/// Good commercials need to manage attention frame by frame.
Vast sums of money are still spent on TV advertising. In an environment of rising per-viewer rates for advertisers and increased skipping past ads by consumers it is necessary for advertising managers to understand the determinants of commercial avoidance. In order to optimize brand exposure they need information on how to best retain consumers’ attention from moment-to-moment during television advertising. This large-scale eye tracking study shows that the decision to zap or not to zap depends on how the brand is presented within the commercial. First, the ability of a commercial to concentrate consumers’ visual attention reduced avoidance significantly. Second, the likelihood that viewers will zap can be decreased with a “pulsing strategy” in which brand images are shown more frequently for a shorter period of time within the commercial instead of longer at the beginning or end.


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To Zap or Not to Zap: HOW TO INSERT THE BRAND IN TV COMMERCIALS TO MINIMIZE AVOIDANCE

Thales Teixeira, Michel Wedel and Rik Pieters
Branding in Commercials: Characteristics that Matter

Branding activity is the way in which brand identity symbols (name, logo, typeface, trademark) are present at each moment and across time in the commercial. This activity determines the prominence of the brand in commercials. At each moment during the ad, the brand is more prominent to the extent that it appears larger (versus smaller), more central (versus peripheral) and distinguished from its background (versus embedded), visually and eventually simultaneously supported by audio. Further, it is more conspicuous when it appears more (versus less) frequently and for longer (versus shorter) periods during the commercial.

In theory and practice there is still debate on which form of advertising works best. Some recommend small, unintrusive branding while others prefer large, intrusive branding. Likewise, there are recommendations to place the brand as early as possible in commercials, late or early-and-late. Most of the recommendations were derived from experiments with forced exposure — when consumers cannot avoid watching the ads. In such conditions, early and late exposure and more frequent and longer branding can improve comprehension, recall and persuasion.

However, in practice consumers do have increasing control over commercial exposure, which is important. When consumers stop watching commercials before they naturally end, later branding activity cannot have the beneficial effects that have been reported for forced exposure conditions. What if one of the main objectives for advertisers investing heavily in commercials, namely to expose the brand, is related to the consumer’s decision to continue or stop watching the ad? Beside other reasons for zapping during commercial breaks, there might be an impact of the branding activity itself on consumers’ moment-to-moment avoidance decisions.

Television commercials are narratives which aim to convey the brand message and at the same time entertain and retain consumers. Because brands convey information, their prominent presence in television commercials can strengthen the likelihood of their avoidance due to information overload. Moreover, higher levels of branding activity decrease the “soft sell” and boost the “hard sell” character of ads, and people generally resist the forceful persuasion that comes with the hard sell. Therefore, higher intensities of branding activity, though beneficial for comprehension, recall and persuasion when analyzed under forced exposure conditions might in fact have adverse effects. The likelihood of avoidance, might increase at each moment during the commercial with certain momentary (size, separation and centrality) and dynamic (frequency and duration) characteristics of branding activity.

Another, less discussed issue is a commercials’ ability to concentrate consumers’ attention. Consistent with findings in aesthetic psychology it is likely that viewers with less focused attention do not actively follow the ad script and may decide to zap away while commercials that are able to concentrate consumers’ attention are better able to retain them, thus preventing commercial avoidance. While the first mentioned characteristics can be observed directly from the commercial, eye tracking is necessary to follow the pattern of consumers’ attention to specific elements of an ad. To the extent that commercials are successful in focusing and conducting attention, eye fixations of consumers at each moment across its entire duration will be more concentrated at specific locations. Such a dense pattern of eye fixations would reflect desirable bottom-up control of consumers’ focal attention by characteristics of the commercial and the likelihood of commercial avoidance is expected to be lower than for dispersed patterns of eye fixation.

The impact of all these characteristics on commercial avoidance was analyzed in a large-scale experiment using eye tracking technology. Box 1 gives an overview of all the included parameters. Box 2 comprises information on the eye tracking experiment and the devolution of the study (see Box 1+2).

