

## Analyzing the Memory Impact of Advertising Fragments

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### **Abstract**

Marketers are making increasing use of very brief messages that mention just a brand name or a brand name with a short headline, as in event sponsorship and program endorsements. There has been debate over the effectiveness of these "advertising fragments." This paper introduces an approach for controlled testing of the effects of advertising fragments. Using a reaction-time based procedure, we show that a key effect of advertising fragments is to revive established brand associations, even though these associations are not explicitly communicated. This reactivation occurs not only when these names receive focal attention, but also when they receive nonfocal attention.

**Key words:** incidental learning, implicit memory, integrated marketing communication, event sponsorship

Advertisers are increasingly turning to what can be called "advertising fragments." Advertising fragments are messages that are restricted to the brand name or to a few words that summarize the brand's positioning platform. They generally involve well-established brands for which consumers have more or less extensive knowledge structures stored in long-term memory. Examples are program endorsement, event sponsorship, product placement, and advertising inserts on the Internet. The already low-involvement nature of the typical advertising exposure (e.g., Hawkins and Hoch 1992; Krugman 1965) is compounded in the case of advertising fragments because the messages are minimal and because the processing of these fragments is generally incidental to the processing of the embedding vehicle or program context (Pham 1992). As a result, some researchers have expressed skepticism about the communication effectiveness of advertising fragments (e.g., d'Ydewalle et al. 1988; Hastings 1984). For instance, although event sponsorship may generate dramatic levels of exposure (e.g., Welling 1986), consumer memory for the sponsor's stimuli may be disappointingly low (e.g., Nebenzahl and Hornik 1985).

While reliance on advertising fragments is pervasive, the literature on their effectiveness is limited, consisting mostly of anecdotes and weakly controlled field studies. Without a rigorous methodology for studying how consumers process advertising fragments,

any conclusion about their effectiveness or ineffectiveness seems premature. One objective of our research is therefore to develop and test a rigorous and flexible methodology for a systematic investigation of the communication effects of advertising fragments. A second objective is to apply this methodology to test the “*extended reactivation hypothesis*.”

We argue that the primary effect of exposure to advertising fragments is not to *create* new memory traces of this exposure, but to revive *existing* memory traces and increase the salience of previously learned associations. A peculiarity of fragment-based communication is indeed that it generally involves well-established brands. The extended reactivation hypothesis refers to the possibility that fragments that mention only a brand name (e.g., “Marlboro”) do not just activate this brand in memory but also make the brand’s core associations or meaning (e.g., “masculinity/ruggedness”) more accessible. The effect of advertising fragments may therefore be more substantial than implied by previous research (e.g., Nebenzahl and Hornik 1985; Pham 1992). This hypothesis is also important because it speaks to the key theoretical issue of the role of integrated marketing communication in sustaining brand equity (e.g., Keller 1996).

### 1. Indirect memory tests and the extended reactivation hypothesis

If the primary effect of advertising fragments is to induce extended reactivation, direct memory tests that assess whether consumers can recall or recognize having seen a fragment may not be relevant. Instead, *indirect* memory tests<sup>1</sup> may be more adequate because they assess whether a learning episode (e.g., exposure to brand fragments) facilitates the performance of a task (e.g., answering questions about brand associations) *without* necessitating recollection of the learning episode (Schacter 1987; Richardson-Klavehn and Bjork 1988). A frequently used indirect memory test is the reduction of response latency to questions about words that have been presented earlier (cf., Richardson-Klavehn and Bjork 1988 for examples). A variant is response latency to questions about words after the presentation of related words. In our case, if exposure to fragments carrying a brand name increases the accessibility of the brand’s core associations, verifying statements about these associations should take less time than if the fragments have not been exposed.

