

A Short-Term Twofold Impact on Banner Ads

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Abstract. In light of the situation that banner ads are normally ignored by the target group, the question arises of whether the placement of such ads is reasonable. Referring to the mere exposure effect and priming mechanism, some impact can be derived, however, not always as desired. Depending on existing positive or negative predispositions toward a specific brand, the effect of such a banner can be either positive or negative. It seems that a banner from a negatively perceived brand triggers negative predisposition, hence leading to decreased brand choice.

Keywords: Mere exposure effect · Banner blindness · Priming · Implicit memory · Inattentional blindness

1 Introduction

Banner advertisements are familiar to everyone and are usually placed at the top or right lateral of diverse websites with the aim of attracting visitors' attention so that they click on the banner. Such a click increases the so-called click-through rate (CTR), a metric which is often used as an indicator for the success of banner ads [1–3]. Nevertheless, a discussion about the meaningfulness of the CTR as an indicator for success has been started in recent years [3, 4].

Within the scientific community, a common assumption is that when people visit websites, they usually have specific goals in mind – they behave in a goal-oriented way [5]. An example could be a person that is looking for daily news on a website of a newspaper. Since people automatically filter out all information that is not relevant for the achievement of a specific goal, banners will mostly be ignored and thus not consciously perceived. This effect is known as inattentional blindness, which leads to banner blindness [6–8].

Nevertheless, considering the approach of business practice, the CTR is often the sole indicator for capturing the efficiency of banner ads. Consequently, in order to optimize this CTR, the primary focus must be placed on drawing the banner's attention to the target group. It therefore seems obvious that animated instead of static banners are more capable of capturing the target group's attentiveness. Unfortunately, more or less the opposite holds true. Despite common arguments referring to motion effect theory, experimental studies reveal the contrary effects [4]. At this point, the question arises of what additional measures can be helpful to increase the efficiency of banner ads. Should banners become increasingly larger or more animated, even with the risk of producing

irritated consumers? It is argued here that these options may be wrong. This conjecture is strongly backed by Heath and Heath et al. [9, 10].

To understand the theoretical background, it is of utmost importance to appreciate all the psychological coherences on how banners affect visitors of a website. To gain a more holistic view on this matter, it is necessary to not only measure metrics like CTR. Instead, marketing experts should consider the fact that unconsciously perceived information and advertising play an important role when considering advertising efficiency. Although this impact is widely known in the scientific community and already well-documented [3, 4, 11–14], it must be emphasized that this aspect is mostly disregarded in business practice.

One explanation for such implicit advertising effects is the so-called *mere exposure effect* [15, 16], which refers to a psychological phenomenon by which people tend to develop a preference for things merely because they have become familiar with them and therefore, these things are perceived as less threatening [17]. It is important to note that this effect does not depend on any conscious awareness of the initial exposure [18–20]. Concisely, it can be assumed that familiarity may decrease the perceived risk associated with a brand, which is likely to lead to preference formation and thus affects brand choice positively [21].

Taken together, the following hypotheses can be proposed:

Hypothesis 1a: A banner ad on a website will not be taken into account when visitors behave in a goal-oriented way. As a result, the existing banner will be neglected.

Hypothesis 1b: In the event that a brand is initially unknown, even unconsciously perceived banners positively affect a spontaneous brand choice.

However, the assumption in hypothesis 1b is just one side of the coin. What happens if the advertised brand is already familiar and people have a certain attitude toward this known brand? In such a case, a banner activates all the accessible representations and associations, which have already been memorized due to past exposure and experiences. This effect is called priming [22–24]. At this point, it needs to be emphasized that such an activation of previously stored information does not always have to be positive. Normally, the target group should be influenced in such a way that the sales volume of a product is increased in the near future. Considering, however, that priming activates the entire existing associative network of the advertised product or brand, including all positive and negative representations, it must be assumed that the effect of a banner can be both positive and negative – predominately depending on how easily accessible certain aspects of the product or brand are. In the event of a person with mainly negative representations towards a product or brand, a banner activates this negative mental model [25]. In cases of neutral representations, again the mere exposure effect comes into play. These assumptions lead to the second hypotheses:

*Hypothesis 2a: If a target group already has a **positive** representation of a product or a brand, a banner **positively** affects a spontaneous brand choice.*