» Consumers who fail to look where all other consumers concentrate their attention have a higher probability to zap. «
The data for this research was collected by the marketing research company Verify International (Rotterdam, the Netherlands). A sample of 31 regular, newly aired commercials of 25, 30 and 35 seconds were selected. They featured known (Citroen, T-Mobile) and unknown (Radio 538, KWF), national (Albert Hein, Unox) and international (Mastercard, Kodak) brands, from a variety of different product categories (food, durables, public and services, electronics, telecoms, clothing), with utilitarian (checking account) and hedonic (chocolate) purchase motivations.

Participants were a random sample of 1,998 regular television viewers (aged 20 to 62, 48% male) and consumers of the advertised products, who were paid for participation. Each person watched a maximum of four television commercials. On average, each commercial was watched by 111 participants. The instruction on the screen asked people to watch the commercials, and to stop watching any commercial at any time by zapping. Immediately after zapping a commercial or after it ended without the participant zapping, the next commercial in the sequence appeared. The order of the commercials was randomized. Filler ads were shown between the target ads but no program content was shown. This experimental setup mimics the common situation of “road-blocking”, in which blocks of commercials are aired at the same time on different channels, so that consumers zapping away from one commercial zap into another one.

Infrared corneal-reflection eye tracking methodology was used to record the focal positions of the viewers’ right eye, in an X and Y coordinate. The data was combined into 40 millisecond (ms) frames, which results in an average of 750 consecutive frames (moments) for every 30 second commercial. For the analysis, the frames were aggregated to a length of approximately 240 ms leading to a total of 125 frames (equal in duration). They retained sufficient detail while making the analysis task manageable.

**THE VARIABLES AND THEIR MEASUREMENT**

**Commercial avoidance**: variable to be explained
Every recorded avoidance decision, when a participant chooses to stop watching a particular commercial by pushing a button (1 = avoid, 0 = else).

**Branding activity**: each featured brand name, logo, typeface or trademark
Recorded semi-automatically by means of specialized software for each time frame of a commercial.

**Stationary brand characteristics**: presence, size, position, separation and mode

**Dynamic brand characteristics**: cardinality and duration across frames.
- Presence indicates whether the brand is on screen (1) or not (0) during a particular frame.
- Size is the proportion of the screen covered by the brand and is zero when the brand is absent.
- Position indicates whether the brand takes a central (within the viewing angle of the eye) (1) or peripheral (0) position on the screen.
- Separation indicates whether the brand is well-separated from its background (1) or not (0).
- Mode indicates whether the brand was additionally present (1) in audio mode or not (0).
- Cardinality captures how many times a brand appears non-consecutively in video mode.
- Duration indicates how long a brand was present consecutively in video mode up to that point.

**Attention concentration**: eye fixations
Individual attention dispersion: eye fixation of each individual per frame at a time
Aggregate attention dispersion: variance of individual fixation across consumers per frame and time

**Control Variables (of ads and participants and featured brands)**
- Visual complexity: file size in kilobytes of the GIF-compressed image (found to correlate highly with human judgments of visual complexity in similar applications)
- Pacing: presence of cuts and edits (1) versus none (0)
- Gender (1 = male, 0 = female)
- Age (years)
- Brand familiarity (familiar = 1, unfamiliar = 0) and
- Product Category (utilitarian = 1, hedonic = 0)

**THE STUDY: EYE TRACKING DURING COMMERCIAL EXPOSURE**

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Determinants of Moment-to-Moment Zapping Decisions

The results showed that all sets of variables had an impact on commercial avoidance. Further dynamic effects and the extent of heterogeneity among consumer attention patterns did matter. The model (see Box 3 for details on the estimation procedure) predicts commercial avoidance with an average absolute error of only 6.5% across the 31 commercials.

