# Effects of Interest, Thematic Congruence, and Typicality on Memory for Television, Radio, and Press Advertisements of New Products

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Summary: Little is known about how the content of advertisements is remembered. We studied how product interest, thematic congruence between advertisement and programme, and the typicality of the elements of an advertisement affect memory for new product ads in television, radio, and printed media. Participants were exposed to a single type of media with two embedded ads. After a filler task, they completed a true/false recognition task. In television and radio, accuracy was higher for the interesting product ads. In three experiments, we found no effect of thematic congruence, and the standard effect of typicality. In printed media, where participants are free to read the ads or not, the differences in hits and false alarms in typicality were due to a change in the response criterion and not to an effect on memory. We conclude that different results can be obtained depending on the expo- sure to different media.

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MEMORY FOR ADVERTISEMENTS IN THREE TYPES OF MEDIA

Every day, we are exposed to a constant stream of advertise*ments, more often than not, unsolicited. Ads are intrusive: they appear in the middle of the programmes we watch, on roadside billboards, or even in public toilets. This situation of overexposure to ads induces avoidance behaviours in potential buyers (Edwards, Li, & Lee, 2002; Ha & McCann, 2008; Zanjani, Diamond, & Chan, 2011). Nevertheless, companies spend a considerable amount of money on large marketing campaigns, even though fewer but more effective ads may be more successful in reducing avoidance behaviours. In this paper, we study how interest in the category of the product advertised, thematic congruence between editorial and ad, and typicality of advertisement elements influence the memory for ads in three different types of media: television, radio, and printed media. Knowledge of the real impact of these variables can help determine the best place to insert ads (thematic congruence), how the kind of new product (of interest or not interesting) influences the memory for ads, and what elements (high or low typicality) are best for designing more effective ads for the product. This information can help reduce marketing costs and prevent behaviours induced by overexposure to ads. Findings in the existing memory literature will guide our expectations and hypotheses. However, the special characteristics of the ads mentioned earlier, for example, intrusive, and usually avoided, may lead to different results from those obtained with other materials.

Product interest

Information of interest will draw our attention, be more deeply processed, and therefore better remembered in a later memory task (Mandler, 1962, 2002). In advertising research, the effect of interest on memory has been studied by manipulating either the interest level of the advertisement composition, that is, configuring ads to be more or less creative (Staple, 1994; Till & Baack, 2005), or the interest in the programme in which the ad is embedded (Martín-Luengo, Luna, & Migueles, 2013; Norris & Colman, 1996; Norris, Colman, & Alexio, 2001). For example, Till and Baack (2005) found that creative ads improved free recall ads but did not affect cued recall, nor did they affect other measures of attitudes related to brand or advertisement. With regard to interest in the programme, Norris and

Colman (1996) took several memory measures including free recall, product recognition, cued recall of brand names, and recognition of brand names, and, overall, they found differences in memory for the ads embedded in programmes of interest compared with ads in other programmes.

Apart from these studies, only one research collected mea- sures of product interest and tested memory (Bagozzi & Silk, 1983). However, the conclusions focus on memory in self- selected ads and on the different results between recall and recognition measures. No main conclusions about the effect of product interest in memory for ads were drawn. To the best of our

knowledge, there are no published studies in the advertising research literature that have manipulated the interest for a category of new products. Therefore, we focused on how the interest in an advertised new product influences memory for ad content. That is, how the interest for a general category of products influences the memory for the advertisement of a new product of this category.

In other areas, a positive relationship was found between the interestingness of material and the subsequent memory test. For example, children's attention was longer, and they showed better recognition for toys of their interest (Renninger & Wozniak, 1985). In a study of gender differences in recognition memory for photographs of cars and of children's faces, men recognised more cars and women more children (McKelvie, Standing, St. Jean, & Law, 1993, Exp. 2). The authors suggested that this result may be due to differences in interest between men and women. Hence, in our study, we expect advertisements for new products of categories that participants find interesting to be better remembered than ads for new products of uninteresting categories.

It is worth highlighting that the interest of the category of the product advertised should not be confused with the involvement with the product. Involvement has been extensively studied in advertising and marketing research and has been defined as 'a person's perceived relevance of the object based on inherent needs, values, and interests' (Zaichkowsky, 1986, 1994, 2012). Researchers focusing on the effect of involvement clearly defined it as more than interest in the product. For example, O'Cass (2000, p. 569) stated that 'involvement is construed and shown here to be a more overarching, higher order construct than, for example, importance, relevance, or interest'. In this research, we are concerned with the interest in the product and not with the more complex concept of involvement.

Thematic congruence

Thematic congruence refers to the situation in which editorial and ad content share a theme (Moorman, Neijens, & Smit, 2002). Advertisers usually choose editorials related with the product they want to sell. People who are watching a cooking programme, for example, are more likely to be interested in a food-related product. However, is the selection of thematically congruent editorials empirically supported?

The answer is not clear, as research shows mixed results. For example, Moorman et al. (2002) presented a group of subscribers to several magazines with copies of the magazines containing fake full-page ads. Recognition was better for ads in thematically congruent editorials. This result can be explained because ads embedded in thematically congruent programmes can be primed by the programme, which serves as a facilitator. From this perspective, the accessibility of information related to the theme of an ad is higher, and its processing, easier (Finlay, Marmurek, & Morton, 2005; Simola, Kivikangas, Kuisma, & Krause, 2013). However, Furnham, Gunter, and Richardson (2002) found better free re- call for food ads embedded in a car programme (incongruent condition), but no differences in a recognition test about the content of the ads. The only study with radio that examined the effect of thematic congruence in a recognition task about the ad content found better accuracy with incongruent ads (Martín-Luengo, Luna, & Migueles, 2014). These cases of better memory for thematically incongruent ads can be explained by a deeper and more elaborative processing of distinctive information, which improves memory (Heckler & Childers, 1992). This effect is known as the isolation or von Restorff effect (Hunt, 2013; Von Restorff, 1933). Other studies in which thematic congruence was manipulated were inconclusive or found no differences (Dahlén, Rosengren, Törn, & Öhman, 2008; Furnham, Bergland, & Richardson, 2002). Moreover, comparison between studies is difficult because methodological differences are large, in particular the memory tests and measures used. In summary, there is no clear answer to the effect of thematic congruence on memory for ad contents.

Some authors posit that the act of choosing the editorial could explain the mixed results (Moorman, Neijens, & Smit, 2007). When participants choose the material they like, as in the study by Moorman et al. (2002) using subscribers of magazines, they are more prone to encode ads of the same

or related theme, and therefore, the memory for congruent ads is improved. However, when material is experimenter provided, that is, participants have no choice, the ads that differ from the editorial may catch their attention, resulting in better memory for the thematically incongruent ads. In the three experiments reported here, the materials were pro- vided by the experimenters. We did not let participants choose because we wanted all participants to be presented with the same ads so that comparison between conditions would be better. Thus, we expected better memory for the incongruent ads.

