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RUNNING HEAD: Memory for Creative Advertisements

Easy to Remember, Easy to Forget?

The Memorability of Creative Advertisements

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Abstract

Previous studies have revealed that creative advertisements are recognized and recalled better than their less creative counterparts. Remembering and forgetting are two sides of the same coin of memory, denoting memory's storage and elimination functions, respectively, which can both potentially impact advertising effectiveness. To date, there appear to have been no published studies examining the memorability of creative advertisements from the perspective of forgetting. Therefore, this issue was investigated using an *intentional forgetting paradigm* in which participants were cued either to remember or forget individual advertisements. The results showed that recognition hit rate and recognition latency were better for creative advertisements than for standard advertisements in both the remember and forget conditions. Furthermore, an advertising effectiveness analysis indicated that advertisements rated as more creative were also more easily remembered. There was additionally an effect of creativity category on intentional forgetting, with a higher hit rate and shorter recognition latency for creative advertisements. These results indicate that creative advertisements are easy to remember, but hard to forget, even when an instruction to forget is given. The findings provide further evidence that creative advertisements are more memorable and confirm the value of creativity in advertising.

Keywords: advertising effectiveness, creativity, commercial advertisements, intentional forgetting

Easy to Remember, Easy to Forget?

The Memorability of Creative Advertisements[1]

The world is changing rapidly: globalization and emerging technologies such as the smartphone and the 5G network have resulted in worldwide integration. Within this context, advertising plays an increasingly central role in modern society, helping to drive economic effectiveness whilst also having a significant impact on culture and society. Creative advertisements – as opposed to "standard advertisements" – are those that encapsulate "difference" (Koslow, 2015) and involve something that is "fresh" and "meaningful" to the audience (Smith, Chen, & Yang, 2008). Creative advertisements appear to be more effective than standard advertisements at attracting an audience's attention (e.g., Sajjacholapunt & Ball 2014) and facilitating brand extension (Ang et al., 2007; Till and Baack, 2005). In Till and Baack's (2005) study, for example, it was found that creative advertisements led to stronger purchase intentions and stronger brand support than standard advertisements. This latter study is just one of an increasing number to indicate that creative advertising is a particularly successful way to persuade consumers to buy an item, with some authors having gone as far as to suggest that creativity is the most important determinant of advertising effectiveness (Sasser & Koslow, 2008).

Although a creative advertisement may have a higher chance of being effective than a standard advertisement, this outcome is not guaranteed as there are likely to be numerous factors than can act to moderate advertising effectiveness, including whether an

[1] The authors attest that the data reported here are not used in any other publications and that there are no conflicts of interest.

advertisement is commercial or non-commercial in its focus (e.g., Hsieh, Lo, & Chiu, 2016; Choi, Kelley, Reid, Uhrick, & Kuo, 2018). In general, non-commercial advertisements are designed to teach and educate rather than to generate profit (Tulin, Yildirim, & Durmuscelebi, 2015). Commercial advertisements, on the other hand, are primarily designed to generate profit, which means they are prioritized in the context of emerging techniques for high-tech expression and are associated with significant underpinning investment (e.g., Choi et al., 2018; Kaid, Chanslor, & Hovind, 1992). The commercial focus of an advertisement has been reported to influence an individual's attitude to process it (Skorupa & Dubovičienė, 2015; Jacoby & Hoyer, 1982). Indeed, Skorupa and Dubovičienė (2015) have indicated that commercial advertisements seem more attractive or unforgettable because they benefit from contemporary marketing strategies.

In assessing previous research on advertising creativity, Sasser and Koslow (2008) presented a "3Ps" framework, which highlights the importance of the *person* designing creative advertising, the *process* by which people produce creative advertising and the *place* or environment in which people work. When the 3Ps are well aligned then the generation of creative advertisements can flourish. However, some researchers contend that creativity in advertising is overvalued, arguing that a focus on novelty in advertising can give rise to a problematic emphasis on "novelty for novelty's sake" (for relevant discussion see Bernardin et al., 2008). What seems to emerge from this debate is a more nuanced view of creative advertising that sees novelty as a key aspect of creativity that is critical for advertising effectiveness, but with an important role also being played by the "meaningfulness" or "relevance" of the advertisement for the target audience (see Lehnert, Till, & Ospina, 2014).

