Measuring the Effects of Video Advertising on Brand Associations

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Measuring the Effects of Video Advertising on Brand Associations

Christian Caldato, Simone Benedetto
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Abstract

This paper investigates the effects of video advertising in eliciting short-term changes in the strength of brand associations in both the target brand and the main competing brand. Using the «response latency task» defined by Till *et al.* (2011), the authors compared the strength of the associations related to a target brand and its main competitor before and after eighty participants viewed a video advertising the target brand. Findings suggest that advertising can reinforce brand associations of the target brand, enhancing their strength. Simultaneously, the same advertising also affects the competitor's brand associations, but the effect is smaller.

Keywords: Video advertising, brand associations, advertising, spillover effect, competitors advertising.

1. Introduction

According to the 2017 Zenith's report, internet advertising has officially overtaken advertising on traditional television. The rapid rise in video viewing makes online video the world's fastest-growing advertising format with global viewers spending an average of 67 minutes a day watching content and projected to reach 84 minutes by 2020. Online video advertising is benefiting from the increasing availability of

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high-quality content and improvements of the mobile viewing experience. According to the Digital Content NewFronts: 2019 Video Ad Spend Report, released by the Iab, brands are expected, on average per advertiser, to increase spending by over 25% reaching up to $ 18 million on digital video in 2019, with $ 9.3 million allocated to original content. Thus, it is crucial to understand the effect of this type of advertising.

Despite the huge amount of research on video advertising (both displayed on Tv or other devices) (Li and Lo, 2015; Pagani *et al.*, 2015; Pham *et al.*, 2013) few studies have focused on the impact of video advertising on brand associations, a core component of brand image. In order to create strong brands companies must develop a set of positive associations around them (Till *et al.*, 2011; Flight and Coker, 2016). Through advertising, companies can define, reinforce or change the associations linked to their brands (Keller, 1993), altering the relative competitive positioning of brands.

The knowledge of a brand, and therefore its associations, can be directly created by companies or could be transferred by other brands or entities (Keller, 2003b). Co-branding, celebrities' brand endorsements (Martini *et al.*, 2016) and brand extensions are based on this process. In this way, the knowledge about an entity can be transferred to another one, if some links exist. These links can also be found with competitors' brand because some associations are shared among brands (generic associations) within a category.

Brand associations are important for both scholars and practitioners, but surprisingly enough, the literature is still lacking in analyses of how brand associations change according to planned communication activities and in particular, to video advertising. Some studies tried to map brand associations and suggested several methods to measure brand image according to the constellation of associations (Camarrone and Van Hulle, 2019; Schnittka *et al.*, 2012; Till *et al.*, 2011). However, they do not test how brand associations change depending on specific advertising stimuli. Brand associations are often represented by a static mental map, but what happens when consumers are exposed to advertising? Does the mental map change accordingly? Moreover, based on the aforementioned transfer property, what would happen if competitors try to reinforce brand associations shared by the firm itself? These questions have yet to receive an adequate empirical answer.

The aim of this paper is to fill the literature gaps regarding the *dynamics* of brand associations by investigating the effects of video advertising in eliciting short-term changes in the strength of brand associations in both the target brand and a competing brand that share

some associations. Up until today, only a few research (Anderson and Simester, 2013; Janakiraman *et al.*, 2009) have studied and demonstrated the possibility of positive and negative spillovers from competitors' advertising, but neither of those studies have measured the impact of competitors' advertising on brand associations. Using the «response latency task», as defined by Till *et al.* (2011), we compared the strength of the associations related to a target brand and to its main competitor, before and after the exposure to a target brand video advertising. Participants engaged in a response latency task, had to respond «yes» or «no» to each brand/association pair and researchers recorded the responses (yes or no) as well as their reaction times (response latency). This methodology has been used in the marketing field (Fazio *et al.*, 1989), to test the strength of brand associations (Till *et al.*, 2011), but at the best of our knowledge this is the first application to test how brand associations change after a stimulus. Thus, we were able to capture the dynamics of brand associations caused by a specific stimulus.

The paper is organized as follows. First, we review the literature related to brand associations, the effect of advertising on them and spillover effects of competitive advertising, formulating the hypotheses. Secondly, we present our methodology and describe the results. At last, we discuss the results and the managerial implications of the study.

