hemispheres respectively), the other hemisphere engages in increased processing of secondary material. Thus when one hemisphere is engaged in processing of the information that is in focus, the other hemisphere engages in processing of the non-focal material. Therefore, when brand names or advertisements are not consciously attended to, but are placed in an optimal position such that they can be processed by the unused hemisphere, this incidental exposure may result in increased unconscious processing, which could in turn influence consumer attitudes (Janiszewski, 1990, 1993).

With reference to the effectiveness of ads in the top and bottom positions, research shows that placement of ads in the lower part of the page (lower visual field) significantly increases attention to those ads. In addition, it was found that the format of the ad (rectangular or leaderboard) has a direct effect on aided recall, attention and brand attitude (Goodrich, 2010).

As is evident, most previous research has focussed on the effect of positioning of advertisements on explicit memory retrieval. This involves the deliberate attempt to think back to when the ad was presented in order to recall brand information. Studies have shown that the time delay between the exposure to the ad and the memory test, as well as divided attention while perceiving the ad and other aspects of the stimulus may influence explicit memory, acting as intervening variables (Shapiro & Krishnan, 2001).

Recent research has found, however, that banner ads may influence consumers unconsciously, and this could strongly impact later purchase decisions (Yang, Roskos-Ewoldsen, Dinu, & Arpan, 2006). Implicit or indirect measures of memory can thus overcome the shortcomings of the more conventional measures such as recall, recognition and click-through rate (Yoo, 2007).

Implicit memory effects occur when previous experiences or exposure to a stimulus (e.g. a banner advertisement) facilitates our performance on later tasks without the individual being aware of its influence or remembering the previous experience (Posner & Snyder, 1975).

Since online consumers are usually incidentally exposed to banner advertisements while their main goal is to read the content of webpages, it is crucial to study whether implicit memory prevails under these conditions of divided attention, and if so, use them as measures to evaluate the effectiveness of advertisements, rather than relying completely on explicit memory measures. Previous research has shown that that implicit memory endures even when there is a time delay or in conditions of divided attention, while explicit memory is adversely affected (Shapiro & Krishnan, 2001). Thus, the effects of advertisements on implicit memory could have more implications and applications for advertisers. Since there is a gap in literature with reference to the effect of banner ads on both implicit and explicit memory, the present research aims to fill it.

Research using the hemispheric lateralization principle and the matching activation hypothesis has focussed on the effectiveness of right and left positions of banner ads in terms of memory. There is not much research with reference to the effectiveness of top and bottom positions of ads in terms of brand name retention in memory. Research on the effectiveness of the top and bottom positions using measures other than memory has been inconsistent. The effectiveness of top and bottom positions, along with left and right positions, will be covered in the present study.

Method

Hypotheses

H1: There is no difference in explicit memory of the target brands based on the position of banner ads.

H2: There is no difference in implicit memory of the target brands based on the position of banner ads.

H3: (a) There is no difference between explicit and implicit memory for position A (top); (b) there is no difference between explicit and implicit memory for position B (right side); (c) There is no difference between explicit and implicit memory for position C (bottom); (d) there is no difference between explicit and implicit memory for position D (left side).

Research Design

A quantitative, experimental design was used in which the position of the ad was manipulated. There were 4 positions of the target ad (top, right side, bottom and left side), and therefore 4 groups of participants, each presented

with one position. The two dependent measures were a) implicit memory of the target ads and b) explicit memory of the target ads.

Population and Sample

The sample was composed of 80 (40 male, 40 female) individuals in the 18 – 24 age-group. There were 4 groups, each group having 20 participants. Participants were either currently pursuing graduation or had graduated from a recognised university. Participants were either studying in an institution or employed in an organisation. Purposive sampling was used since this was the most practical and convenient option, given the time constraints and the nature of the experimental design.

Operational Definitions

The primary concepts were defined by the researcher for the purpose of the study as follows:

Webpage banner advertisement. A webpage banner advertisement is static graphic image used as an advertisement on a webpage.