This prediction is consistent with the associative network framework of memory (e.g., Anderson and Bower 1973; Collins and Loftus 1975): Exposure to advertising fragments carrying a brand name should produce an activation of this brand’s node, which will spread to closely associated concepts and activate these concepts as well. However, existing research based on associative networks leaves two issues unaddressed. First, given that consumers are in general minimally involved in processing advertising fragments, it is *not* clear that the level of activation provoked by brief exposures to such fragments is sufficiently potent to stimulate a brand’s core associations (cf. MacLeod and Bassili 1989). Second, should extended reactivation be observed, it becomes important to understand the *contingencies* of this reactivation: How many exposures to the fragments are necessary to induce noticeable levels of extended reactivation? Does extended reactivation

exhibit saturation effects? Is extended reactivation contingent on whether consumers pay conscious attention to the fragments?

## 2. Method

### 2.1. Characteristics of the methodology

The objective of our methodology is to assess the communication impact of fragment exposure (not how brand associations are originally learned). This methodology has the following characteristics:

- Fragments generally involve well-known brands. Using existing brands in an experiment would, however, introduce error variance and potential confounds. We therefore use fictitious brands, and have subjects develop specific knowledge structures about these brands in a separate learning phase.
- Advertising fragments have very limited copy. In this study we examine the effects of repeated exposures to fragments that mention only brand names. Other types of fragments (e.g., short slogans) could be examined as well with the same methodology.
- Typical exposures to advertising fragments occur under conditions of very low involvement, which are generally difficult to produce in a laboratory. Our approach manipulates low involvement as follows. First, exposures to the target fragments are very brief (2 seconds). Second, to ensure that subjects do not identify which brand fragment is the target, exposures to the target are embedded among fragments from a large number of filler brands. Third, two fragments are shown at a time. This allows us to direct subjects' attention either to or away from the target.
- Finally, we test the extended reactivation effects of the target fragment with an indirect measure of subjects' memory, involving response latencies.

### 2.2. Stimulus development

The study focused on a gender association to a fictitious brand of perfume. A pretest was conducted to select the target brand name based on three criteria. First, it had to be a credible name for a brand of perfume. Second, it had to be devoid of intrinsic semantic meaning. Finally, given the nature of the effect examined—that is, the instantiation of brand-specific gender associations through sheer repetition of a brand name—it was most important that the target brand name be, *by itself*, gender neutral. Thirty-six pretest subjects were asked to rate 11 names (e.g., Emerald, Icarium) on a seven-point scale anchored at  $-3 = \text{Definitely feminine}$  and  $+3 = \text{Definitely masculine}$ . The most gender-neutral brand name, Fecci ( $M = .061$ ,  $std = .47$ ), was selected.

A print advertisement for the fictitious Fecci brand of perfume was then created. The execution and copy elements of this ad were designed to clearly position the brand as a perfume for women. The ad featured the close-up picture of an attractive young woman;

a round-shaped bottle of perfume was prominent; and the ad's slogan was "Fecci-The ultra feminine fragrance." It was therefore expected that subjects exposed to the ad during the learning phase would form a feminine core association to the brand. To reduce the salience of the target stimulus and prevent demand effects, the learning phase involved a total of 14 advertisements (1 target and 13 fillers). All ads were constructed from foreign magazine materials that were manipulated through image-editing software that produced high-quality color output. The thirteen filler ads featured fictitious brands in various product categories (e.g., toothpaste, beer, fountain pens).

### 2.3. Procedure

The study was allegedly sponsored by an advertising agency interested in assessing the effectiveness of brand names. One hundred and one business students were paid USD 10 to participate in the study. It involved three phases, all administered by computer. The first part of the study, actually the *learning* phase, was supposedly about brand evocation potential. Subjects saw at their own pace the 14 ads displayed on computer monitors. For each ad, they were asked to answer an evocation-related question varying by product category (e.g., which consumption occasion an advertised beer evoked). For the Fecci ad subjects were asked to list actors or actresses whose personalities fitted the brand, a task expected to reinforce the gender character of the brand's core association. The learning phase was identical for all participants in this study. The experimental manipulations were introduced in the later replay phase.