Typicality

Another variable that can be used to improve memory for ads is the typicality of the elements of an advertisement. A high-typicality element is a basic feature that defines a product—for example, 'We cut your hair' in a hair salon ad. A low-typicality element is uncommon but plausible—for example, 'Enjoy our selection of Brazilian coffees while we cut your hair' (Martín-Luengo et al., 2013, 2014). In previous studies, more hits and false alarms were found with high-typicality elements, but better accuracy (measured with either $d'$ or $A'$) was found with low-typicality elements. These results have been replicated in many different settings: in memory for rooms (Lampinen, Copeland, & Neuschatz, 2001), in a lecture (Neuschatz, Lampinen, Preston, Hawkins, & Toglia, 2002), in memory for political arguments (Schmidt & Sherman, 1984), and in memory for radio ads (Martín-Luengo et al., 2013, 2014). Lower accuracy for high-typicality elements is explained by the fact that they are part of the schema. High-typicality elements are retrieved more fluently from memory, thus increasing the tendency to indicate that the elements appeared before, regardless of whether or not they were actually presented (Luna & Migueles, 2008; Martín-Luengo et al., 2013, 2014). Re- search that computed measures of response bias ($B''_D$) also found a liberal criterion with high-typicality elements. This information seems to elicit a sensation of control, leading participants to show a higher tendency to answer that these elements appeared before. Here, we expect more hits and false alarms with high-typicality elements, while better accuracy with low-typicality elements, that is, to replicate and ex- tend these results to advertisements on television and in printed media, two media in which typicality for advertisement content has not before been studied.

Experiment overview

A laboratory experiment was chosen instead of a field experiment to maximize control over the variables studied. The general procedure used in the three experiments was as follows. First, participants watched or listened to two programmes (television/radio) or read two pages with different themes (printed media). In either case, two ads were embedded, one of a new product of a category of their interest and another of a new product from an uninteresting category that was either thematically congruent or incongruent with the editorial content. After a delay, participants completed a recognition memory test for the contents of the ads. Actual programmes and news items were used, and advertisements similar to real-world ads were developed. The use of non- existing or new product ads allowed us to control the effect of past experience with the ad on memory, and to control the typicality of ad contents.

Memory recognition tests were used to apply signal detection theory (Macmillan & Creelman, 2005) analyses. Signal detection theory allowed us to compute several informative measures of memory performance (hits, false alarms, and ac- curacy) and to measure subjective aspects such as response criterion. This type of analysis has provided valuable information in other studies of memory for ads. In the three experiments presented here, exposure to the ads was incidental, and the contents of the memory test were unexpected. Together, these characteristics increased the ecological validity of the experiment and enabled the results to be more applicable to reality even though the experiment was conducted in a laboratory.

EXPERIMENT 1: TELEVISION

Method

*Participants*

Forty psychology students (31 women and nine men, mean age 22.43 years old, *SD* = 6.26) volunteered for this experiment.

*Design*

A 2 Thematic Congruence (congruent, incongruent) × 2 Product interest (of interest, no interest) × 2 Typicality (high, low) experimental design was used with repeated measures in all variables.

*Materials*

Two normative studies were conducted, the first to select the advertisement themes of interest and of no interest, and the second to select the typicality of the statements included in the ads.

*Normative studies for advertisement themes of interest.* The first normative study was completed by 64 participants (23 men and 41 women, age *M* = 19.77, *SD* = 4.80), different from those in the main experiments but with similar demo- graphic characteristics. Participants were presented with different categories of products (e.g. clothing, food, and electronic devices) and told to rate their interest in the cate- gory on a scale from 1 (*low interest*) to 6 (*high interest*). The two categories rated with the highest and lowest interest were selected ('books', *n* = 52, *M* = 3.52, *SD* = 1.18, and 'clothes', *n* = 64, *M* = 3.64, *SD* = 1.57 for interesting, and 'moving house', *n* = 46, *M* = 1.50, *SD* = 0.86, and 'plumbing', *n* = 47, *M* = 1.66, *SD* = 0.73 for uninteresting products).

*Normative studies for advertisement typicality.* In the second normative study, 38 new participants (seven men and 31 women, age mean 21.03 years old, *SD* = 2.56) rated the typicality of 22 statements for each of the four categories of products selected previously on a scale from 1 (*low typicality*) to 6 (*high typicality*). The statements were developed by the authors based on a compilation of characteristics that

appeared in real ads from those categories. Participants were provided with a brief definition of high and low typicality. They were told that a low-typicality element was an uncommon but plausible feature of the product advertised, and that a high-typicality element was a feature presented in all pro- ducts of that category. Based on the normative data, a total of 32 statements, 16 high typicality ($M = 5.04$, $SD = 0.47$)

and 16 low typicality ($M = 2.72$, $SD = 0.48$), $t(37) = 23.88$, $p < .001$, Cohen's $d = 5.52$, were selected. There were eight statements for each ad, four high typicality (e.g. for a moving company ad, 'We move your things wherever you want') and four low typicality (e. g. for a moving company ad,

'We offer advice upon request for optimal distribution'). Half of them were selected randomly to be presented in the ad (henceforth, true elements), and the other half were presented only in the test as foils (false elements). There were no differences in typicality between true and false high- typicality elements (true elements, $M = 5.05$, $SD = 0.44$, false elements, $M = 5.05$, $SD = 0.51$), $p = .67$, nor between the true and false low-typicality elements (true elements, $M = 2.71$, $SD = 0.56$, false elements, $M = 2.73$, $SD = 0.39$), $p = .88$.

*Advertisements.* We created the advertisements with the statements selected in the second normative study, with the addition of a fictitious brand name and other statements to complete the ad. All the ads followed the same structure found in many real ads. The name of the brand was mentioned at the beginning, end, and during the ad. In between, the characteristics of the product were presented. The audio content was recorded with background music. The visual display was created using a combination of slides of ads for products from different countries not available in Spain, splices of related videos (e.g. transatlantic moving company), and related static images (e.g. half-filled cartoon boxes). Each ad lasted approximately 30 seconds.

*Television programmes.* Four television programmes thematically congruent with the ads were selected: 'Intelligent fabrics' for clothing, 'Install a bathroom anywhere in your home' for plumbing, 'Ebook, a matter of time' for books, and 'International movers' for moving

house. Each pro- gramme was edited to have a similar duration of approximately 5 minutes and 30 seconds and a format similar to a real programme of that length.

*Video recordings.* The video recordings used in the experiment were created by embedding two advertisements in ap- proximately the middle of each television programme. Before and after the two ads, a five-second musical bumper was included. During this bumper, the screen turned to black and the word 'Adverts' appeared on the screen while a voice read the word. Joining the four programmes and the four ads, we obtained two video compositions. Half of the participants watched the 'Ebook, a matter of time' programme with the ads about books (congruent, interest condition) and clothes (incongruent, interest condition), and the 'Install a bathroom anywhere in your home' programme with the ads about plumbing (congruent, no interest condition) and moving (incongruent, no interest condition). The other half of the participants watched the 'Intelligent fabrics' programme with the ads about books (incongruent, interest condition) and clothes (congruent, interest condition), and the 'International movers' programme with the ads about plumbing (incongruent, no interest condition) and moving (congruent, no interest condition). From each of the two compositions, eight video recordings were created for counterbalancing purposes. For example, half of the participants saw the congruent ad first, and half saw the incongruent ad first. Also, the order of the programmes was different. The total video time, including programmes, bumpers, and ads, was about 12 minutes.