2. Theoretical development and hypotheses

2.1. Brand associations and advertising

According to many scholars (Aaker, 1996; Chaudhuri, 1999; Hart and Murphy, 1998; Hsieh, 2004; Walvis, 2008; Wansink, 2003), brand associations are an important component of brand equity because of their role in brand knowledge and image creation. Keller (2003a) describes them as informational nodes, linked to the brand node in consumers' memories, which build the meaning of the brand for those consumers. This is consistent with the widely acknowledged Human Associative Memory (Ham) model (Anderson and Bower, 1973) which considers memory as a network of interconnected informational nodes (Teichert and Schontag, 2010). It is well known that brand knowledge is not static since memory is an active constructive process where information is acquired, processed and stored (Braun, 1999; Dahlén *et al.*, 2005). Consumers encounter new brand information through communication and this can influence consumers' memory structures in relation to brands (Anantachart, 2005).

Most of the studies about the impact of advertising on brands use the attitude towards the brand as an outcome of exposure to an advert (Pagani *et al.*, 2015; Spears and Singh, 2004), since it represents a summary evaluation of the brand. Few studies have focused on the brand associations (Clayton and Heo, 2011) and to our knowledge no one tried to measure the impact on specific product-related associations, analyzing whether and how they change after the exposure to the stimulus.

As highlighted by Keller (2003b), advertising can impact on brand associations in two ways: *a*) reinforcement of existing associations which aims to strengthen associations that are already in consumers' minds, so as to increase brand awareness and brand loyalty, and/or *b*) creating new associations, thereby redefining the image and positioning of the brand.

Brand associations are also interlinked with each other and have different levels in the consumers mind. The brand images consist of much larger numbers of primary and secondary brand associations (Teichert and Schontag, 2010). In order to measure how much a brand association is linked to the brand and contributes to the brand image, the strength of brand association has been employed as dependent variable. Strength of association is defined as: «the intensity of the connection between the association and the brand node» (Crawford Camiciottoli *et al.*, 2014). As highlighted by Keller (1993), associations have different strengths: i.e. they have stronger or weaker links to the brand's node in consumers' memories.

When exposed to brand advertising, consumers process information that has to match with their previous knowledge of that brand. According to Dahlén *et al.* (2005), congruent advertising between message concepts and brand associations advertising, can reinforce information about the brand associations. Thus, since brand knowledge may be rather dynamic and brand associations are not all equally important (Keller 1993) we hypothesize that:

H1: *Advertising can enhance the strength of existing brand associations.*

2.2. Spillover effects in advertising

Spillovers occur when information and existing perceptions influence beliefs that are neither directly addressed by, or related to, the original information source or perception object (Janakiraman *et al.*,

2009). Spillover effects are a crucial part of brand extension strategies, because information regarding one product affects consumer evaluations for other products within the same family brand. Several studies have demonstrated that advertising plays an important role in the spillover effect (Liu and Wu, 2018; Dens and De Pelsmacker, 2016), since it provides crucial information for (brand) knowledge formation.

Few empirical studies have demonstrated positive spillover effects from competitors' brand due to the advertising campaign of one of them, mainly because the traditional model of competition predicts that advertising has a positive impact on the firm and a negative impact on competitors. The transfer of consumer perceptions across products owned by competitors is consistent with Feldman and Lynch's (1988) accessibility-diagnosticity model, which postulates that an earlier response will be used as an input to a subsequent response, providing that the former is accessible, and it is perceived to be more diagnostic than other accessible inputs. Competitive spillovers mainly occur when consumers perceive the two brands as similar, due to high diagnostic capacity and accessibility. Janakiraman *et al.* (2009) used a panel dataset for the antidepressant therapeutic market to demonstrate that spillovers from one brand to a competing brand will occur when the two brands are perceived as similar, because the perception of the quality of one of the brands can be considered to be indicative of the quality of the other brand.

Recent studies, using large randomized trials, provide compelling evidence that advertising can have positive externalities on rivals, rather than pure business-stealing effects. Anderson and Simester (2013) ran a controlled experiment at a private label retailer in three product categories and showed that consumers exposed to rivals' advertising purchased 5% more items from the retailer. Sahni (2016) conducted a similar controlled experiment on a set of ads shown to visitors at a restaurant search website and showed the existence of positive spillovers among rival restaurants that served the same cuisine as the advertising restaurant. Lastly, Lewis and Nguyen (2015) randomized advertising to millions of visitors to Yahoo! and established that, whilst display ads increased searches for the advertised brands by 30-45%, they also increased searches for rival brands by 23%.