After the learning phase, subjects completed a 20-minute filler task to prevent them from maintaining the learned material in working memory. The *replay* phase was then introduced as a study about the ability of brand names to attract and retain attention. Subjects were briefly exposed to advertising fragments that featured just brand names from the advertisements of the learning phase. Two brand names were shown at a time (one on the left-hand side of the screen, one on the right-hand side), allegedly to simulate a magazine exposure situation. Subjects saw a total of twelve pairs of brand names, each shown for two seconds. For each pair of brand names, subjects were instructed to focus all their attention on *one* side of the screen and ignore the other. To reinforce this instruction, the frames showing the brand names were interspersed with 2-second blank frames that reminded subjects which part of the monitor to look at. After the replay phase, subjects completed the test phase, where the dependent measures were taken.

### 2.4. Independent variables: Repetition and focus

Two manipulations were included to examine various contingencies of the extended re-activation hypothesis (see predictions below). Advertising fragments vary in the attention that they receive. Some types of fragments (e.g., program endorsements) usually receive focal attention, while others (e.g., billboards in sports arenas) appear in the peripheral visual field (see, e.g., d'Ydewalle et al. 1988; Janiszewski 1990). To assess to what extent

peripherally presented fragments are able to reactivate the brand associations, attention was manipulated between subjects. In the focal attention condition, the target brand appeared on the side of the screen which subjects were instructed to attend to. In the nonfocal condition, the target brand appeared on the unattended side. The left/right location of the focus was counterbalanced across subjects and did not have any significant influence. As a second manipulation, a target brand name was shown either 0, 2 or 4 times during the replay phase. This repetition manipulation served two objectives: (1) to give a first description of the relationship between repetition and activation and explore threshold or saturation effects; (2) to examine whether the deficit in attention of the nonfocal condition could be compensated by increasing exposure frequency.

### 2.5. *Dependent variable: Response latency*

The test phase recorded response latency to statements shown on the computer monitor one at a time in a fixed sequence. Subjects were instructed to verify each statement by pressing one of two keyboard keys labeled "true" or "false." The main dependent measure was the response time to the statement "Fecci is a men's perfume," which was *false*. Subjects were also asked to verify the statement "Fecci is an expensive brand of perfume." This statement was included to rule out an alternative explanation of the results, as discussed later in the paper.

Because response latencies exhibit considerable inter-subject variability and intra-subject variability over time, standard procedures were adopted to reduce error variance (Fazio 1990). First, to familiarize them with the task, subjects were given extensive practice on unrelated trivia statements about existing and filler brands. Second, the analysis included a covariate expected to capture both subjects' baseline reaction speed and their *state of alertness when the target statement was shown*. Finally, subjects were instructed to maximize both speed and accuracy to minimize the variance in response accuracy across conditions.

### 2.6. *Alternative predictions*

Several patterns of findings may arise from the study. There could be a null effect, where subjects in the four experimental conditions take as much time to verify the target statement as subjects in the control condition. This result could indicate that, contrary to our hypothesis, there is an intrinsic inability of fragments to reactivate core brand associations. Alternatively, this finding could be due to less interesting calibration issues.

If, as hypothesized, fragment replay *does* produce extended reactivation, subjects in some of the experimental conditions should take less time to verify the target statement than subjects in the control condition. The specific *pattern* of reactivation across experimental conditions would then be of significant interest. Four patterns of reactivation seem plausible (see Figure 1). The "strong contingency hypothesis" (Panel A) predicts no effects of fragment exposure, unless the exposures are focal. The "weak contingency