*Memory test.* The memory test consisted of a total of 48 true/false statements about the content of the advertisements, eight for each ad, four true (e.g. 'We'll move you anywhere in the province') and four false (e.g. 'Our personnel is highly qualified'), and 16 filler items (e.g. 'Immediate remodelling') consisting of new information that did not appear in the encoding phase of the material. Filler items were included to make the memory test more difficult and were not analysed. Four orders of questions were provided to control for serial-position effects.

*Procedure*

Participants were seated in front of a computer in the laboratory. When they filled out the consent form, they were told that they would watch a video recording and would be evaluated on the content afterwards. They were not told that the recording consisted of programmes and advertisements, noror close to chance; and scores above .5 indicate higher accuracy. B"$_D$ scores indicate the tendency to answer 'true' or 'false', that is, the response criterion adopted by participants (Donaldson, 1992). The values range from —1 to +1, with negative scores indicating a lax or liberal criterion (tendency to answer 'true'), null scores indicating a neutral response criterion, and positive scores indicating a stringent or conservative criterion (tendency to answer 'false'). Unless otherwise mentioned, all the analyses reported in the article were a within-subjects 2 (Thematic Congruence: congruent, incongruent) × 2 (Product interest: of interest, no interest) × 2 (Typicality: high, low) analysis of variance. The post-hoc analyses were performed using Student's *t*-test.

*Hits*

The hit rate was higher for products of interest than for products of no interest, $F(1, 39) = 4.19$, $p = .047$, $\eta^2 = 0.09$. There were also more hits for high-typicality elements than for low-ypicality elements, $F(1, 39) = 29.44$, $p < .001$, $\eta^2 = 0.43$. The main effect of thematic congruence was not significant, $(F(1, 39) = 2.26, p = .14, \eta^2 = 0.05)$. Interactions were not significant.

*False alarms*

The false alarm rate was higher for products of no interest than for products of interest, and also higher for high- typicality than for low-typicality elements, $F(1, 39) = 4.68$, $p = .03$, $\eta^2 = 0.11$, and, $F(1, 39) = 207.71$, $p < .001$, $\eta^2 = 0.84$, were they given any other information about the content of the test. Participants were not told that the test was about the advertisements or that ads were relevant in any way. Headsets were handed out, and the participants were instructed to start watching the video recordings. We had eight video recordings and four orders of memory test, but we randomly selected 16 different combinations of videos and tests. Participants were assigned to conditions randomly. After watching the programmes, they performed a three- minute filler task consisting of two word search puzzles. Then, they completed the recognition test without time constraints. For each statement, they had to indicate whether the information had appeared in the original ad (answer 'true') or not (answer 'false'). Finally, the experimenter thanked the participants and explained the objectives of the experiment. The experiment lasted approximately 45 minutes.

Results

The objective of Experiment 1 was to examine the effects on memory of product interest, the thematic congruence be- tween programme and ad, and the typicality of the elements of the ad. The mean and standard deviation for Experiment 1 with television are reported in Tables 1 and 2.

The proportion of hits ('true' answers to presented items), false alarms ('true' answers to new items not presented be- fore), A' scores (accuracy measure that takes into account hits and false alarms), and B"$_D$ scores (response criterion) were calculated. A' values range from 0 to 1 (Snodgrass & Corwin, 1988). Scores below .5 indicate lower accuracy; scores of .5 indicate that participants' performance was at respectively. The main effect of thematic congruence was not significant, $(F(1, 39) = 0.11, p = .74, \eta^2 = 0.003)$. There was an interaction between product interest and typicality, $F(1, 39) = 4.43$, $p = .042$, $\eta^2 = 0.10$ (Figure 1A). For high-typicality elements, there were more false alarms for products of no interest than for those of interest, $t(39) = -2.58$, $p = .014$, Cohen's $d = 0.54$, while there were no differences between interesting and uninteresting products ($p = .47$) for low- typicality elements. In other words, there were no differences for the distinctive, low-typicality features regardless of product type, but for features present in most products of the same category, there were more errors with products of interest.

*A' scores*

Participants were more accurate with products of interest than with products of no interest, and also more accurate with low-typicality elements than with high-typicality elements, $F(1, 39) = 6.52$, $p = .014$, $\eta^2 = 0.14$, $F(1, 39) = 18.78$, $p < .001$, $\eta^2 = 0.33$. All A' scores were different from .5, all $p < .001$. The main effect of thematic congruence was not significant ($F(1, 39) = 1.14$, $p = .29$, $\eta^2 = 0.03$). Interactions were not significant.

*B"$_D$ scores*

The criterion was more stringent with low-typicality than high-typicality elements, $F(1, 39) = 170.87$, $p < .001$, $\eta^2 = 0.81$. The criterion for high-typicality and low-typicality elements was different from zero, all $p < .001$. For high-typicality

Table 1. Mean (standard deviation) of the main effects of advertisement elements as a function of thematic congruence, product interest, and typicality for Experiment 1 (television)

|  | Thematic congruence | | Product interest | | Typicality | |
|---|---|---|---|---|---|---|
|  | Congruent | Incongruent | Yes | No | High | Low |
| Hits | 0.71 (0.19) | 0.65 (0.16) | 0.72 (0.16) | 0.64 (0.19) | 0.79 (0.15) | 0.57 (0.21) |
| False alarms | 0.44 (0.21) | 0.43 (0.21) | 0.38 (0.25) | 0.47 (0.19) | 0.65 (0.21) | 0.21 (0.18) |
| A' | 0.63 (0.13) | 0.59 (0.14) | 0.65 (0.14) | 0.57 (0.13) | 0.56 (0.11) | 0.66 (0.13) |
| B"$_D$ | —0.14 (0.29) | —0.06 (0.26) | —0.08 (0.29) | —0.11 (0.25) | —0.46 (0.31) | 0.26 (0.26) |

Table 2. Mean (standard deviation) of advertisement elements as a function of thematic congruence, product interest, and typicality for Experiment 1 (television)

|  | Thematic congruence | | | |
|---|---|---|---|---|
|  | Congruent | | Incongruent | |
|  | Of interest | No interest | Of interest | No interest |
| Hits |  |  |  |  |
| High typicality | 0.84 (0.31) | 0.77 (0.32) | 0.82 (0.28) | 0.74 (0.32) |
| Low typicality | 0.68 (0.35) | 0.55 (0.35) | 0.54 (0.36) | 0.51 (0.33) |
| False alarms |  |  |  |  |
| High typicality | 0.57 (0.42) | 0.71 (0.34) | 0.56 (0.43) | 0.74 (0.29) |
| Low typicality | 0.16 (0.31) | 0.24 (0.34) | 0.23 (0.29) | 0.21 (0.29) |
| A' |  |  |  |  |
| High typicality | 0.61 (0.24) | 0.53 (0.22) | 0.61 (0.23) | 0.50 (0.19) |
| Low typicality | 0.74 (0.19) | 0.64 (0.23) | 0.64 (0.24) | 0.63 (0.23) |
| B"$_D$ |  |  |  |  |
| High typicality | —0.44 (0.53) | —0.54 (0.45) | —0.38 (0.53) | —0.48 (0.47) |
| Low typicality | 0.18 (0.50) | 0.24 (0.49) | 0.28 (0.47) | 0.33 (0.40) |

elements, a lax criterion was applied, while for the low-typicality elements, the criterion was strict. The main effects of thematic congruence, $F(1, 39) = 2.05$, $p = .16$, $\eta^2 = 0.05$, and interest, $F(1, 39) = 0.25$, $p = .62$, $\eta_p^2 = 0.01$, were not significant. Neither were interactions significant.