Spillovers occur also in case of crisis or adverse situation. As to negative effects, Roehm and Tybout (2006) examined the spillover from a brand scandal within a product category, confirming the existence of negative spillover effects. The same findings emerged from the study of Darke and Ritchie (2007), in which they demonstrated that the negative effects of «advertisement deception» caused by one company can also

affect the evaluations of products featured in subsequent advertisements coming from a different company.

Referring again to the brand extension literature, where spillover effects are mainly analyzed, many scholars (e.g. Aaker and Keller, 1990) demonstrated that perceived fit between the brand and its extension improves consumer evaluation of the extension itself. Perceived fit occurs when a high number of shared associations between the brand and the extension exists.

If brands are similar, they share some associations. Thus, based on the concept of perceived fit and the studies about spillover effects among competitors, we can posit that when one of the brands tries to reinforce associations shared with competitors through advertising messages, the competitor's brand will also be affected by the communication message. In fact, as highlighted in the previous paragraph, activation can spread from one memory node (i.e. target brand) to related nodes (i.e. competitors' brands). Communication reinforces the target association linked to the advertised brand, which in turn is linked to the competitor's one. If this association is already present in this latter brand's associative network, then competitor's advertising will reinforce it.

Thus, we can hypothesize that:

H2a: *If a competing brand is similar, advertising can enhance the strength of competitor's brand associations*.

However, because the link between the association and the competitor's brand is not direct, due to the mediation triggered by the advertised brand, we postulate that the increase in the strength of brand associations will be greater for the advertised brand. Based on the concept of spreading activation of the Ham model, the nodes that are primarily activated constitute the source nodes that activate adjacent nodes in the flow of thoughts (Teichert and Schontag, 2010). In our hypothesis, the target brand plays the role of source node, activating the shared associations of the competitor's brand. In this case, for the latter we activate a second order association i.e. link is not direct (French and Smith, 2013), thus we hypothesize that:

H2b: *The increase in the strength of brand associations is greater for the advertised brand compared to the competing brand.*

3. Methodology

3.1. Participants

Eighty Italian participants (38 females, mean age = 32, *Sd* = 5) volunteered for the research. Another group made of twenty Italian participants (11 female, mean age = 31, *Sd* = 6) volunteered for the preparatory phase. Each of them gave written, informed consent before participation and was naive to the experimental stimulus (i.e. none of them had watched the Mastercard video advertisement before the experiment). The study was performed in a controlled experiment room at the Tsw The Sixth W, Treviso, Italy (www.tsw.it/) in compliance with the latest Declaration of Helsinki. An internal Ethics Committee approved the study. The recruitment was carried out according to the target of the campaign, which was declared in an official press release by the Mastercard Head of Marketing (Mastercard, 2016). It was made by people aged from 25 to 64 years old, workers, but not necessarily customers. All the participants involved in the study had previous knowledge of both the brands, half of them was currently using a Mastercard credit card, whereas the rest of the participants were Visa users. This means that some associations about the brands already exist in the participants' mind.

3.2. Experimental procedure

This study investigates the influence of a video advertising on the strength of associations in both the target brand and its main competitor. As in previous research related to brand association maps (Checchinato *et al.*, 2016; Dahlén *et al.*, 2005; Schnittka *et al.*, 2012), we needed to employ real brands (rather than fictitious ones) to obtain reliable associations and involve participants that already knew the brands. In this study, the product category is «credit cards» where Mastercard and Visa are the brands. Credit card category was chosen because of two main reasons: first, products within this category are perceived to be similar to each other; second, because credit cards' firm need to improve consumers knowledge on the products and so their financial literacy, in order to increase the market size, since the number of users was stable during the last years[1] (Crif, 2017). Mastercard was chosen as the

[1] https://www.crif.it/ricerche-e-pubblicazioni/osservatorio-sulle-carte-di-credito-e-digital-payments/2017/settembre/osservatorio-sulle-carte-di-credito-volume-15/.

target brand, Visa as the competitor brand. We chose these two brands because they are similar, they are the market leaders and they have the best reputation in Italy (Italy Financial RepTrak, 2017). Mastercard was chosen as the target brand because, at the time the study was conducted, it launched a new international campaign, which first appeared in the Netherlands and then later in Italy. The main message delivered by the advertisement is that consumers are always protected when they use their credit cards (Mastercard, 2016). For example, the video states explicitly that, in the event of unauthorized transactions, Mastercard clients are fully reimbursed.