To advance an understanding of the role of creativity in advertising effectiveness Sasser and Koslow (2008) called for more research on the associations between advertising creativity and aspects of people's attention and memory for such advertisements. In the present article a specific focus is placed on addressing the *memorability* of high creative advertising as opposed to low creative advertising (Lehnert, Till, & Carlson, 2013) to shed further light on their success. Prior to reporting this study, the existing evidence regarding the effectiveness of creative advertisements is first reviewed.

Most previous studies have examined the effectiveness of creative advertisements in terms of cognitive, memory, attitudinal and action outcomes and have consistently demonstrated that creative advertisements have increased efficacy. For example, it has been found that creative advertisements are more likely to be recalled (e.g., Till & Baack, 2005), to induce positive emotions and attitudes in consumers (Smith et al., 2008; Lehnert et al., 2013) and to increase purchase intention (e.g., Smith et al., 2008) relative to standard (or less creative) advertisements. Defining creative advertisements as those that have won an advertising award, Till and Baack (2005) examined the potential advantage of creative television advertisements over less creative television advertisements (i.e., ones that have not won an award) with respect to recall, purchase intention and attitude toward the advertised brand. They found that creative advertisements performed better on tests of both immediate and delayed (by one week) recall, but only when this recall was unaided versus aided, suggesting that creative advertisements may enhance consumers' recall of advertised ideas in incidental learning contexts. A similar superiority effect of creative advertisements in memory has also been reported in Lehnert et al. (2013).

Baack, Wilson, and Till (2008) took a different approach to these aforementioned studies, instead operationalizing creative advertisements as those rated highly creative by a sample of individuals and focusing on out-of-home advertisements appearing in airport terminals and pre-show cinema advertising. Their results indicated that, like traditional media advertising, creative cinema advertisements resulted in better aided and unaided recall than less creative counterparts, whereas in the case of airport advertising creativity had no effect on advertising effectiveness. They also examined the potential influence of time-delay on advertising effectiveness by measuring recognition of creative and standard advertisements at four time-points: no delay and one-, three-, and five-week delays. Creativity was found to enhance recognition and the effect increased over time, being maximal at the longest delay. This suggests that the superior memorability of creative advertisements may be modulated by factors such as test type, test delay and media surroundings (e.g., the environment near the advertising location). Recently, creative advertisements were shown to be *recalled* better than less creative advertisements and also to trigger more favorable attitudes (Ali, 2016).

The present study aimed to follow this existing research by likewise exploring the mnemonic properties of creative advertisements in relation to their future memorability. However, simply focusing on an advertisement's effectiveness in terms of its subsequent recognition would likely miss the important fact that human memory is a highly dynamic and constructive process, which revolves not only around processes of remembering (e.g., encoding, which may be resistant to decay) but also around processes of forgetting (e.g., retrieval failure). It has been argued that forgetting, reflecting a loss of access to memory or a loss of memory storage (Ditta & Storm, 2018), is integral to the effective and adaptive

functioning of memory because “one cannot properly form new memories and attach value to them without also selecting some things to forget” (e.g., Harrison, 2013). In fact, remembering and forgetting, as two contrasting yet integral aspects of memory, represent its storage and elimination functions, respectively, although the latter function may sometimes only involve a temporary loss of access to existing memories rather than a permanent loss of storage.

Unlike most previous studies, which have stressed the importance of advertising creativity for advertisement effectiveness primarily in terms of an advertisement’s capacity to attract attention or to promote encoding and maintenance, the present study was additionally motivated by a desire to focus on the dialectics of advertisement remembering and forgetting, which is a widely neglected aspect of advertising effectiveness. In line with this motivation, the study was specifically designed to probe the influence of both intentional remembering and intentional forgetting in relation to creative advertisements. To this end an intentional forgetting paradigm was used, that is, the *item-method intentional forgetting task*. In this task, participants are shown a series of pictorial items (i.e., advertisements in the present case) and are instructed to attempt either to remember or forget each item on the basis of a directive cue that is presented in association with the item. The intentional forgetting effect manifests as superior memory for to-be-remembered (TBR) items relative to to-be-forgotten (TBF) items. Through contrasting the “forgetting” effectiveness of creative advertisements against their corresponding “remembering” effectiveness, it is possible to assess the intentional or active forgetting effect (e.g., Wang, Mao, Li, Wang, & Guo, 2016) in relation to creative advertisements.