Discussion

The present experiment shows a number of relevant results. This is the first study that has shown that the contents of ads for new products from a category of interest are better re-membered than the contents of ads for new products from categories of no interest. Second, we have replicated the results found with typicality in radio and extended them to television, that is, that low-typicality features of an ad are better remembered than high-typicality features and, third, that thematic congruence did not affect memory or response criterion.

We hypothesized better memory for contents of ads for products of interest than for products of no interest, and the results confirmed this hypothesis. This finding may be explained because participants allocate more resources to process ads for products they find interesting,

ultimately resulting in better memory (McKelvie et al., 1993; Renninger & Wozniak, 1985). This result also suggests that the evaluation of the interest of a product advertised is per- formed quickly, that is, that participants do not need much time to differentiate different types of contents. This is in line with recent research that found that a short presentation of 100 milliseconds is enough to distinguish between editorial and ad information (Pieters & Wedel, 2012). The advertisements used here were short, new, and presented only once, so participants had no experience with them. They could not know whether the product was interesting or not. If the decision about the interest in the product had been delayed, it seems reasonable to conclude that memory for ads would have been similar for products of interest and no interest, be- cause the processing would have been similar while collecting information to reach the decision. But this is not the case, because memory was better for products of interest. In other words, participants' attention to the ads may have been brief but long enough to decide whether it was worth paying further attention to them. During this time, the information may have been retained in working memory, while only the information about interesting products received further processing and went to long-term memory. Further re- search may test this explanation by collecting measures of processing speed and attention paid to the ad.

We also expected better memory for the thematically in- congruent than congruent ads. However, this result was not confirmed. Previous work also using laboratory methodology found a benefit in memory for thematically incongruent ads (Furnham et al., 2002; Martín-Luengo et al., 2014; Strick, van Baaren, Holland, & van Knippenberg, 2009). However, in Experiment 1, there was no improvement in memory by embedding ads into thematically congruent or incongruent programmes. This is not the first time that thematic congruence showed inconclusive or no differences (Dahlén et al., 2008; Furnham et al., 2002, although see Simola et al., 2013). Taken together, these results led us to question the effect of the thematic congruence on memory. We will turn back to this issue in the General Discussion.

Regarding typicality, we replicated the standard result of better memory for low-typicality elements (Lampinen et al., 2001; Martín-Luengo et al., 2013, 2014; Neuschatz et al., 2002; Schmidt & Sherman, 1984) and extended it to television ads. Previous studies on the effect of the typicality of ad content were conducted with radio (Martín-Luengo et al., 2013, 2014). This is the first time that the typicality of the elements of television ads has been examined. The results found here highlight the relevance of schemata in the memory for ads depicted in television.

## A. False Alarms Experiment 1



- —○— Interesting
- —●— Uninteresting

0.73
( 0.25 )

0.57
( 0.32 )

0.23
( 0.21 )

0.19
( 0.23 )

Typicality

Low — High

## B. False Alarms Experiment 2



- —○— Interesting
- —●— Uninteresting

0.71
( 0.23 )

0.48
( 0.28 )
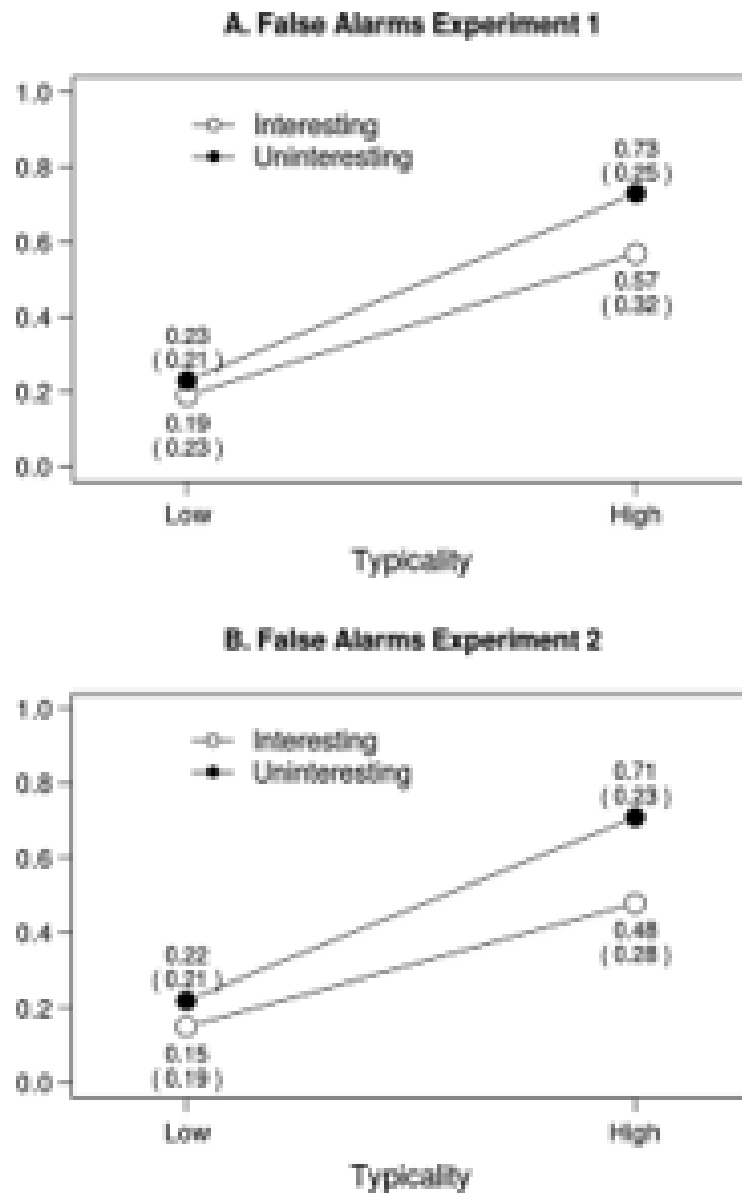
0.22
( 0.21 )

0.15
( 0.19 )

Typicality

Low — High

Figure 1. Interactions between interest and typicality in false alarms for Experiment 1 (television; A) and Experiment 2 (radio; B)

EXPERIMENT 2: RADIO

The objective of Experiment 2 was to replicate the main results from Experiment 1 on the effect of product interest and thematic congruence between programme and ad and extend them to radio. Although television may be considered the most extended media, radio is also widely used according to the United Nations Educational, Scientific and Cultural Organization (UNESCO). Television and radio media are different in several dimensions. For example, television uses two channels of communication, visual and auditory, while radio uses only auditory. In addition, while listening to radio, it is usual to perform some other activity, but multitasking is not as common while watching television. Because of these differences, specific experiments for each media are in order. To maximize the comparability between studies, the ads, procedure, and design were the same as in Experiment 1, but only the audio channel of the ads was used.