A comparison of the relative importance of standardized variable groups shows the following results (Figure 1). Most important are attention dispersion metrics, with a combined posterior (absolute) mean effect of 1.50, followed by branding variables, with a total effect of 0.49, third are visual complexity measures with 0.10, then product-brand control variables (brand familiarity and product category) with 0.04 and finally demographic control variables (age and gender) with 0.02.

Among the branding activity variables, specifically, the presence of a brand, independent of the other branding variables, significantly increased the probability that viewers would stop watching the commercial. Also, when the brand appeared more central and well-separated from the rest of the scene, and later and longer in the commercial (for some periods) the probability of viewers to stop watching the commercial increased as well. The size of the brand did not have an independent effect once the other branding and all other effects were accounted for. Yet, when brands were simultaneously present in audio mode, as opposed to just video or no brand, the probability that viewers avoided the commercial decreased marginally.

Consumers’ attention dispersion had a strong influence on zapping, over and above the effects of all other variables. Advertising aims to attract viewers’ attention to certain parts of a depicted scene and direct it across scenes in an orchestrated fashion to let a message or story unfold. Commercials that are better able to concentrate consumers’ attention are perceived as being more exciting or entertaining and more likely to be watched to the end. Aggregate and individual attention dispersion effects are described in Figure 2. A commercial’s failure
to concentrate all consumers’ attention simultaneously increased the probability that consumers would stop viewing (dispersed dark dots on squares on the right side) the commercial. Also, consumers who fail to look where all other consumers concentrate their attention have a higher probability to zap (depicted by a fairly large distance from the white dot to the cross indicating the center of the gazes in the lower two squares). On the other hand, the probability to stop viewing was lowest when all consumers and each of them individually, concentrated their attention on the same locations in the commercial (upper left square). Therefore, attention needs to be managed frame by frame to keep consumers interested and on the story.
The effect of visual complexity on avoidance proved to be U-shaped. This is evidence for an “optimum level” of visual complexity for commercials at which avoidance is minimal, while both lower and higher levels of visual complexity increase avoidance probabilities. Low visual complexity provides the chance to feature the brand very prominently but seems to bore consumers. High levels might be more interesting but hinder a clear focus of attention (see Table 1).

Further, dynamic effects of a brand’s presence, cardinality, duration and size determined the zap-rate. Baseline avoidance levels are fairly constant throughout the commercials, with less avoidance in the beginning, a stable and long period in the middle, and an increase towards the end. It indicates that there is no point in time, apart from start and finish, when viewers systematically tend to stop viewing more. Brand presence drives the avoidance probability up throughout the commercial, except in the last few time frames, where brands are generally expected to appear, and consumers expect the commercial to naturally end soon. Apart from the start and end, the effect of brand presence slightly increases over time. No strong significant effects emerged for brand cardinality, the number of separate brand-featuring episodes throughout the commercial. However, higher cardinality of brand presence slightly decreased avoidance towards the second half. Just the opposite effect emerged for duration: prolonged brand presence increased avoidance in the middle (significant) with the effect dying out towards the end.

Optimizing Commercials: Brand Pulsing

The optimization problem was solved based on the model described in Box 3. The optimal effect of branding on (minimal) avoidance likelihood depends predominantly on four variables and their estimated time-varying effects: presence, size, cardinality and duration of the brand. According to the model, brand presence will increase avoidance, but taking cardinality, duration and size into account, it may in fact decrease avoidance at certain moments, as is the case, for example, for a large brand shown in the beginning. Apart from the extremes (start and finish of ads), brands that appear later cause more zapping than ones that appear earlier, with larger brands only causing marginally less zapping in the first half of the commercial.

In the optimization process total brand duration (the sum of number of frames with a brand appearance) was decreased for those ads with comparatively high original total duration and increased for those with comparatively low total duration, trading it off with size. The extent to which each of the above effects (increase in cardinality, earlier brand appearance, total duration, size) is mostly responsible for the optimal solution depends on the specific time-frame, because of the specific way the parameter estimates of these variables...