In the present study the standard approach to the operationalization of creative advertisements was applied, namely relying on participants' ratings of creativity to distinguish creative advertisements from standard advertisements (e.g., Satterfield & Muehlenhard, 1997; Kim, Han, & Yoon, 2010). This approach might reflect more accurately the true ideas of the audience with respect to the advertisements' real-word persuasiveness because the raters, who were without any professional training in advertising (as distinct from advertising professionals or designers) would be likely to have a similar perspective to a genuine audience (see West, Kover, & Caruana, 2008).

As previous research has shown that creative advertisements tend to be remembered better than less creative advertisements (e.g., Baack, Wilson, & Till 2008; Lehnert et al., 2013; Till & Baack, 2005), the most basic prediction was as follows:

H1: Creative advertisements will generate a higher hit rate on a recognition test than less creative advertisements for to-be-remembered items.

In relation to the intentional forgetting effect, it was hypothesized that creative advertisements will be harder to forget than standard advertisements even when instructions are given for them to be forgotten, leading to the following hypothesis:

H2: Creative advertisements will generate a higher hit rate on a recognition test than less creative advertisements for to-be-forgotten items.

In this study, pictorial advertisements with varying creativity ratings were adopted as stimuli in an intentional forgetting paradigm to examine whether creative advertisements are easier to remember and harder to forget than less creative advertisements. The study additionally afforded a comparison of the memorability of commercial and non-commercial

advertisements, with predictions being open-ended in relation to any potential influence of this factor.

Method

Participants

A sample of 63 right-handed freshman undergraduates (46.6% female) aged 17-19 years (M = 18.2, SD = 0.58) was recruited from a psychology introduction course. Participants were native Chinese and were free from self-reported psychiatric disorders. Six participants were excluded because of their incomplete data (n = 4), high error rates or long response time beyond M±3 SD (n = 2; Manning et al., 2016). As a result, the data from 57 participants were analyzed. All participants had normal or corrected-to-normal vision and received financial compensation for their participation. None had previously undertaken a similar study, as assessed through the recruitment requirements and as verified in terms of the identity of first-semester freshmen.

Apparatus and stimuli

The stimuli were presented using E-prime 2.0 software (Psychology Software Tools, Sharpsburg, PA, USA). As previous studies have indicated that personal creativity may influence ratings of advertising creativity (Cheng, Kim, & Hull, 2010), participants' creativity was assessed using the Williams Creative Aptitude Test (WCPT) as well as by using tests of convergent and divergent thinking (see Shen, Yuan, Liu, Yi, & Dou, 2016). The latter tasks, as well as the WCPT, are described in more detail below.

Pretest. A pretest study was conducted in a laboratory setting to derive the set of creative pictorial advertisements that would be used in the main experiment. The pictorial

advertisements used in the pretest study comprised 200 advertising pictures that had been collected from the Internet, with all pictures being static and colorful. These images were standardized (using Adobe Photoshop) to be the same size of 2.7 cm × 3.5 cm with a resolution of 300 pixels. Two hundred undergraduate participants rated a subset of these pictorial advertisements using a five-point Likert scale, evaluating their novelty, beauty and creativity (for a similar approach see Kim et al., 2010; Stevens, 2018). This enabled images to be selected based on the highest and lowest scores for advertising creativity while balancing the ratings in terms of beauty and novelty. In addition, three other raters categorized the pictorial advertisements in terms of whether they related to commercial or non-commercial advertising and only those images that resulted in a consensus evaluation were included in the final stimulus set used in the main experiment.

These pretest evaluations led to a total of 144 pictorial advertisements to be used in the main experiment that were balanced in relation to their status as creative versus standard advertisements as well as in terms of whether they were commercial or non-commercial advertisements. In the main experiment a manipulation check was undertaken to assess the validity of creativity categorization (see the results section for details of this manipulation check).