Method

*Participants and design*

Thirty-six new psychology students (29 women and seven men; age $M$ = 19.78 years, $SD$ = 1.77) volunteered for this experiment. The design was the same as in Experiment 1.

*Materials and procedure*

The materials and procedure were the same as in Experiment1 The only difference was that only the audio of the ads was used. The ads were embedded in real radio programmes retrieved from podcasts aired six months earlier. The radio programmes were 'The clothes of the future' for clothing, 'The future of the e-book' for books, 'Tips for moving' for moving, and 'A new website for home repairs' for plumbing.

Results

The mean and standard deviation for Experiment 2 with radio are reported in Tables 3 and 4.

*Hits*

There were more hits with high-typicality elements than with low-typicality elements, $F(1, 35)$ = 47.66, $p < .001$, $\eta_p^2$ = 0.57. There was no main effect of thematic congruence ($F(1, 35)$ = 0.006, $p = .94$, $\eta^2$ = 0.00) or interest ($F(1, 35)$ = 0.006, $p = .94$, $\eta^2$ = 0.00). Interactions were not significant

Table 3. Mean (standard deviation) of the main effects of advertisement elements as a function of thematic congruence, product interest, and typicality for Experiment 2 (radio)

| | Thematic congruence | | Product interest | | Typicality | |
|---|---|---|---|---|---|---|
| | Congruent | Incongruent | Yes | No | High | Low |
| Hits | 0.64 (0.24) | 0.63 (0.21) | 0.64 (0.19) | 0.63 (0.21) | 0.76 (0.19) | 0.50 (0.18) |
| False alarms | 0.40 (0.23) | 0.39 (0.21) | 0.32 (0.19) | 0.46 (0.20) | 0.60 (0.22) | 0.18 (0.17) |
| A' | 0.61 (0.14) | 0.61 (0.11) | 0.65 (0.09) | 0.57 (0.12) | 0.57 (0.11) | 0.65 (0.10) |
| B"D | —0.03 (0.37) | —0.02 (0.38) | 0.05 (0.36) | —0.09 (0.35) | —0.39 (0.39) | 0.35 (0.29) |

Table 4. Mean (standard deviation) of advertisement elements as a function of thematic congruence, product interest, and typicality for Experiment 2 (radio)

|  | Thematic congruence | | | |
|  | Congruent | | Incongruent | |
|  | Of interest | No interest | Of interest | No interest |
| Hits | | | | |
| High typicality | 0.81 (0.32) | 0.68 (0.36) | 0.81 (0.32) | 0.76 (0.25) |
| Low typicality | 0.47 (0.37) | 0.58 (0.35) | 0.46 (0.32) | 0.50 (0.39) |
| False alarms | | | | |
| High typicality | 0.48 (0.38) | 0.71 (0.35) | 0.48 (0.38) | 0.72 (0.33) |
| Low typicality | 0.16 (0.27) | 0.24 (0.33) | 0.12 (0.25) | 0.19 (0.29) |
| A' | | | | |
| High typicality | 0.64 (0.22) | 0.48 (0.22) | 0.65 (0.21) | 0.52 (0.21) |
| Low typicality | 0.64 (0.21) | 0.66 (0.23) | 0.66 (0.18) | 0.63 (0.25) |
| B"$_D$ | | | | |
| High typicality | —0.31 (0.53) | —0.39 (0.58) | —0.33 (0.59) | —0.53 (0.46) |
| Low typicality | 0.39 (0.49) | 0.21 (0.54) | 0.46 (0.47) | 0.34 (0.51) |

*False alarms*

The false alarm rate was higher for products of no interest and for high-typicality elements, $F(1, 35) = 18.79$, $p < .001$, $\eta^2 = 0.35$, and $F(1, 35) = 141.91$, $p < .001$, $\eta^2 = 0.80$. The main effect of thematic congruence was not significant ($F(1, 35) = 0.18$, $p = .67$, $\eta^2 = 0.005$). There was an interaction between product interest and typicality, $F(1, 35) = 7.53$, $p = .015$, $\eta^2 = 0.17$ (Figure 1B). As in Experiment 1 with television, for high-typicality elements, there were more false alarms for the uninteresting than for the interesting products, $t(35) = —4.32$, $p < .001$, Cohen's $d = 0.83$, but for low- typicality elements, there were no differences ($p = .06$).

*A' scores*

Participants were more accurate with products of interest and with low-typicality elements, $F(1, 35) = 6.87$, $p = .013$, $\eta^2 = 0.16$, and, $F(1, 35) = 8.98$, $p = .005$, $\eta^2 = 0.21$, respectively. The main effect of thematic congruence was not significant ($F(1, 35) = 0.08$, $p = .77$, $\eta^2 = 0.002$). There was an interaction between interest and typicality, $F(1, 35) = 6.83$, $p = .013$, $\eta^2 = 0.16$ (Figure 2). On the one hand, accuracy was lower for the high-typicality elements of the uninteresting products than for the high-typicality elements of the interesting products, $t(35) = —3.62$, $p < .001$, Cohen's $d = 0.95$, while there were no differences between low-typicality elements of interesting and uninteresting products. For uninteresting products, participants were less accurate for high-typicality elements than for low-typicality elements, $t(35) = 3.87$, $p < .001$, Cohen's $d = 0.84$, while no differences were found for high-typicality and low-typicality elements for interesting products. All A' scores were different from .5, $p < .001$, except the high-typicality elements of the products of no interest($p = .82$). Results revealed worse memory for the products of no interest, particularly for their high-typicality elements.

*B"$_D$ scores*

A more stringent criterion was used for interesting products and also for low-typicality elements, $F(1, 35) = 5.92$, $p = .020$, $\eta^2 = 0.15$, and $F(1, 35) = 166.11$, $p < .001$, $\eta^2 = 0.83$, respectively. The main effect of thematic congruence was not significant, $F(1, 35) = 0.05$, $p = .83$, $\eta^2 = 0.001$. There was an interaction between thematic congruence and typicality,

$F(1, 35) = 4.14$, $p = .050$, $\eta^2 = 0.11$. The difference between high-typicality and low-typicality elements of the thematically incongruent advertisements was greater than between the high-typicality and low-typicality elements of the thematically congruent advertisements, $t(35) = -2.04$, $p = .049$, Cohen's $d = 0.42$. Both $B''_D$ scores were different from the neutral criterion, $p < .001$.