» Commercials that are better able to concentrate consumers’ attention are perceived as being more exciting or entertaining and more likely to be watched to the end. «
FIGURE 3:
Example of Branding Optimization Frame by Frame

NESTLÉ (FOOD)

Original ad no. 09
Zap = 50.7%

Optimized Ad no. 09
Zap = 43.8%

UNOX (MEAT)

Original ad no. 11
Zap = 47.6%

Original ad no. 11
Zap = 42.5%
Vary over time. Figure 3 compares the original (upper graph) with the optimized ad (lower graph) for two of the 31 commercials. It shows brand presence (thick line) and the size of the brand (thin line). As described before, most of the improved ads have more/shorter brand appearances up to around the 100th frame mark and less/longer ones thereafter. The improved solutions have frequent but brief brand appearances. Therefore good commercials need to manage attention frame by frame. «

On average, avoidance dropped by 7.9 % in the optimized compared to the original commercials, with a range from 2.0 % to 19.1 %. All improved ads were predicted to be avoided less than their original counterparts, and for 12 of the 31 ads the magnitude of the reduction was larger than the estimation error.

While these findings are theoretical, a follow-up lab experiment confirmed the superiority of brand pulsing with actually modified commercials via moderate, not drastic changes in cardinality of the brand. Maintaining average brand size and total duration of brand exposure constant, four out of six ads showed appreciable differences in zapping, ranging from 9 % to 25 %, between the versions with high and low numbers of brand pulses. In particular, three commercials altered to have a higher number of pulses showed major decrease in zapping and one commercial altered to have a lower number of original brand pulses showed a major increase in zapping. This is an indication that the findings work both ways. Further, an average relative reduction in zapping was attained despite the number of inserted brand pulses being lower than the number suggested by the optimal solution (because of practical restrictions in modifying existing ads in an unobtrusive way).

Key Findings and Managerial Implications

> Pulsing brand appearance reduces zapping

Marketing managers try to maximize the prominence of their brands in commercials, for instance, by exposing them early, long, in the middle of the screen, separated from the rest of the commercial. While such branding strategies increase brand awareness when a commercial is watched from end to end they can actually be harmful to advertising objectives because they favor zapping. Taken alone, brand presence automatically increases commercial avoidance but a “pulsing strategy” in which the brand is inserted briefly and intermittently throughout the commercial (without decreasing the total time of brand exposure) results in average decreased zapping of 8-10 %. Dispersing brand-feature-time across the whole duration of the commercial is a cost-free and easily manageable strategy that can be used both before and after final production, even while the campaigns are in the media (subject the creative design allows for minor adaptations). The brand pulsing tactic can be observed very well in some ads, as in the award-winning “The Happiness Factory” for Coca-Cola, and various automobile commercials that briefly show the brand logo of a car from various angles, e.g. as it maneuvers a winding road.
Focused attention keeps viewers in line
Independent of branding activity and other factors, the ability of commercials to concentrate consumers’ visual attention reduced commercial avoidance significantly. The farther away a person’s gaze is from that of most of the other viewers, the more this person is likely to zap away. Therefore a commercial’s power to concentrate, hold and direct visual attention is crucial to advertising effectiveness. By means of eye tracking, advertisers can see where they begin to lose people and (re)design the commercial accordingly. Attention is a scare resource but can be managed accordingly to reach the desired effects.

Medium levels of visual complexity work best
Consumers’ moment-to-moment decisions to continue or stop watching commercials also depended on the optimal amount of visual complexity in the commercials, independent of all other factors. That is, both under low and high levels of visual complexity, the likelihood that viewers would stop watching commercials was higher than under intermediate levels of visual complexity. The objective measures of pacing and GIF-compressed file size of each frame are easy to implement also in practice and can – supplemental to other quality indicators – further help to design commercials that work. •


KEYWORDS:
TV Advertisement, Zapping, Commercial Avoidance, Branding, Attention, Pulsing