Advertising effectiveness measure. As noted, the pretest engendered 144 pictorial advertisements (creative n = 72, standard n = 72) for use in the main study. The set of creative advertisements comprised 36 commercial items and 36 non-commercial items, as did the set of non-creative advertisements. From the final set of 72 creative advertisements, 48 were selected for use in the encoding stage of the study (with an equal balance of commercial and

non-commercial advertisements), whilst the remaining 24 were available for use as "new" items in the subsequent recognition stage (see the procedure section for further details). The same approach was taken to select standard advertisements for use in the encoding and recognition stages.

Williams Creative Aptitude Test (WCPT). The WCPT consists of four subscales assessing risk-taking, curiosity, imagination and complexity. The Chinese version of the WCPT (Ling & Wang, 1994) was used to describe participants' level of creativity so that potential effects of individual differences in creativity could be better controlled.

Convergent thinking/creativity task. Following previous, similar research (e.g., Shen et al., 2016) two classic insight problem-solving tasks were used to assess convergent thinking, that is, the "timing problem" (a verbal insight problem) and the "triangle problem" (a visuo-spatial insight problem). The timing problem requires participants to measure 45 minutes by burning two irregular ropes that both take one hour to burn out. The triangle problem requires participants to transform a ten-dot upright triangle into an inverted triangle by moving just three dots.

Divergent thinking/creativity task. The Alternative Uses Test (AUT; see Dumas & Runco, 2018) was used to assess participants' creative potential and divergent thinking. In the AUT that was used participants were required to provide as many distinct uses as possible for two everyday objects (i.e., scissors and a wooden bucket). Their responses were scored for originality, fluency and flexibility by three trained postgraduates. Originality was operationalized as rarity: responses given by less than 5% of respondents scored 2 points, responses given by 5-10% of respondents scored 1 point and all other responses scored 0.

Fluency was operationalized as the sum of all appropriate responses and flexibility as the number of categories of response used (Shen, Hommel, Yuan, Chang, & Zhang, 2018).

Procedure

The experiment was divided into four tasks: (i) the advertising effectiveness measure; (ii) the convergent thinking measure; (iii) the divergent thinking measure; and (iv) the WCPT. The order of the four tasks was counterbalanced across participants. All participants completed the tasks individually in a brightly lit room with all the curtains closed and with a dome light used to reduce screen glare and visual discomfort. On arrival at the laboratory participants were given a sheet with instructions on how to perform the tasks and were asked to read the instructions carefully to make sure they understood what they were required to do. All assessments of participants' creativity were presented in pencil-and-paper format.

The pictorial advertising stimuli were presented randomly and appeared in the center of the silver background of a computer screen. This task consisted of two stages: (i) an encoding stage; and (ii) a recognition stage (see Figure 1 for a schematic depiction). Participants performed the task seated about 75 cm from the computer screen and undertook a short practice block of items before proceeding to the experimental stimuli. During the encoding phase, each pictorial advertisement was preceded by a 500 ms presentation of a fixation cross and then a TBR or TBF cue was presented. After this cue a pictorial advertisement was displayed in the center of the screen for 3000 ms. Participants were expected to attempt either to remember or forget the advertisement, based on the cue that had been given before the advertisement was presented. Finally, participants rated the creativity of the advertisement that they had just seen using a five-point Likert scale ranging from 1 (not at all creative) to 5

(extremely creative).

There was a 3-minute rest period between the encoding phase and the recognition phase. Recognition trials began with a 500 ms presentation of a central fixation cross and then a pictorial advertising stimulus was presented for 50 ms. The stimuli consisted of 96 of the stimuli presented during the encoding phase and 48 new stimuli. Participants then had 3000 ms during which to press keys to indicate whether or not they had seen the stimulus before (the key to indicate "old" stimuli was pressed with the left hand; the key to indicate "new" stimuli was pressed with the right hand). Only responses made within the 3000 ms response window were analyzed. The whole procedure (including the pencil-and-paper tests) took about 1 hour.