*Hypothesis 2b: If a target group already has a **negative** representation of a product or a brand, a banner **negatively** affects a spontaneous brand choice.*

*Hypothesis 2c: If a target group has a **neutral** representation of a product or a brand, a banner **positively** affects a spontaneous brand choice.*

2 Empirical Studies

2.1 Pilot Study

In order to see to what extent the proposed banner blindness occurs, an experimental pilot study was carried out with eye-tracking techniques. For the purposes of this study, first simple banners of three different soft drink brands (Pfanner, Bravo, Happy Day) were designed and included on the right lower corner of an existing web page of a German newspaper (see Fig. 1). For the pilot study, we recruited $n = 80$ participants from the University of Applied Sciences Upper Austria who were randomly assigned to three experimental groups and one control group ($n = 20$ each). Depending on the group affiliation (experimental group 1, 2, 3 or control group), the subjects were confronted with the screenshot of the web page including one of the aforementioned banners or with the version without such a banner (group 1 = “Pfanner”, group 2 = “Bravo”, group 3 = “Happy Day”, group 4 = “no banner”) - see arrows in Fig. 1. At the beginning of the experiment, each subject received the following instructions:

“For the purposes of evaluating the structure of a website of a newspaper, you will see a screenshot of this site. Please search for the word “Solidaritätszuschlag”. For this task, you do not have any time pressure. After finding the word, please click on it with the mouse cursor. Afterwards, your task is finished.”

This task was set for distraction purposes in order to trigger real goal-oriented behavior. While the participants were searching for the specific word, eye gazes were recorded with eye tracking equipment (SMI Red 250).



Fig. 1. Control group and experimental group of the pilot study

Immediately after fulfilling the task, the subjects received further instructions. They were asked to declare their preferences of three fruit juice brands. For this purpose, they were subsequently confronted with all three possible pairs of the previously mentioned three brands. The different brand pairs were presented in random order (“Bravo vs. Pfanner”|“Bravo vs. Happy Day”|“Pfanner vs. Happy Day” – see Fig. 2). Separately for each pair, they had to spontaneously select their preferred brand.



Fig. 2. All brand pairs for the selection task

2.2 Results of the Pilot Study

Firstly and foremostly, the pilot study's purpose was to reveal if the banner attracted any visual attention. The results of the eye tracking largely confirmed hypothesis 1a. More than 85 % of the subjects did not fixate on the banner one single time. The remaining subjects did so, but only once. On a critical note, none of them could mention the brand name of the banner ad, when asked afterwards. These results clearly support hypothesis 1a.

Secondly, it appears that for those subjects who did not know (or were only slightly familiar with) the depicted brands, banner placement leads to a higher brand preference compared to the control group. These results are in line with the aforementioned mere exposure effect and are initial indicators for the confirmation of hypothesis 1b.

In addition, those subjects who are well familiar with the brands seem to perceive the banner in line with their existing positive or negative representations of the respective brand. This tendency supports the aforementioned assumption that the priming effect reinforces both positive and negative brand choices.

Due to the small sample size of this pilot study, these results reveal just a tendency, which should be interpreted with care. In order to underpin the results of this pilot study, subsequent research has been undertaken.

2.3 Main Study: Results and Discussion

For the sake of proving the aforementioned hypotheses, we developed an online experiment. The setup largely resembled the one used in the pilot study, yet with different brands and other websites. As can be seen in Fig. 3, the main study consisted of four experimental groups and two control groups. The six screenshots and complete instructions for the distraction task were included in six online questionnaires. The only difference between these questionnaires was that the screenshots included a different banner.

In this online experiment, 905 students of the University of Applied Sciences Upper Austria participated. First these students were randomly divided into six groups. Each group was asked to answer one of the six questionnaires. All questionnaires started with a question about existing predispositions towards a random choice of brands. The four banner brands were included in this choice. Afterwards, they received the same instructions as previously given in the pilot study. Subsequently, one screenshot per questionnaire was presented (see Fig. 3) where the specific word of the distraction task had to be sought. When finished, they had to answer some demographic questions and these two questions concerning banner blindness:

*Do you remember if there was a banner on the screenshot?
If yes, what brand was it?*

At the end, the students had to select their preferred brand out of two (see Fig. 4), again in line with the previously conducted pilot study.