As required by Teichert and Schontag (2010) methods for measuring consumer knowledge structures should go beyond predefined item lists, thus a preliminary study was carried out to identify the set of brand associations to be employed in the brand association task. Following the procedure described by Till *et al.* (2011), we first carried out a preliminary study in which we asked 20 participants to name the first four associations that came to their mind, using Mastercard and Visa as prompts. These participants were not involved in the response latency task. According to those authors, this method is a compromise between a «discrete association task» (in which participants are asked to provide just one association), and a «continuous association task» (in which participants are asked to give an exhaustive list of associations). It was apparent that the resulting set of words associated with the brands (i.e. the brand associations) consisted of four elements: Transparency; Trust; Renown; and Champions League. We then added two supplementary associative concepts (i.e. Protection and Safety), grounded on the Mastercard rebranding strategy and largely employed in the video advertisement screenplay (see Mastercard – Protetti sempre e ovunque).

After having defined the set of brand associations (Protection; Safety; Transparency; Trust; Renown; and Champions League) through the aforementioned procedure, eighty participants underwent a «response latency» task, in which they were asked to respond *yes* or *no* to each brand/association pair. According to the model of Till *et al.* (2011) we consider the speed of response as an implicit measure of the association strength: the faster the response to the association, the stronger the association. We recorded the number of explicit responses (*yes* or *no*), as well as the speed of their responses (response latency). Our procedure was based on the Brand Association Reaction Time Task (Bartt) script provided by Inquisit 5.0.7, which enables measurement of the frequencies and reaction times of participants' judgments as to whether or not words are associated with brands, as described in Till *et al.* (2011).

Participants were first exposed to one of the brands (Mastercard or Visa) for 750 milliseconds (ms). The brand was then replaced with one of the six associations from the association task. Participants were instructed to press, as fast as possible whilst making as few mistakes as possible, either a key for *yes* if the association described the brand, or a key for *no* if the association did not describe the brand. As suggested by Fazio (1990), practice trials were used to familiarize participants with the task and to get the motor skill component to a fairly constant rate. The presentation of brands and associations was randomized to reduce any order effect bias or association chaining. The Bartt was carried out before and after the presentation of the video advertisement.

3.3. Dependent variables

Based on the theoretical perspective described above, our methodology was designed to reveal the associations that are part of a brand's immediate network, and to provide a detailed analysis of those associations in terms of their frequency and strength. Frequency was defined as «the number of mentions over the associations to the brand»: as suggested by Teichert and Schontag (2010), the more respondents have similar associations, the higher the average node strength. Strength was defined as «the latency of response to the brand associations» (Fazio, 1990). The faster the participants responded to the target inquiry, the stronger the association. For each brand (Mastercard or Visa), we firstly calculated the Frequency of Associations (FoA), and secondly the Strength of Associations (SoA). Only the *yes* responses were considered for FoA and SoA (Till *et al.*, 2011).

4. Results

As to the FoA, descriptive statistics for each brand (i.e. Mastercard, Visa) and relative associations (i.e., Protection, Safety, Transparency, Trust, Renown, Champions League), were calculated and reported in Table 1. The dataset consisted of 1,407 samples i.e. *yes* responses of 80 participants X 6 brand associations (i.e., Protection, Safety, Transparency, Trust, Renown, Champions League) X 2 brands (i.e., Mastercard, Visa) X 2 periods of time (i.e., Before ad, After ad). Similar scores (*yes* responses) were observed for Trust, Protection, Safety, for both Mastercard and Visa, before and after the Video ad. As to Visa, fewer *yes* responses to the brand association *transparency* were observed before

TABLE 1. *Frequency of Associations (FoA) – Descriptive statistics.*

Association	Brand			
	Mastercard		Visa	
	Before	After	Before	After
Trust	68	70	66	70
Protection	66	71	66	70
Safety	65	68	63	64
Transparency	61	66	56	65
Renown	63	69	52	47
Champions League	44	46	18	13