[PLEASE INSERT FIGURE 1 ABOUT HERE]

Statistical analysis

Data were processed with IBM SPSS Statistics version 22 (SPSS22.0 for Windows, IBM Corp., Armonk, NY, USA). Repeated-measures analysis of variance (ANOVA) was carried out with creativity category (standard vs. creative), cue (TBR vs. TBF) and advertisement type (commercial vs. non-commercial) as within-subject factors and recognition hit rate or recognition time as the dependent variable.

Results

Manipulation check

A manipulation check was used to validate the creativity categorization of advertisements in terms of whether they were viewed as being creative or standard by participants (Table 1). Creativity ratings for both the creative and the standard categories had

good internal consistency (creative: Cronbach's alpha = .84; standard: Cronbach's alpha = .83). Moreover, the creative advertisements had significantly higher creativity ratings than the standard advertisements, $t_{(48)} = -6.03$, Cohen's $d = -1.24$; $p < .001$ (creative $M = 3.82$, standard $M = 3.46$).

To exclude the potential influence of individual creativity on self-rated advertising creativity, participants' performance on the WCPT as well as on the divergent and convergent creativity tasks was analyzed. The results showed no significant correlation between participants' self-rated advertising creativity and their convergent creativity ($M = 0.82$, $SD = 0.47$), divergent creativity ($M = 18.26$, $SD = 5.76$) or creativity aptitude ($M = 117.81$, $SD = 9.51$), all ps > .05. Accordingly, it can be concluded that the two creativity categories did indeed represent different levels of advertising creativity.

[PLEASE INSERT TABLE 1 ABOUT HERE]

Analyses of memory for advertisements

Recognition hit rate. Descriptive data for the hit rate on the recognition test for pictorial advertisements are shown in Table 2, broken down by experimental condition. ANOVA revealed a significant main effect of creativity category, with the recognition hit rate being higher for creative advertisements than for standard advertisements, $F(1, 56) = 14.89$, $p < .001$, $MSE = 0.12$, $\eta_p^2 = .21$ (creative $M = 0.94$, $SE = 0.01$; standard $M = 0.91$, $SE = 0.02$). There was also a significant main effect of cue, $F(1, 56) = 8.59$, $p < .01$, $MSE = 0.28$, $\eta_p^2 = .13$, with TBR items having a higher hit rate than TBF items (TBR $M = 0.95$, $SE = 0.01$; TBF $M = 0.90$, $SD = 0.02$). There was, however, no significant effect of advertisement type (commercial vs. non-commercial), $F(1, 56) < 1$, $p > .05$. In addition, neither the interaction of

cue with creativity category nor the interaction of cue with advertisement type was significant, *F*s(1, 56) < 1, *p*s > .05. Furthermore, there was no three-way interaction (advertisement type × creativity category × cue), $F(1, 56) < 1$, $p > .05$.

In terms of an analysis of the intentional forgetting effect for advertisements (see Figure 2), post hoc tests revealed that the hit rates of creative advertisements were higher than for standard advertisements for both commercial advertisements and non-commercial advertisements no matter which instructional cue (TBR or TBF) was presented, *ps* < .05. This result indicates that creative advertisements are not only easier to remember but that they are also harder to forget than standard advertisements.

[PLEASE INSERT TABLE 2 ABOUT HERE]

Recognition latency. Descriptive data for recognition latency for pictorial advertisements are shown in Table 2, broken down by experimental condition. ANOVA revealed a significant main effect of creativity category on recognition latency, with commercial advertisements having faster recognition latencies than non-commercial advertisements, $F(1, 56) = 5.94$, $p < .05$, $MSE = 7236021.65$, $\eta_p^2 = .10$, and a significant main effect of cue, with TBR items having faster recognition latencies than TBF items, $F(1, 56) = 24.27$, $p < .001$, $MSE = 23772125.87$, $\eta_p^2 = .30$, but no effect of advertisement type, $F(1, 56) = 3.17$, $p = .08$, $MSE = 3233975.59$, $\eta_p^2 = .05$. Additionally, neither the two-way interaction between cue and creativity category nor the interaction between cue and advertisement type was reliable, *F*s(1, 56) < 1, *p*s > .05. There was, however, a significant three-way interaction between advertisement type, creativity category and cue, $F(1, 56) = 4.57$, $p < .05$, $MSE = 4658354.71$, $\eta_p^2 = .08$. Simple main effects analysis revealed that in the case of

non-commercial advertisements, creative advertisements were recognized significantly faster than standard advertisements for both TBR items, $F(1, 56) = 7.87$, $p < .01$, and TBF items, $F(1, 56) = 7.85$, $p < .01$. In the case of commercial advertisements, however, no significant recognition latency difference existed between creative advertisements and standard advertisements for either TBR items or TBF items, $ps > .05$.