Implicit memory. It is that form of memory in which previous experiences facilitate the performance of a task without conscious intention.

Explicit memory. It is that form of memory that can be consciously recollected though intentional retrieval.

Tools

PowerPoint slides were designed to resemble webpages. Three such slides were designed for each of the 4 groups. Each slide (webpage) contained one fictitious ad. For each group, the ad was placed in the same position on all three sides. For instance, the ad was in Position A on all slides for the first group, while for the second group, the ad was in Position B on all slides. The steps involved in developing these stimuli were:

1. A self-constructed product preference questionnaire was constructed to identify products that individuals have neutral attitudes towards.
2. The questionnaire was approved by the research guide and administered to 20 individuals in the age-group 18-24.
3. Target ads were designed based on the products that were found to be neutral (books, watch and wallet).
4. The text content of the webpages was decided on. A short article on 'The Truth About TV' retrieved from <http://www.fullspate.net/archive/tv.html> was used.
5. The slides were designed using a webpage maker software.

Procedure

Participants were asked to sign the informed consent form.

They were then shown the slides one after another, each slide for 30 seconds. They were instructed to read the content of the website and were told that they would have to summarise the content at the end. After being shown all the slides, they were asked to summarise the content, as a distractor task to avoid recency effects.

Tasks. 1. For measuring implicit memory, a word stem completion task was prepared, on the basis of the target ads presented. . There were 8 word stems out of which 3 words were the target brand names presented in the experiment.

2. For measuring explicit memory, word recognition tasks were prepared on the basis of the target ads. In this task, the participants were presented with a list of 8 fictitious brand names and they were instructed to tick the 3 that they had seen previously in the slides.

At the end, participants were debriefed about the experiment and its purpose and any questions they had were answered.

Results & Discussion

With respect to explicit memory of the ads, one-way ANOVA showed that there was a significant difference between the four groups that were shown the ads in four different positions ($F(3, 76) = 2.697, p = 0.05$). Tukey HSD post hoc test shows that there is a significant difference between position A ($M = 1.7$) and position B ($M = 0.85$) in terms of explicit memory, with position B being significantly higher.

H1 was thus rejected since there was a significant difference in the explicit memory of the target brands based on the position of the ad. The results are in contrast to research by Goodrich (2010) which found that ads presented in the lower visual field are more effective than ads presented in the top positions in terms of aided recall (explicit memory). One possible explanation for this discrepancy is that the 2010 study used participants of a much older age-group (with a mean age of 51 years), whereas the present study used individuals between 18 and 24.

An explanation as to why the right side ads were ignored can be obtained from the matching activation hypothesis (Janiszewski, 1993). As this hypothesis states, when one hemisphere is being used to process the primary information on a page, the other hemisphere is used to process the secondary information. In the study, the primary information that was processed was the article, and the secondary information was the advertisement. Since the article consisted of text, the left hemisphere was already being utilized to process it, and only the right hemisphere was available for secondary processing. Thus, it may have been more difficult to process the right side ads, which needed to be processed by the left hemisphere, according to hemispheric lateralization.

In addition, as research on banner ad avoidance suggests, if participants had viewed the ads as a barrier to their goals, there are greater chances that they would have ignored them (Cho & Cheon, 2004). Since participants were involved in reading the article, they may have ignored the ads.

Ancillary observations and informal discussions with participants suggested that when the ad was in the top position, it caught their attention as they started reading the article from the top. When the ad was in the right position, they tended to ignore it, possibly because they were reading from left to right.

Although there was a significant difference overall in the explicit memory based on the position of ads, Tukey's post hoc test shows that the only significant difference was between the top and the right positions. The fact that there was no significant difference between the left and right side ads supports the findings of Goodrich's (2007) study that there was no difference in recognition of the left and right position ads on a textual page.