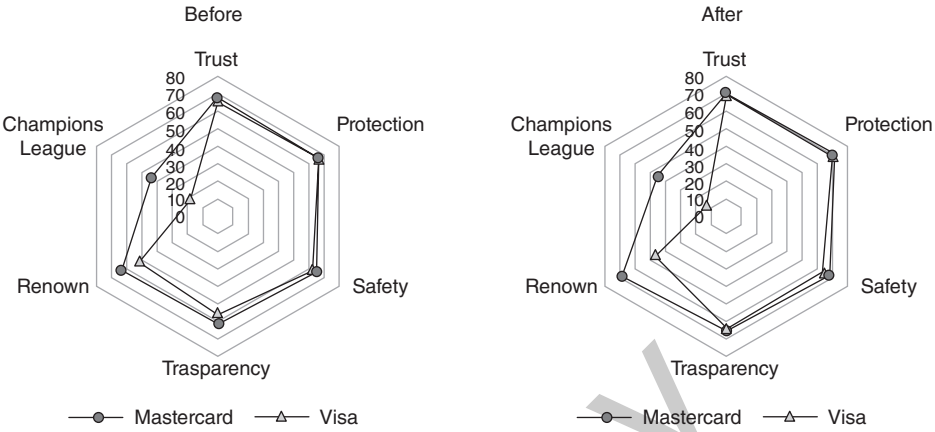

FIGURE 1. Frequency of associations (FoA) for brand (Mastercard, Visa) and time (before and after the Video ad viewing).

the Video ad. Fewer *yes* responses were also observed for the brand association *renown* both before and after the ad. An even stronger decrease of *yes* responses to the brand association was also observed for the brand association Champions League both before and after the ad. Overall a slight decrease for the brand association Champions League was observed for both brands with respect to the other brand associations (Figure 1). No differences between the group made by Visa and Mastercard's customers were observed.

When analyzing SoA, only the *yes* responses (the brand and association belong together) were considered. Before proceeding with the analysis, we removed outliers that were defined as response latencies below 300 ms and above 3,000 ms (Greenwald *et al.*, 1998). No differences between the group made by Visa and Mastercard customers were observed. According to this threshold, which is typically employed with analysis involving reaction times, outliers were identified and removed. Outliers

TABLE 2. *Strength of Associations (SoA) – Means and standard deviations*

Association	Brand			
	Mastercard		Visa	
	Before (Ms)	After (Ms)	Before (Ms)	After (Ms)
Trust	1158 ± 404	858 ± 280	1055 ± 356	1000 ± 453
Protection	1331 ± 537	924 ± 349	1173 ± 500	1072 ± 392
Safety	1290 ± 514	922 ± 298	1171 ± 396	1029 ± 364
Transparency	1283 ± 497	987 ± 407	1173 ± 474	1067 ± 451
Renown	1176 ± 437	958 ± 358	1308 ± 633	992 ± 409
Champions League	1143 ± 449	1046 ± 421	1550 ± 679	1345 ± 825

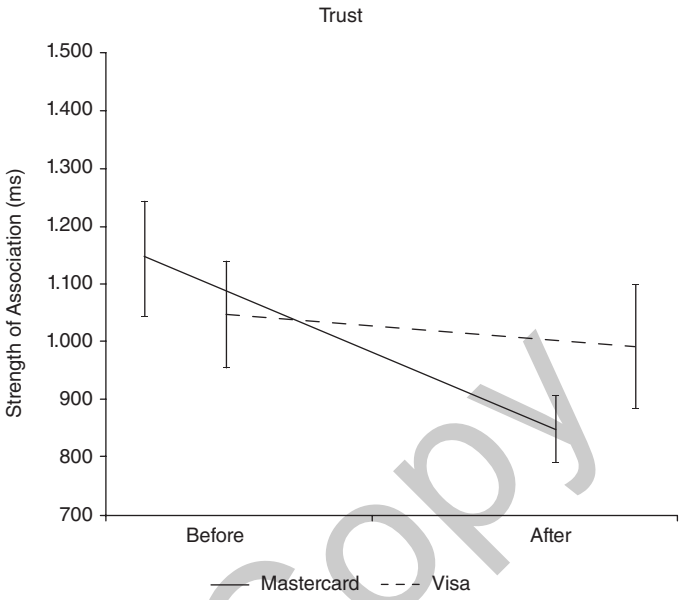

FIGURE 2. Trust – Strength of association (SoA) for brand (Mastercard, Visa) and time (before and after the Video ad viewing).