Discussion

In this experiment with radio, we replicated most of the main results of Experiment 1 with television. The contents of the products of interest were better remembered than the contents of uninteresting products; we replicated the usual pattern of results regarding typicality, but in Experiment 2, we found an interaction of thematic congruence and typica- lity in the response criterion.
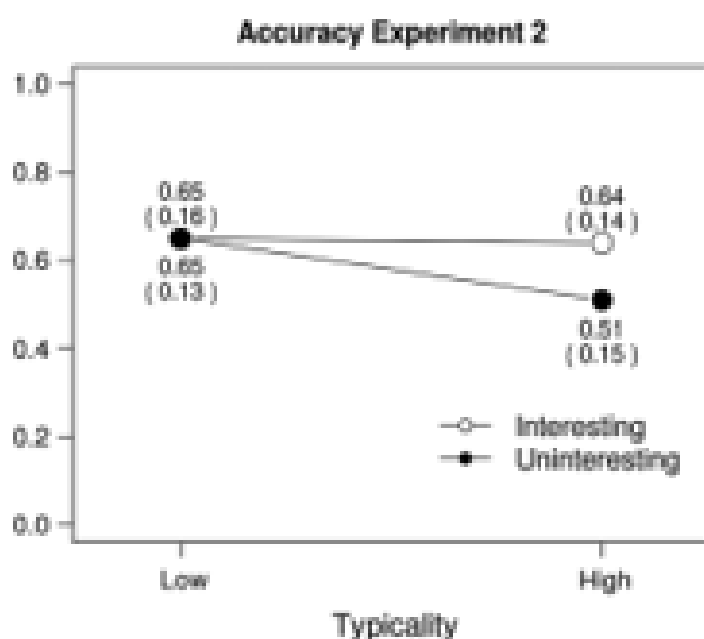


Figure 2. Interaction between interest and typicality in accuracy in Experiment 2 (radio)

We confirmed and extended to radio the findings from Experiment 1 with television showing better memory for products of interest. Indirectly, this result seems to support the idea that participants decided quickly which information was of interest and which was not.

Regarding thematic congruence, this time we found an interaction in response criterion. In general, studies on thematic congruence exhibit a great deal of variability in terms of measures or methodologies, thus making comparison difficult (Furnham et al., 2002; Moorman et al., 2002). How- ever, a previous study with radio using the same methodology and measures described here found better memory for thematically incongruent ads (Martín-Luengo et al., 2014). The results of Experiment 2 are in line with previous re- search, although here the influence of the thematic congruence was only shown in an interaction. The main difference between Martín-Luengo et al. (2014) and Experiment 2 is that here we manipulated product

interest. Although from Experiment 1, using the same materials, we concluded that there was no effect of thematic congruence, the interest in the product may in some way have masked the effect of thematic congruence there. A tentative explanation may be that generally participants are more used to avoiding information from television, and therefore, the effect of thematic congruence would be diminished in that media. The different results often reported in the literature on the effect of thematic congruence suggest that its effect may be, at best, weak. Thus, in the presence of a variable with a strong effect, the effect of a weak variable may be difficult to detect. We will turn to this issue in the General Discussion.

In relation to typicality, we replicated the better accuracy for

low-typicality elements also found in Experiment 1 with television, as well as in research with radio (Martín-Luengo et al., 2013, 2014). This consistency in results from different media and contents reinforces the applied conclusion that it is important for new brands to highlight distinctive features in order to improve the memory for a product. We also replicate a new finding in typicality found in the previous experiment: differences in high-typicality elements associated with the degree of interest in the product advertised. Most notably, false high-typicality elements from products of no interest are more readily accepted than false high-typicality elements from products of interest. This is the first time that these differences for high- typicality elements as a function of the interest of a product have been reported in accuracy. This result is important because it shows that not all high-typicality elements are alike. Based on schema theory, once the underlying schema is active, high- typicality elements are more shallowly processed, while in a recognition test, they provoke more 'true' answers because they fit with the content in the schema (Grafman, 2002). But here, results showed that although most of the answers to high- typicality elements came from the schema, there is also some amount of memory that allows participants to reject the contents not presented in the ad.

EXPERIMENT 3: PRINTED MEDIA

The purpose of Experiment 3 was to further study the effect on memory of product interest in an ad, the thematic congruence between editorial and ad, and the typicality of the ad content in a self-paced medium. We wanted to study how the memory for ads worked in a totally self-paced scenario where nothing is mentioned about the later memory task about the ads. To this aim, we used printed media, embedding ads in thematically congruent and incongruent articles. In this context, participants were free to read the articles for as long as they wanted and free to read or skip the ads. We used literal transcriptions of the ads and the same conditions as in Experiments 1 and 2. This way, we could test whether the results from Experiments 1 and 2 can be applied to any type of circumstance or only to those in which people cannot skip the ads, for example, before a film in a cinema and in a waiting room.

Method

*Participants and design*

Thirty-two new psychology students (21 women and 11 men; mean age = 21.09 years, *SD* = 4.89) volunteered for this experiment. The design was the same as in Experiments 1 and 2.

*Materials and procedure*

The materials and procedure were the same as in Experiments 1 and 2, the main change being the media. The content of the ads in the previous experiments was transcribed to create the ads. The brand name was presented only once. The text was presented together with an illustration of the product advertised, the name of a fictitious brand, and an additional portion of information related with the product advertised. The size of each ads was 8.5 cm long by 3.5 cm wide. The content of four articles, one for each of the four themes, was selected from the Internet and edited to fit on one page. The articles were about 'Organic clothes', 'The take-off of electronic paper', 'Advice before moving', and 'Non-slip floors' for the themes of clothing, books, moving house, and plumbing, respectively. Each page included a title in up-percase, an opening paragraph of about three sentences, the main text, and one or two units of information in text boxes. The main text was presented in a three-column format. The two corresponding ads were presented at the end of the article, the usual place for small ads in printed media. The location of the ads, right or left, was counterbalanced.

Participants entered the lab and were seated in front of a computer with the screen turned off. After signing the con- sent form, participants were provided with two printed sheets, each containing a one-page article. The order of presentation of the articles was counterbalanced. The instructions stated that they had to read the material in the order provided, and that they would be asked about it afterwards; no mention was made that the test was about the ads. They were also informed that there was no time limit for this task. When the participants finished reading the articles, they had three minutes to perform the same filler task used in Experiments 1 and 2. After that, they were instructed to turn on the computer screen, read the test instructions, and answer the recognition memory test.

Results

The mean and standard deviation for the effects are reported in Tables 5 and 6.

*Hits*

There were more hits with high-typicality than low-typicality elements, $F(1, 31) = 65.91$, $p < .001$, $\eta^2 = 0.68$, and no main effects of thematic congruence, $F(1, 31) = 0.047$, $p = .83$ $\eta p = 0.00$, or interest, $F(1, 31) = 1.58$, $p = .22$, $\eta p = 0.05$. There was an interaction between product interest and typicality, $F(1, 31) = 7.48$, $p = .01$, $\eta^2 = 0.19$. For low-typicality elements, there were more hits for the products of interest than for the products of no interest, $t(31) = 3.01$, $p = .005$, Cohen's $d = 0.61$, but for high-typicality elements, there were no differences between interesting and uninteresting products, $p = .39$.