With regard to implicit memory, one way ANOVA showed no significant differences between the four groups ($F(3, 76) = 0.766, p > 0.05, n.s.$). Thus H2 is retained. This result is not in line with previous research indicating that implicit memory often performs better than explicit memory as a measure of advertising effectiveness, since ads are often processed without conscious attention (Shapiro & Krishnan, 2001; Yoo, 2007).

In fact, the average score of implicit memory was very low, with most participants not being able to perform the implicit memory task successfully.

However, it cannot be concluded that the ads were not processed at a non-conscious level at all. Informal discussions with participants after the experiment was conducted revealed that some participants felt that they had ignored the ads completely and they had "randomly ticked" brand names on the explicit memory task, but despite this, all the names they had ticked were correct. This shows that there was some implicit processing involved, but it was not reflected in the implicit memory task. A possible reason for this was that the instructions given to participants for the implicit memory task were to fill in the blanks with the first name of a person that came to their mind. Since a name of a person is very different from a brand name, this could have confused the participants and even if they had implicitly processed the brand names on the ads, they could not retrieve them during this task.

Null hypothesis H3 (a, b, c and d) was rejected since there was a significant difference between implicit and explicit memory for each of the positions of ads, as found out using paired sample t test ($t(19) = 7.193, p < 0.05$ for position A, $t(19) = 4.344, p < 0.05$ for position B, $t(19) = 5.877, p < 0.05$ for position C and $t(19) = 4.156, p < 0.05$ for position D). Explicit memory was significantly higher for all the positions of ads. The participants also reported to find the explicit memory task much easier than the implicit memory task. However, nothing noteworthy can be said about this result, since the extremely low implicit memory scores were the reason for this significant difference. As mentioned earlier, the low implicit memory scores could have been due to the inappropriateness of the implicit memory task.

There were some limitations in this study, and so generalization should be made with caution. These include the possibility of individual differences in motivation, reading speed and level of comprehension, and right handedness of participants interfering with the results. In addition, the webpages were presented on slides which were static. This aspect made them unlike real webpages where readers have the opportunity to scroll up and down a page, and to click and interact with the items.

The implicit memory task was especially difficult for participants since the instructions were to complete the word with the first name of a person that came to their mind. An alternative implicit memory task should be designed in further attempts to investigate this area.

The sample was limited to individuals in the age-group 18 to 24. As seen in previous studies, there could be age differences in the performance on memory tasks and so a similar experiment with an older population may have produced different results.

Since convenience sampling was used, the accessibility of the participants influenced their inclusion in the sample.

Due to these reasons, interpretations and conclusions should be made with caution.

This study has important implications for online advertisers as well as host websites. Since banner ads on the top of the page are noticed and remembered better, host websites should price this space higher, and price the ads on the right lower. Advertisers should seek to place their ads on the top of the page for maximum effectiveness and return on advertising investment, and avoid placing them on the right side.

It is evident that the position of an online banner ad influences its effectiveness, but there could be variations in this result depending on different variables such as age, gender, personality, socioeconomic background, handedness, etc. These differences should be investigated to gain a better understanding of which position of the ad is most effective in different situations. The study of incidental exposure to ads and unconscious processing should be expanded and researchers should find more effective ways of measuring this than traditional implicit memory tasks.

Conclusion

The results show that there was a significant difference in the explicit memory between the four positions of ads, and so H1 was rejected. Implicit memory did not differ significantly for the four positions, and so H2 was retained. There was a significant difference between implicit and explicit memory for each position of the ad, so H3 was rejected.

The internet has become one of the largest advertising mediums, and expenditure on online advertising runs into billions of dollars. Placing advertisements in the most optimal locations is thus crucial, so that the return on investment is maximized. This study concludes that the position of banner ads on a webpage determines whether they are remembered or not. Further research is necessary in order to fully understand precisely how advertising outcomes are affected by the position of online banner ads, focusing on attention and processing of banner ads, brand recall and purchase intention.

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