represented 2.9% of the dataset. After removal, the dataset consisted of 1,366 samples. Because response latencies were not normally distributed, non-parametric statistics were performed and the Wilcoxon test for paired samples was used for planned comparisons. Means and standard deviations for each brand and the 6 associations are reported in Table 2. We did not carry out any statistical analysis on the brand association Champions League because of the scarcity of paired samples.

As to Trust (Figure 2), significant differences were observed between the two brands before the video, with a stronger association

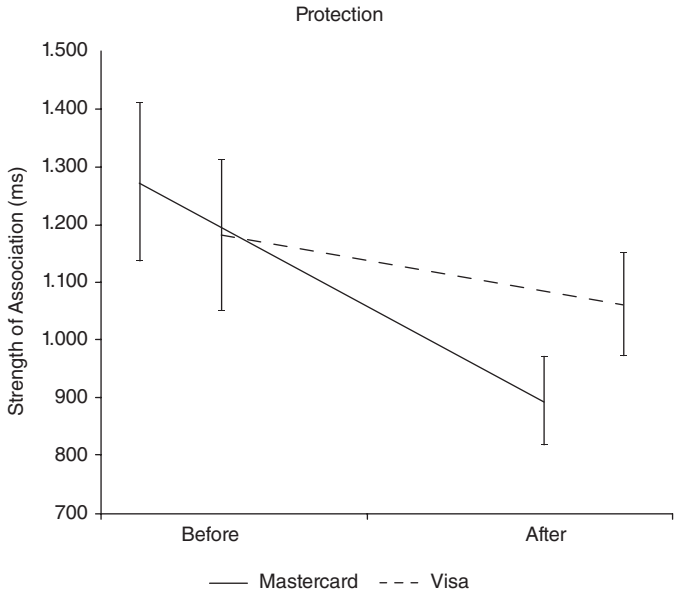

FIGURE 3. Protection – Strength of association (SoA) for brand (Mastercard, Visa) and time (before and after the Video ad viewing).

for Visa than Mastercard ($Z = 2.28$, $p < .05$, $r = .49$). In contrast, after the video a stronger association was found for Mastercard than Visa ($Z = 2.34$, $p < .05$, $r = .17$). Differences between SoA before and after the video were observed for Mastercard ($Z = 5.04$, $p < .01$, $r = .24$) but not for Visa (Z = n.s.).

As to Protection (Fig. 3), no differences were found between the two brands before the video. Differences between the two brands were observed after the video, with a stronger association for Mastercard than Visa ($Z = 3.02$, $p < .01$, $r = .26$). Differences between SoA before and after the video were observed for Mastercard ($Z = 5.67$, $p < .01$, $r = .38$) but not for Visa (Z = n.s.).

As to Safety (Fig. 4), differences were observed between the two brands before the video, with a stronger association for Visa than Mastercard ($Z = 2.15$, $p < .05$, $r = .36$). Conversely, a stronger association was found for Mastercard than Visa after the video ($Z = 2.88$, $p < .01$, $r = .43$). Differences between SoA before and after the video were observed both for Mastercard ($Z = 5.52$, $p < .01$, $r = .30$) and for Visa ($Z = 3.82$, $p < .01$, $r = .46$).

As to Transparency, no differences were observed between the two brands before and after the video. However, there were differences be-