*False alarms*

There were more false alarms with high-typicality than with low-typicality elements, $F(1, 31) = 85.57$, $p < .001$, $\eta^2 = 0.73$. There were no main effects of thematic congruence ($F(1, 31) = 0.037$, $p = .85$, $\eta^2 = 0.00$) or interest ($F(1, 31) = 0.33$, $p = .57$, $\eta^2 = 0.01$). Interactions were not significant.

*A'*

There were no main effects of thematic congruence ($F(1, 31) = 0.12$, $p = .74$, $\eta^2 = 0.00$), interest ($F(1, 31) = 0.57$, $p = .46$, $\eta^2 = 0.02$), or typicality ($F(1, 31) = 1.12$, $p = .29$, $\eta^2 = 0.04$). Interactions were not significant.

*B''$_D$ scores*

A stricter criterion was applied to high-typicality than to low-typicality elements, $F(1, 31) = 154.57$, $p < .001$, $\eta^2 = 0.83$. There were no main effects of thematic congruence ($F(1, 31) = 0.017$, $p = .89$, $\eta^2 = 0.00$) or interest ($F(1, 31)$ product interest and typicality, $F(1, 31) = 7.09$, $p = .012$, $\eta^2 = 0.18$. For low-typicality elements, criterion was stricter with uninteresting than interesting products, $t(31) = -2.65$, $p = .012$, Cohen's $d = 0.46$, but for the high-typicality elements, there were no differences, $p = .45$. All $B''_D$ scores were different from .5, $p < .001$.

Discussion

The purpose of this experiment was to examine the effect on memory for ad contents using the same variables as Experiments 1 and 2, but in a self-paced scenario in which participants have control over the content that they pay attention to and the time that they allocate to each one. Most of the effects can be explained by changes in the response criterion, with no need to assume an effect on memory because no differences in accuracy were found for either variable.

The effects of product interest and the typicality of the elements may be the consequence of changes in the response criterion. In this experiment, participants read the information at their own pace and controlled the amount of time allocated to process each piece of information. Thus, when they were presented with ads about products of their interest, theoretically, they should have read them, and better memory for interesting products should be found, as in Experiments 1 and 2.

However, it was not the case here. The better memory for interesting products in Experiments 1 and 2 may be explained by participants making a quick decision about product interest, and when it is not interesting, they stop processing it. A similar but more extreme argument may be used to explain the lack of results in a medium in which participants can skip the ad: Participants realize there is an ad, and before paying attention to content, product, and, of course, before analysing whether the product is of interest, they move on and do not process the ad at all. This would be an avoiding behaviour caused by the overexposure to ads. In a matter of milliseconds, participants are able to differentiate between editorial or ad information (Pieters & Wedel, 2012). This is possible when participants are in control of the information they process, but not when they are listening to radio or watching TV in a lab experiment where the flow of information is con- trolled by the experimenter.

The explanation that participants did not pay attention to ads also accounts for the lack of effect of typicality in accuracy, an unexpected result because typicality has consistently shown strong effects on memory in many different areas. The simpler explanation is that participants skipped the ads and did not process their content. However, this explanation is speculative because we did not collect measures of attention, eye gaze, or processing speed.

Table 5. Mean (standard deviation) of the main effects of advertisement elements as a function of thematic congruence, product interest, and typicality for Experiment 3 (printed media)

| | Thematic congruence | | Product interest | | Typicality | |
|---|---|---|---|---|---|---|
| | Congruent | Incongruent | Yes | No | High | Low |
| Hits | 0.49 (0.78) | 0.50 (0.23) | 0.53 (0.22) | 0.47 (0.21) | 0.68 (0.21) | 0.32 (0.22) |
| False alarms | 0.42 (0.20) | 0.43 (0.18) | 0.43 (0.22) | 0.41 (0.18) | 0.64 (0.24) | 0.20 (0.19) |
| $A'$ | 0.53 (0.01) | 0.54 (0.11) | 0.55 (0.10) | 0.52 (0.12) | 0.52 (0.11) | 0.55 (0.13) |
| $B''_D$ | 0.07 (0.33) | 0.08 (0.37) | 0.05 (0.41) | 0.11 (0.28) | 0.51 (0.34) | —0.35 (0.38) |

Table 6. Mean (standard deviation) of advertisement elements as a function of thematic congruence, product interest, and typicality for Experiment 3 (printed media)

| | Thematic congruence | | | |
|---|---|---|---|---|
| | Congruent | | Incongruent | |
| | Of interest | No interest | Of interest | No interest |
| Hits | | | | |
| High typicality | 0.67 (0.39) | 0.68 (0.30) | 0.64 (0.43) | 0.73 (0.36) |
| Low typicality | 0.41 (0.39) | 0.22 (0.31) | 0.39 (0.35) | 0.25 (0.36) |
| False alarms | | | | |
| High typicality | 0.63 (0.40) | 0.62 (0.38) | 0.65 (0.41) | 0.65 (0.41) |
| Low typicality | 0.22 (0.28) | 0.20 (0.33) | 0.23 (0.31) | 0.15 (0.29) |
| $A'$ | | | | |
| High typicality | 0.52 (0.22) | 0.52 (0.27) | 0.50 (0.26) | 0.54 (0.22) |
| Low typicality | 0.58 (0.23) | 0.51 (0.18) | 0.57 (0.24) | 0.54 (0.22) |
| $B''_D$ | | | | |
| High typicality | —0.32 (0.64) | —0.38 (0.44) | —0.31 (0.58) | —0.38 (0.61) |
| Low typicality | 0.41 (0.53) | 0.59 (0.48) | 0.42 (0.48) | 0.59 (0.43) |

This lack of effect of typicality in accuracy for ad contents is in line with previous results. For example, Rayner, Rotello, Stewart, Keir, and Duffy (2001) presented printed ads that included a picture of a brand name and a varying number of lines of text. Ads were presented in isolation, without article or editorial. Participants had to collect as much information as possible about skin care products or cars and were presented with ads of the two categories along with other unrelated ads. Eye movements showed that for ads with long text (up to 15 lines), participants did not read the full text of the ads, not even in the categories they had to collect information from. However, for ads with short text (one to three lines), participants usually read all of the text. The authors concluded that when confronted with ads with long texts, participants only read part of the text until they felt they had sufficient information from a given ad. The length of the ad-text used in the present experiment was about five lines, similar to the short length text used by Rayner et al. (2001). However, unlike Rayner et al., we did not instruct participants to actively collect information about a specific product. Thus, the lack of effect of typicality may be explained by participants not processing the ads because that was no their goal.

GENERAL DISCUSSION

We studied the effect on memory of the advertisement con- tent for new products presented on television, radio, and in printed media, and the effect of product interest on memory  we also studied the thematic congruence between editorial and ad and the typicality of the elements of the ads. From the results of three experiments, we can conclude that product interest and the typicality of the elements of the ads influence the memory for ad content. However, this is true only when people do not have control over the flow of information and are simply exposed to ads.