[PLEASE INSERT FIGURE 2 ABOUT HERE]

Effect of self-rated advertising creativity on recognition hit rate. Here an assessment is provided of how recognition hit rate was affected by participants' self-rated creativity of the presented advertisements using the data derived from participants' evaluation of each item on a five-point Likert scale ranging from 1 (not at all creative) to 5 (extremely creative). Descriptive data are presented in Table 3. For this analysis any missing values arising from the imbalance in data across the five self-rated creativity levels were handled with an expectation-maximization algorithm, as recommended by other authors (e.g., Wen, Huang, & Tang, 2018).

The ANOVA revealed that the main effect of cue (TBR vs. TBF) on the recognition hit rate was marginally significant, $F(1, 56) = 3.85$, $p = .055$, $MSE = 0.26$, $\eta_p^2 = .06$, with better recognition under TBR instructions. In addition, the main effect of self-assessed creativity level was reliable, $F(4, 224) = 6.76$, $p < .001$, $MSE = 0.11$, $\eta_p^2 = .11$, with improved recognition arising across increasing levels of self-rated creativity. Importantly, there was also a significant interaction between cue and self-assessed creativity level, $F(4, 224) = 4.38$, $p < .01$, $MSE = 0.06$, $\eta_p^2 = .07$. Simple main effects analysis showed that the hit rate for TBR items was higher than for TBF items in the case of participants with self-rated creativity at

Level 1 ($F(1, 56) = 5.43$, $p < .05$), Level 3 ($F(1, 56) = 9.97$, $p < .01$) and Level 4 ($F(1, 56) = 4.86$, $p < .05$).

[PLEASE INSERT TABLE 3 ABOUT HERE]

Discussion

The goal of this study was to determine whether the creativity of an advertisement affects its memorability. In addressing this question a novel approach was adopted that assessed how creativity affects the *intentional forgetting* of pictorial advertisements so as to inform an understanding of whether creative advertisements are both easier to remember and harder to forget than standard advertisements. The current study is believed to be the first to examine the memorability of creative advertisements using an intentional forgetting paradigm.

The results revealed the effectiveness of creative advertisements from the joint perspective of remembering and forgetting. Consistent with H1, creative advertisements were more likely to be correctly recognized (i.e., they had a higher hit rate) than less creative (i.e., standard) advertisements under instructions for them to be remembered. Interestingly, too, creative advertisements were generally recognized quicker than less creative advertisements. Furthermore, the analysis of advertising effectiveness that was based on self-rated creativity ratings also showed that those advertisements that were given a higher creativity rating were more likely to be remembered. These results in relation to H1 replicate previous findings indicating that creative advertisements are remembered better than standard advertisements (e.g., Till & Baack, 2005; Lehnert et al., 2013), reinforcing the claim that advertising creativity plays an important role in advertisement effectiveness.

The second hypothesis (H2) was that the recognition hit rate for to-be-forgotten items

would be higher for creative advertisements than for less creative advertisements. In other words, it was predicted that creative advertisements would not only be easier to remember but that they would also be harder to forget than standard advertisements. As expected, there was a main effect of creativity category on hit rate. When advertisements were preceded by a to-be-remembered (TBR) cue then creative advertisements were remembered better than standard advertisements and when advertisements were preceded by a to-be-forgotten (TBF) cue then creative advertisements were still better remembered, indicating that creative advertisements were harder to forget than less creative advertisements.