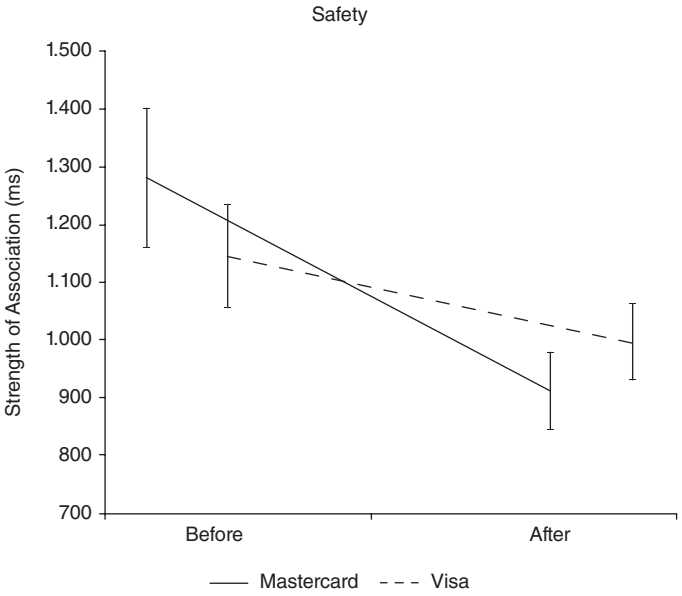

FIGURE 4. Safety – Strength of association (SoA) for brand (Mastercard, Visa) and time (before and after the Video ad viewing).

fore and after the video both for Mastercard ($Z = 5.58$, $p < .01$, $r = .39$) and for Visa ($Z = 2.13$, $p < .05$, $r = .28$).

As to Renown, no differences were observed between the two brands before and after the video. The SoA before and after the video was different for Mastercard ($Z = 3.41$, $p < .01$, $r = .22$) but not for Visa.

5. Discussion

We measured the strength of associations for the same brand, before and after participants' viewing of the video, and the differences in the strength of associations between the advertised brand and its competitor before and after this viewing.

We documented both the effect of advertising in reinforcing associations and the existence of positive advertising spillovers between competing brands on shared associations within a product category.

In line with H1, we demonstrated that advertising can increase the strength of brand associations. The video advertisement by Mastercard used in this study increased the strength of five out of six associations to Mastercard, i.e.: Safety; Trust; Protection; Transparency; and Renown

(its effect on the SoA of Champions League being unknown due to a lack of appropriate data). In turn, the strength of only two associations to Visa improved after the video (i.e. Safety and Transparency). These results partially confirmed H2a: if competing brands are similar, advertising can reinforce the strength of brand associations of the competitor. Because stronger associations were nearly always found for Mastercard than Visa after the video (except for Transparency, for which there was no difference between the two brands), we can state that our findings are coherent with H2b: increases in SoA are greater for the advertised brand.

In respect to Trust and Safety, although the SoA was greater for Visa than Mastercard before the video, this situation was reversed after the video, with a stronger association to Mastercard than Visa. Regarding Protection, although no differences were found between the two brands before the video, there was a greater SoA to Mastercard than to Visa afterwards. The FoA with Champions League was so much higher for Mastercard than for Visa (see Table 1) that it prevented us from performing any statistical analysis on the SoA because of the scarcity of available paired samples. The large difference between the brands in FoA to Champions League was not apparent for the other associations.

Although our results may have been influenced by «priming», i.e. the situation in which exposure to one stimulus (perceptual pattern) influences the response to another stimulus (Laran *et al.*, 2011), this study provides new information regarding the ways in which the strength of brand associations are influenced by a video advertisement.

Our results show how viewing a video advertisement affects not only the associations to the target brand but also, to a lesser extent, it could even affect associations to a competing brand.

In summary, our study makes three key contributions to the brand management and advertising literature. First, we provide empirical support for the impact of advertising in changing the strength of specific brand associations in the short term. In particular, we find that different associations have different strength, confirming the Keller (1993) framework that postulates that association can have stronger or weaker links to the brand's node in consumers' memories. These findings also support Crawford Camiciottoli, Ranfagni and Guercini (2014) research on brand associations. Formerly, many studies have been carried out to conceptualize how brand association networks form and operate, as well as to define models and techniques to map the associative network (John *et al.*, 2006; Schnittka *et al.*, 2012). This research confirms with empirical analysis that advertisement has an impact on brand association and can influence memory structure in relation to brands.