Product interest

This is the first time that a study has focused on how the interest in the category of an advertised product can influence memory. As expected, advertisements for products of interest were better remembered than products that held no interest, but only when participants were exposed to ads without the option of skipping them. When participants could skip an ad, the interest in the product advertised did not affect memory. However, in other studies, participants looked longer at the objects they found interesting (Renninger & Wozniak, 1985). This divergence of results may be explained because here we are using ads, and because ads are usually unsolicited and considered annoying, they are generally avoided (Edwards et al., 2002; Ha & McCann, 2008; Zanjani et al., 2011). Indeed, literature has been published on what has been called the 'banner blindness effect', that is, consciously or unconsciously ignoring banner-like informa- tion (Pagendarm & Schaumburg, 2001, although see also Hervet, Guérard, Tremblay, Tremblay, & Chtourou, 2011). In conclusion, even if the product promoted by the ad is of interest, the ad itself seems to be considered uninteresting.

In this experiment, we used fake brands to overcome the influence of preconceptions about familiar brands (Campbell & Keller, 2003; Howard & Kerin, 2011). Studies on memory for brands are prolific in advertising and marketing research (Ahn & La Ferle, 2008; Brintazzoli, Soetens, Deroost, & Van den Bussche, 2012; Campbell & Keller, 2003; Jin, Suh, & Donavan, 2008; Lavak, Thakor, & Bottausci, 2008). The study of brands is important because competition among brands of similar products is fierce. Branding is so important that in some cases the brand name even overrides the name of the product. For example, people usually refer to Pepsi or Coca-Cola instead of a cola refreshment; a similar phenomenon occurs with Post-it and other internationally well-known brands. Our results may have been different if we had used well-known brands For example, it may be that when we encounter an ad for a well-known brand, we pay at- tention to it, at least until we decide if the product or the ad is of interest and worth processing. But, if the ad does not include a well-known brand, as in our experiments, and the audience has the chance to control what they process, as in Experiment 3, our results suggest that the most likely behaviour is that ads will not be processed at all. Considering the impact of brands on choice behaviour (Philiastides & Ratcliff, 2013), and the importance they seem to have on whether or not we pay attention to the contents of an ad, an interesting venue for future research would be to study the interactions between interesting products and well-known brands in self-paced media. Would a product of little or no interest from a well-known brand be better remembered than a product of interest from an unknown brand name?

One limitation of our results regarding product interest is that in order to select what was or was not interesting, we used the evaluations of interest completed by a group of participants with similar demographic characteristics different from the participants in the main experiments. Selecting material through normative studies is widely in experimental psychology and in advertisement research (e.g. see Te'eni-Harari & Lehman-Wilzig, 2009). Thus, we do not think that this feature of our experimental design largely affected our results and conclusion, but it may be interesting to replicate these results when the particular interests of each participant are measured and used to select the interesting and uninteresting products.


Thematic congruence

Thematic congruence refers to a situation in which media and ads share (congruent) or do not share (incongruent) a theme. Despite inconsistent results in the literature, we expected better memory for incongruent ads. However, this was only confirmed in the response criterion for radio ads. This shows that the effect of thematic congruence in our studies is, if any, weak. However, other studies have shown that it does affect memory. For example, Martín-Luengo et al. (2014) found better memory for thematically incongruent ads. This was also a laboratory study, using experimenter-provided materials and the same statistical analyses as conducted in the present study. The main difference between the research reported here and Martín-Luengo et al. (2014) is the material and, importantly, the manipulation of the interest in the product advertised. One tentative explanation for the divergent results between this research and previous studies is that the manipulation of the interest in the product overcame or cancelled the effect of thematic congruence. However, if this was the case, some interactions between thematic congruence and interest should have been expected and were not found. Further research may confirm or discard this tentative explanation.

The finding that the effect of thematic congruence is, at best, weak and that it does not affect memory may also have applied relevance. It suggests that embedding ads into programmes for which products share a theme is not the best marketing strategy, at least, if the objective is to maximize the memory of the features of the product depicted in the ad.

Typicality

The results of the typicality of the elements of the ad indicate that low-typicality contents are better recognized later, a result consistent with past research (Martín-Luengo et al., 2013, 2014). This result suggests that the best strategy to improve the memory for the contents of the ad is to highlight the low- typicality characteristics that set the product apart from the rest. Another relevant result is that the memory for high- typicality elements is different depending on other variables. In particular, memory was poorer for high-typicality elements of the uninteresting products than for high-typicality elements of the interesting products. This result is important because, to the author's knowledge, no differences between high-typicality elements have ever been reported before. However, this result was only found in one of the three experiments reported here. Therefore, it is a result that needs replication before further theoretical consideration. If con- firmed, it will open new paths for exploring how the effect of typicality can be mediated by other variables.

These results also have applied consequences. Depending on the objectives of an ad campaign and the type of ad, it may sometimes be advisable to highlight low-typicality elements, especially when a new product or brand is introduced. In this experiment, new brands were used, and memory was better for the low-typicality contents, that is, the less common characteristics of the products. From an applied perspective, by highlighting low-typicality contents, new brands and products may better differentiate themselves from the competition by highlighting additional or new characteristics that will be better remembered. However, in this experiment, we did not use well-known brands. Specific studies about the effect of the typicality on memory depending of the novelty of the brand should be con- ducted comparing both unknown and well-known brands.

Final remarks

Comparing the results from the three experiments, we find striking similarities between memory for television and radio ads, and a disadvantage for memory for ads in printed media. Press is a self-paced media; thus, the attention and posterior memory should be enhanced for interesting contents in contrast to other media in which people cannot choose how much time to allocate to each type of content. Participants in Experiment 3 were prompted to read the press articles for as long as they wanted, and this allowed us to obtain a more realistic measure of memory, as seen in other studies (e.g. Pieters & Wedel, 2012). Our measures supported the idea that when participants read magazines articles, the ads presented in the periphery are not well processed (Norris & Colman, 1992). However, in television and radio, participants in our experiment were exposed to ads and were not allowed to change the channel or dial. This forced them to watch or listen to the ads, which in turn lead to better memory. Thus, it can be concluded that people skip ads when possible, which leads to the question of whether the money expended on publicity campaigns is well spent. For example, ads displayed on screens in public transportation, such as the Madrid metro or New York cabs, may not be very effective because the perceived intrusiveness of the ads will cause most people to turn their attention elsewhere.

The research on memory for advertisements can benefit from both applied and basic research. Consumers do not make product choices when they are exposed to advertisements, but rather when they are actually buying. Therefore, memory for the ad for a product is necessary. As memory for advertisements affects buying choices, research on the conditions that lead to a better memory is critical (Metha & Purvis, 2006). The experimental methodology can provide the kind of controlled situation in which information about the best parameters to improve the memory for ads can be obtained. On the other hand, basic research on memory benefits from the use of more ecological materials such as advertisements as they provides the opportunity to investigate how messages can influence memory, in particular messages that people try to avoid or just ignore, as is often the case with advertisements.

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