Fig. 3. The different control groups and experimental groups of the research



Fig. 4. Brand choice possibilities

The mean age of the participants was $M = 24.99$ years (range: 16–29, $SD = 7.32$) and consisted of 418 females (46.2 %) and 487 males (53.8 %).

At first, answers given to the two questions concerning banner blindness were analyzed. More than 75 % of the students reported that they were unaware of any banner.

The remaining 25 % stated that they had seen a banner, yet the majority of them could not name the correct brand. Just a few of them ($n = 7$) gave the correct answer. These results again support hypothesis 1a.

For the confirmation of hypotheses 2a–c, and to control possible interdependencies between existing predispositions toward the brands used, we divided the existing six samples into four subsamples per banner brand.

- First subsample: students with a positive predisposition toward the banner brand.
- Second subsample: students with a negative predisposition toward the banner brand.
- Third subsample: students with no/neutral predisposition toward the banner brand.
- Fourth subsample: students who did not know the respective banner brand.

This division is necessary in view of the existing set of preferences with regard to the brand choice which had to be made by the respondents. The fact is that when someone needs to make a decision between two brands, the respective decision highly depends on the existing predisposition towards both brands. Against this background, this relevant differentiation into four groups had to be taken.

The respective selected brand of two brands offered was the dependent variable of our experiment. In order to analyze and evaluate the brand choice of the subjects, a predisposition-dependent analysis in the form of a contingent table was carried out. A chi-square test was calculated to identify significant coherences.

Table 1 depicts all the calculated results and it becomes obvious that many subsamples contained too few subjects, as indicated with “n.a.” (not analyzed). Consequently, an evaluation of such samples does not make any sense. In view of this limitation, a further point needs to be taken into account. As can also be seen in Table 1, the available sample sizes are rather small and the calculated results have to be interpreted with care just as in the pilot study. In a similar vein, the chi-square test gives slightly non-significant results (chi-square value > 0.05 but < 0.1). Taking all these factors into account, it is impossible to confirm the formulated hypotheses 1b and 2a, 2b and 2c.

Nevertheless, the existing data show a distinct trend, which supports all the hypotheses but of course, does not confirm them. As such, it appears reasonable to have a closer look at the results in Table 1.

Let us begin with **hypotheses 1b and 2c**. If a person did not know the banner brand (here “Jomo”), and she or he had a negative or neutral predisposition towards its competing brand (here “Oelz”), then the banner of the unknown brand (=“Jomo-banner”) increased the choice probability in favor of the banner brand (=“Jomo”). For the actual results please see cells 8c & 8d 8e (+33.3 %; “Jomo”), 11c & 11d & 11e (+16.7 %; “Jomo”), 20h & 20i & 20j (+14.2 %; “Power Horse”).

Hypothesis 2a corresponds with cells 1c & 1d & 1e (+30 %; “Jomo”), 21c & 21d & 21e (+7.1 % “Power Horse”). As can be seen from these results, an initial **positive** representation of a brand affects a spontaneous brand choice **positively**.