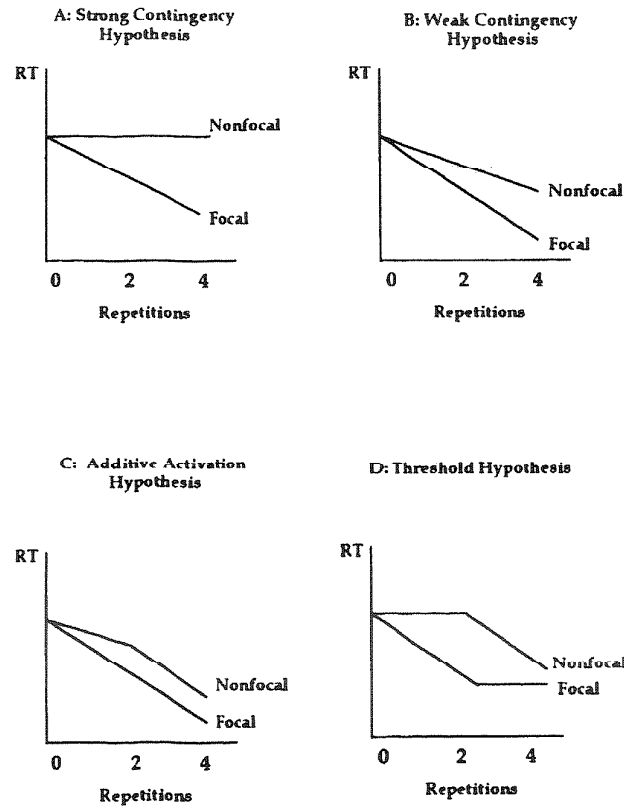


Figure 1. Alternative predictions.

hypothesis” (Panel B) predicts that nonfocal exposures *do* produce extended reactivation, but they do so at a slower rate than focal exposures. The “additive activation hypothesis” (Panel C) implies that focus of attention and levels of repetition have (independent) *additive* effects on reactivation, unlike in the previous two hypotheses. Finally, the “threshold hypothesis” (Panel D) predicts no effect, unless a minimal level of activation has been reached. This threshold should be more difficult to achieve and should require more repetition under nonfocal exposure. The hypothesis also predicts that, beyond a certain point, additional repetitions do not further increase the reactivation. This saturation point is likely to occur sooner in the focal attention condition than in the nonfocal condition. This pattern would be consistent with the assumption that advertising responses often follow an S-shaped function.

### 3. Results

#### 3.1. Check of attentional focus manipulation

To assess whether subjects could follow the instruction “to focus on one side of the screen and ignore the other,” 47 subjects sampled across the different conditions were asked to rate on a seven-point scale (1 = very easy; 7 = very difficult) how easy or difficult it was to focus on the focal brand name and ignore the other. The overall mean ( $X = 2.75$ ) suggests that most subjects found the task relatively easy. The perceived ease of the task was similar across conditions ( $F < 1$ ).

#### 3.2. Instantiation of core association

To review, there were five experimental conditions: zero exposure (control condition); 2 focal exposures (F2 condition), 4 focal exposures (F4 condition), 2 nonfocal exposures (NF2 condition), and 4 nonfocal exposures (NF4 condition). The experimental effects were thus decomposed in a series of contrasts where the zero exposure condition was treated as a control (e.g., Winer 1971, pp. 468–473).<sup>2</sup>

**3.2.1. Preliminary analyses.** When prompted about whether Fecci was a perfume for men, 85 subjects (out of 101) correctly replied that it was not. While not statistically significant, the pattern of error was interesting. The 16 incorrect answers were distributed as follows: 1 in the control condition, 1 in the NF2 condition, 2 in the NF4 condition, 5 in the F2 condition, and 7 in the F4 condition. It appears that the stronger the expected level of reactivation, the more likely subjects were to respond incorrectly. As elaborated in the discussion, this counterintuitive result can be explained by the format of the dependent measure.

Following standard practice (e.g., Fazio 1990), only the response latencies for the correct answers were further analyzed. These response latencies were adjusted for inter-subject variability in baseline speed and alertness at the time of measurement by covarying out the response latency of the preceding statement. Several analyses showed that this particular covariate was legitimate (see Keppel 1991). First, the covariate was not influenced by the experimental treatments ( $F(4,80) = 1.1, p = .37$ ). Second, it was significantly related to the dependent variable ( $F(1,79) = 5.42, p = .02$ ). Finally, the slope of the covariate, when regressed onto the dependent variable, was similar across conditions ( $F(4,75) < 1$ ).