Second, we confirm that brand associations are interlinked to each other (Teichert and Schontag, 2010) and the advertisement stimulates both the primary and secondary nodes, namely the brand associations and the associations of the competitor brand due to the mediation, as a node, of the advertised brand. This finding contributes to extend prior theory by providing novel empirical insights into the spillover effect of advertising. Previous research demonstrated that negative information spills over to the other brands when the brands are perceived to be similar (Roehm and Tybout, 2006; Dahlén and Lange, 2006). Based on the secondary source of brand knowledge (Keller, 2003a) our research confirms that advertising teiggers positive spillovers and provide empirical evidence that this spillover effect can also affect brand image and not just sales as shown by Anderson and Simester (2013), Sahni (2016) and Lewis and Nguyen (2015).

Third we adopt and propose an innovative testing methodology, which overcomes some of the limitations of previous research that employed self-administered questionnaires or focus groups and in-depth interviews (Daniels *et al.*, 2019; Donlan, 2013; O'Cass and Frost, 2002). At the same time, we do not need to adopt neuroscience methods such as electroencephalography (Eeg) as in Nedelko *et al.* (2017). Our research simply extended the Till *et al.* (2011) approach, adding the dynamics component and suggesting its use before and after the stimulus presentation.

6. Limitations and future research

Although this study provides new knowledge, to replicate the study across other product categories and brands is needed. Firstly, future studies should consider other sectors and markets with different degree of differentiation among brands such as hotel search engines – for which we postulate to expect larger spillover effects due to the similarity of brands and the need to create general knowledge on the prospects' minds – and luxury brands of fashion for which, on the contrary, we expect to find smaller spillover effect. Secondly, it investigates how the strength of brand associations changes in the short-term due to a specific touchpoint: the video advertisement. Future studies will investigate the longitudinal effects of such associations, and will also test the effects of different brand touchpoints, allowing the following questions to be answered: How long do those associations last for?; How strong are they?; What happens if we employ other touchpoints, such as print, radio, online ads or other, more interactive ones such as taste for food or wine categories (Maison *et al.*, 2004)?

Moreover, as highlighted by Halkias and Kokkinaki (2017) consumers typically have a strong and well-established brand impression of brands at a later stage of the product-life cycle, so the effectiveness of advertising on brand associations could be different if we have tested weak brands or competing brands with different strengths. Thus, this should be another field to explore in the future.

6.1. Managerial implications

Companies need to monitor the effects of their investments in advertising, verifying whether brand associations are changing according to their advertising strategies. Also, they need to know if the message and the related associations have been processed and perceived as planned, reinforcing correct associations. Crawford Camiciottoli, Ranfagni and Guercini (2014) highlighted that mismatch problems can occur, in which case companies have to deal with a discrepancy between brand associations from the perspectives of the company and consumers. Because changes in the nature and strength of brand associations should result in changes in consumers' behavior (Romaniuk and Nenycz-Thiel, 2013), it is important to analyze how advertising impact on brand image.

Our study introduces a technique that allows marketers and brand managers to assess the potential efficacy of advertising campaigns before going on air. These findings provide knowledge related to the audit phase, since the method has to be used to measure the dynamic of brand association, helping in measuring the impact of advertising, so enhancing the effectiveness and efficiency of communication strategies. By studying consumers' association scores for their own and competitors' brands, companies can gain insights not only into the strength of the associations for their own brands versus those of competitors, but also into the efficacy of particular elements of advertising campaigns (such as video ads). If the spillover effect is high, companies can consider joint promotions. In fact, our research methodology could be used to indicate whether or not (and in what circumstances) companies should introduce joint promotions (Karray and Sigue, 2016). In a situation of high similarity, when advertising aims to reinforce brand associations that are within the core of a product category, joint communication could be more cost-effective than discrete advertising by individual companies. In the empirical setting of our analysis, because of innovations in technology competing brands need to reinforce the same associations in order to reassure consumers. Thus, developing a campaign

together, focused on consumer education or explaining a new technology, could be an effective strategy for companies.

We believe that the methodology presented here, together with methodologies involving brain-waves and eye-tracking, could significantly improve marketing research and help practitioners to evaluate their video advertisements. It is possible that, in the future, measures of reaction time and behavioral indices could be applied in parallel with Eeg (Electroencephalography), Emg (Electromyography), Gsr (Galvanic Skin Response) and traditional self-report methods (Ohme *et al.*, 2009; 2010; Plassmann Ramsøy and Milosavljevic, 2012; Vecchiato *et al.*, 2011). Numerous research techniques, like the one presented here, are still in their infancy and so further development of them is necessary before they can be applied with confidence.

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