Table 1. Results of the spontaneous brand choice

column	a	b	c			d	e	f	g	h			i	j
line	average predisposition towards ...			decision for "Jomo"			average predisposition towards ...			decision for "Oelz"				
	n	Jomo	Oelz	control group (no banner)	exp. group ("Jomo"-banner)	difference	n	Oelz	Jomo	control group (no banner)	exp. group ("Oelz"-banner)	difference		
1	14	1	1	20.0%	50.0%	30.0%	7	1	1	n.a.	n.a.	n.a.		
2	9	2	1	n.a.	n.a.	n.a.	0	2	1	n.a.	n.a.	n.a.		
3	17	3	1	0.0%	0.0%	0.0%	2	3	1	n.a.	n.a.	n.a.		
4	77	4	1	2.8%	2.4%	-0.4%	0	4	1	n.a.	n.a.	n.a.		
5	9	1	2	n.a.	n.a.	n.a.	16	1	2	100.0%	100.0%	0.0%		
6	11	2	2	20.0%	0.0%	-20.0%	11	2	2	80.0%	63.6%	-16.4%		
7	7	3	2	n.a.	n.a.	n.a.	6	3	2	n.a.	n.a.	n.a.		
8	16	4	2	16.7%	50.0%	33.3%	0	4	2	n.a.	n.a.	n.a.		
9	0	1	3	n.a.	n.a.	n.a.	22	1	3	100.0%	91.7%	-8.3%		
10	10	2	3	0.0%	0.0%	0.0%	5	2	3	n.a.	n.a.	n.a.		
11	20	3	3	0.0%	16.7%	16.7%	19	3	3	100.0%	90.9%	-9.1%		
12	51	4	3	0.0%	2.9%	2.9%	0	4	3	n.a.	n.a.	n.a.		
line	average predisposition towards ...			decision for "Red Bull"			average predisposition towards ...			decision for "Power Horse"				
	n	Red Bull	Power Horse	control group (no banner)	exp. group ("Red Bull"-banner)	difference	n	Power Horse	Red Bull	control group (no banner)	exp. group ("Power Horse"-banner)	difference		
13	9	1	1	n.a.	n.a.	n.a.	6	1	1	n.a.	n.a.	n.a.		
14	1	2	1	n.a.	n.a.	n.a.	65	2	1	2.9%	3.2%	0.3%		
15	0	3	1	n.a.	n.a.	n.a.	31	3	1	7.1%	5.9%	-1.2%		
16	0	4	1	n.a.	n.a.	n.a.	32	4	1	0.0%	0.0%	0.0%		
17	73	1	2	97.1%	100.0%	2.9%	0	1	2	n.a.	n.a.	n.a.		
18	39	2	2	77.8%	81.0%	3.2%	41	2	2	22.2%	17.4%	-4.8%		
19	34	3	2	94.1%	94.1%	0.0%	10	n.a.	n.a.	n.a.	n.a.	n.a.		
20	0	4	2	n.a.	n.a.	n.a.	20	4	2	22.2%	36.4%	14.2%		
21	27	1	3	92.9%	100.0%	7.1%	0	1	3	n.a.	n.a.	n.a.		
22	8	2	3	n.a.	n.a.	n.a.	37	2	3	5.9%	0.0%	-5.9%		
23	8	3	3	n.a.	n.a.	n.a.	18	3	3	0.0%	9.1%	9.1%		
24	0	4	3	n.a.	n.a.	n.a.	13	4	3	0.0%	0.0%	0.0%		

Legend:
 1=subjects have a **positive** predisposition towards this brand
 2=subjects have a **negative** predisposition towards this brand
 3=subjects have a **neutral** predisposition towards this brand
 4=subjects don't know this brand
 n= number of subjects
 n.a.=not analyzed (because of a too small sample size)

Hypothesis 2b corresponds with cells 6c & 6e & 6e (-20.0 %; "Jomo"), 11h & 11i & 11j (-16.4 %; "Oelz"), and 41h & 41i & 41j (-4.8 %; "Power Horse"). These results reveal that an initial **negative** representation of a brand affects a spontaneous brand choice **negatively**.

3 Conclusion

This contribution sheds some light on how banner ads influence brand choices. In the event of a more or less unknown brand, banner ads may have a positive impact on shaping attitudes, leading to a positive predisposition towards the brand. These coherences are based on the mere exposure effect, which is widely accepted.

Particular caution has to be taken if the brand is already known, and if stored representations of a brand are available in the associative network of the consumers' brains. In such a case, the banner activates all of the existing positive or negative information. Thus, a banner is only supportive if somebody has memorized mainly positive representations. In all other cases, the opposite holds true, and the possibility is high that such a banner deteriorates future purchasing behavior.

In planning a marketing campaign, specific attention needs to be called to these aspects, especially in view of the fact that is in no one's interest to reduce the sales of the advertised product.

Due to the outlined limitations, a follow-up study is recommended. In order to reach sufficient samples sizes in all necessary subsamples, we recommend that the overall sample go beyond $n = 1000$. In addition, it would be advisable to integrate just two brands instead of four. Moreover, a selection of highly polarizing brands would increase the probability of attaining well-distributed samples, which is especially relevant in view of the consumers' predisposition towards the selected brands. A further factor that may come into play is the gender of the participants and should hence be taken into account.