**3.2.2. Main analyses.** The adjusted (least-squares) mean response latencies (in milliseconds) for the target statement are depicted in Figure 2. A first contrast pooled the four experimental conditions (where there was fragment exposure) and compared them with the control condition (where there was no fragment exposure). The contrast shows that, on average, response latencies were slightly lower if there was fragment exposure ( $X = 1739$

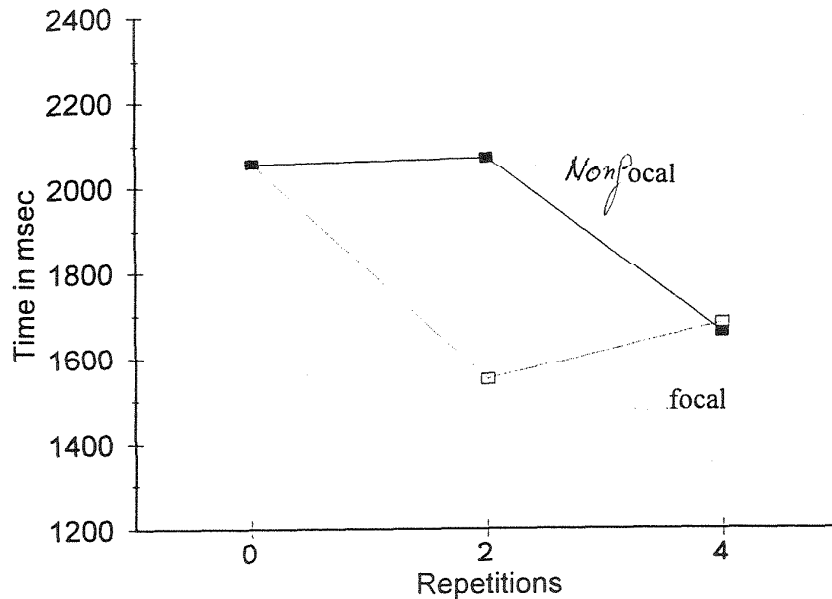


Figure 2. Observed response time.

ms) than if there was not ( $X = 2056$  ms;  $F(1,79) = 2.92$ , one-tailed  $p < .05$ ). Therefore, brief replays of the “Fecci” name seem to increase the accessibility of the brand’s core associations (i.e., perfume for women). As can be visualized from Figure 2, the response latencies in the F2 ( $X = 1549$ ), F4 ( $X = 1680$ ), and NF4 ( $X = 1658$ ) conditions were comparable ( $F(2,79) < 1$ ). Response latencies in these three conditions were significantly lower than those in the NF2 condition ( $X = 2071$ ;  $F(1,79) = 5.43$ ,  $p = .02$ ), which were comparable to those in the control condition ( $F(1,79) < 1$ ).

The results are therefore consistent with the threshold version of the extended reactivation hypothesis (see Figure 1, Panel D). The brand’s core association could be activated by as few as two brief exposures to the brand name, provided that these exposures were focal. When the exposures were nonfocal, four repetitions were necessary. Four focal repetitions do not appear to activate the brand’s core association significantly more than two focal repetitions do. This indicates that a saturation of the reactivation effect sets in fairly quickly.

**3.2.3. Instantiation of core association vs. response facilitation.** One could argue that the faster responses to the Fecci statement in certain fragment-exposure conditions do *not* indicate that the brand’s core associations were instantiated. Instead, repeated exposures to the brand name increased its perceptual fluency, thereby facilitating *any* type of brand-related response (e.g., Mandler, Nakamura, and van Zandt 1987). In other words, the results could be explained by an activation of the brand name only, which did *not* spread



to associated brand concepts. This alternative explanation can be tested by examining responses to the statement "Fecci is an expensive brand of perfume." Recall that in the learning phase, no reference was made to the expensiveness of the target brand. If mere fluency explains the results, the pattern of response latencies to the "expensiveness" statement should be *parallel* to that observed on the main dependent variable. There was, however, no significant effect of the experimental treatment on speed of response to this statement ( $F(4,79) = 1.37, p = .25$ ). Therefore, the main results can probably not be attributed to mere response facilitation.