References

1. Robinson, H., Wysocka, A., Hand, C.: Internet advertising effectiveness: the effect of design on click-through rates for banner ads. *Int. J. Advertising* **26**, 527–541 (2007)
2. Lohtia, R., Donthu, N., Hershberger, E.K.: The impact of content and design elements on banner advertising click-through rates. *J. Advertising Res.* **43**, 410–418 (2003)
3. Yoo, C.Y.: Unconscious processing of web advertising: effects on implicit memory, attitude toward the brand, and consideration set. *J. Interact. Mark.* **22**, 2–18 (2008)
4. Lee, J., Ahn, J.-H.: Attention to banner ads and their effectiveness: an eye-tracking approach. *Int. J. Electron. Commer.* **17**, 119–137 (2012)
5. Cho, C.-H.: Why do people avoid advertising on the internet? *J. Advertising* **33**, 89–97 (2004)
6. Mack, A., Rock, I.: *Inattentional Blindness*. MIT Press, Cambridge (1998)
7. Benway, J.P.: Banner blindness: the irony of attention grabbing on the World Wide Web. In: *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, vol. 42, pp. 463–467 (1998)
8. Pagendam, M., Schaumburg, H.: Why are users banner-blind? The impact of navigation style on the perception of web banners. *J. Digital Inf.* **2** (2006)
9. Heath, R.: Low involvement processing—a new model of brands and advertising. *Int. J. Advertising* **19**, 287–298 (2000)
10. Heath, R., Brandt, D., Nairn, A.: Brand relationships: strengthened by emotion, weakened by attention. *J. Advertising Res.* **46**, 410–419 (2006)
11. Lee, A.Y.: Effects of implicit memory on memory-based versus stimulus-based brand choice. *J. Mark. Res. (JMR)* **39**, 440–454 (2002)

12. Meyers-Levy, J., Malaviya, P.: Consumers' processing of persuasive advertisements: an integrative framework of persuasion theories. *J. Mark.* **63**, 45–60 (1999)
13. Courbet, D., Fourquet-Courbet, M.-P., Kazan, R., Intartaglia, J.: The long-term effects of e-advertising: the influence of internet pop-ups viewed at a low level of attention in implicit memory. *J. Comput. Mediated Commun.* **19**, 274–293 (2014)
14. Kindermann, H.: Priming effect and inattention blindness: an experimental study on decision making (Poster). In: Sixth European Conference on Sensory and Consumer Research, Copenhagen (2014)
15. Moreland, R.L., Zajonc, R.B.: Exposure effects in person perception: familiarity, similarity, and attraction. *J. Exp. Soc. Psychol.* **18**, 395–415 (1982)
16. Lee, A.Y.: The mere exposure effect: an uncertainty reduction explanation revisited. *Pers. Soc. Psychol. Bull.* **27**, 1255–1266 (2001)
17. Grimes, A., Kitchen, P.J.: Researching mere exposure effects to advertising. *Int. J. Mark. Res.* **49**, 191–219 (2007)
18. Mandler, G., Nakamura, Y., Van Zandt, B.J.: Nonspecific effects of exposure on stimuli that cannot be recognized. *J. Exp. Psychol. Learn. Mem. Cognit.* **13**, 646 (1987)
19. Janiszewski, C.: The influence of nonattended material on the processing of advertising claims. *J. Mark. Res.* **27**, 263–278 (1990)
20. Janiszewski, C.: Preconscious processing effects: the independence of attitude formation and conscious thought. *J. Consum. Res.* **15**, 199–209 (1988)
21. Baker, W.E.: When can affective conditioning and mere exposure directly influence brand choice? *J. Advertising* **28**, 31–46 (1999)
22. Meyer, D.E., Schvaneveldt, R.W.: Facilitation in recognizing pairs of words: evidence of a dependence between retrieval operations. *J. Exp. Psychol.* **90**, 227 (1971)
23. Meyer, D.E., Schvaneveldt, R.W.: Retrieval and Comparison Processes in Semantic Memory Attention and Performance IV. Academic Press, New York (1973)
24. Tulving, E., Schacter, D.L.: Priming and human memory systems. *Science* **247**, 301–306 (1990)
25. Johnson-Laird, P.N.: *Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness*. Harvard University Press, Cambridge (1983)