#### 4. Discussion and conclusion

The first objective of this research was to propose a controlled methodology for studying the presumably subtle communication effects of advertising fragments. The second objective was to test the hypothesis that a key effect of advertising fragments is to reactivate established brand associations, even though these associations are not explicitly communicated. The results seem to support this hypothesis. Subjects who received 2 or 4 focal exposures or 4 nonfocal exposures to the target brand fragment took less time to verify a statement involving the brand's core association than did subjects who were not exposed to the target brand fragment. Because the target brand's name was by itself gender-neutral, it appears that subjects in these conditions indeed accessed the target brand's feminine association when re-exposed to the brand's name. Mere response facilitation because of perceptual fluency (e.g., Mandler et al. 1987) was ruled out as an alternative explanation.

The extended reactivation produced by advertising fragments is reminiscent of cued retrieval in advertising studies (e.g., Keller 1987). Both phenomena can be explained by spreading activation through an associative network. However, there are two major differences between our study and previous research on cued-retrieval. First, previous advertising research has not examined the activation *pattern* produced by the cues. Second, the strength of the cues and their function are very different between the two types of studies. Studies on cued-retrieval in advertising typically use potent cues, and subjects are explicitly instructed to use these cues to retrieve the previously learned associations. Our study, in contrast, used much weaker cues (2 second exposures to a brand fragment embedded among numerous others), and subjects were not instructed to use the fragments to retrieve the associations. The presentation of the fragments did not even coincide with the test phase. The fragments can therefore hardly be referred to as cues.

From a substantive standpoint, it may not appear significant that some subjects took 300–400 msec less than others to verify a statement about the brand. However, what is important in this finding is that it indicates that the entire brand knowledge structure was made more accessible by minimal exposure to the fragments. This phenomenon *is* significant, especially if it occurs repeatedly over time. To appreciate the size of the extended reactivation effect, one should consider the "minimalist" character of the manipulations (Prentice and Miller 1992). That such minimal manipulations produced significant effects in a lab suggests that in the "real world" the magnitude of the extended reactivation phenomenon is likely to be substantial.

Despite some researchers' skepticism, it thus appears that advertising fragments may have significant memory effects that can be examined with the appropriate methodology. Direct recall and recognition tests of advertising fragments seem to miss the essence of fragment-based communication. In a natural context, consumers will either not remember the advertising fragment that caused the reactivation, or will be confused about which specific advertising fragment (of the ones they were exposed to in the past) caused the reactivation. Indirect tests, and reaction-time tests in particular, do not suffer from these limitations.

It is interesting that fragment exposure slightly increased the likelihood of incorrect response, while significantly reducing the latency of correct responding. A plausible explanation may be that fragment exposure produced increased response readiness (Mandler, Nakamura, and Van Zandt 1987) in addition to extended reactivation. Subjects repeatedly exposed to the Fecci fragments may have had an increased tendency to answer "Yes" to questions involving the Fecci brand. Because the correct answer to the target statement was actually "No," these subjects were increasingly prone to provide the wrong answer. This explanation deserves to be further examined.

Other issues remain to be addressed in future research. The study used a stripped-down version of advertising fragments that mentioned brand names without putting them in a relevant context. The effects of embedding the fragments in a meaningful context (e.g., a TV program) are not clear and deserve to be studied. A second series of questions relates to the generalizability of the findings given the specific experimental parameters we used. For instance, how many repetitions are needed to overcome the initial threshold and how many are effective before activation saturation sets in if a different distribution of presentations over time is used in the replay phase? What is the optimal spacing over time for subsequent repetitions? What are the minimum effective exposure durations for focal and nonfocal attention, etc.? Our initial conclusions may need to be qualified if these experimental parameters are altered.

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### Notes

1. Indirect tests are usually seen as reflecting an implicit memory process, while direct tests call on explicit memory. Both types of tests are, however, often impure measures of the underlying memory process. Because a discussion of the correspondence between tests and processes is beyond the scope of this paper, we restrict ourselves to using the terms indirect and direct tests that are just descriptions of tasks.
2. While the zero exposure condition could be regarded as a level of the repetition factor, this level was not crossed with the focus factor, making a standard factorial ANOVA inappropriate.

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