It should be acknowledged, however, that in *relative* terms the effect of the TBF instruction appears to be equivalent for both creative and less creative advertisements, with the evidence that the former are harder for forget arising from the fact that they are remembered better in the first place, at least when advertisements are pre-rated for their creativity. Nevertheless, it should also be noted that in the case of participants' self-ratings for advertising creativity the analysis revealed uniformly high recognition hit rates under both TBR and TBF instructions for advertisements deemed to be "extremely creative" (i.e., at Level 5). In contrast, for advertisements self-rated as "not at all creative" there was a large and reliable difference between TBR and TBF instructions. This evidence hints at the possibility that TBF instructions may have little or no impact on the memorability of highly creative advertisements in comparison with adverts of low creativity, although further research is clearly needed to corroborate this claim.

There are two possible reasons for the superior memorability of creative advertisements. One is that creative advertisements may involve something new, unexpected, surprising or

insightful that quickly and unconsciously captures the observer's attention, thus leading to deeper processing and hence better encoding and retention (e.g., Wilson et al., 2015). This explanation is supported by some recent studies of the effect of insightfulness on subsequent encoding and retention of information (e.g., Ludmer, Dudai, & Rubin, 2011). The other explanation is that creative advertisements may contain many insights or ideas that are considered thoughtful and generative (e.g., Shen et al., 2017) or affective (e.g., Shen et al., 2016), with these insights and ideas being experienced either directly and spontaneously or arising indirectly through inferential processing. In either case these insights and ideas would engender gestalt(-like) processing or widespread neuronal activation, which would make it more difficult to erase the memory trace resulting from the encoding of the creative advertisement. This speculation is consistent with previous findings that forgetting, as an active process, requires effort and time in order for memories to be suppressed (e.g., Fawcet & Taylor, 2008; Rizio & Dennis, 2013). Whatever the best theoretical account of these findings might be, there seems to be little doubt that there is something special about creative advertisements that increases their memorability.

With respect to advertisement type, it appears that non-commercial advertisements have the same effectiveness as commercial advertisements despite the fact that the purposes of commercial and non-commercial advertisements are rather different, with the former being designed to persuade consumers to purchase or invest, whereas the latter are designed to inform the public or encourage the adoption of good habits (Stevens, 2018). Nevertheless, in both cases it appears that marketing agencies prefer to drive marketing communications using creative strategies as they are thought to be more effective (Stevens, 2018). The present

results corroborate this view in that a similar intentional forgetting effect was found for commercial and non-commercial advertisements and no difference was observed between commercial and non-commercial advertisements on recognition hit rate. It should be noted, however, that the analysis of recognition latency indicated that whilst creative non-commercial advertisements were recognised faster than their standard counterparts for both to-be-remembered and to-be-forgotten items, this latency effect was not seen in the case of creative commercial advertisements, which hints at a possible distinction in the processing of commercial versus non-commercial advertisements that may be clarified by future research.

The present study has three important strengths. First and foremost, examining the effectiveness of creative advertisements in terms of both “remembering” and “forgetting” opens up a novel perspective for characterizing the memorial effectiveness of creative advertisements. As noted above, “remembering” and “forgetting” could individually be considered as the positive and negative sides of memory, but both are manifestations of mnemonic adaptability and flexibility (Ditta & Storm, 2018). If research on memory for advertisements is "heads" (in the present case the replication of previous evidence) then the study of advertising forgetting is “tails” (i.e., the addition of original findings to extend existing evidence). These “heads” and “tails” can be viewed as playing vital, complementary roles in determining the effectiveness of creative advertisements.

Second, this is the first study to use the intentional forgetting paradigm to investigate the impact of creativity in advertising. The intentional forgetting paradigm is widely recognized as an excellent tool for memory research. Third, unlike the majority of previous advertising

studies, which have focused on one aspect of advertising creativity as measured, for example, through achieving awards (e.g., Till & Baack, 2005), this study has instead captured both the quantitative basis of creative advertisements (as determined by the participants' subjective ratings using a five-point scale) and their qualitative nature (i.e., whether they are creative vs. standard as determined in a pre-test and corroborated in the main experiment through participants' self-ratings). This approach to evaluating the creativity of advertisements has been widely used in the literature examining general creativity (e.g., Andreas, Zech, Coyle, & Rindermann, 2016) and in some studies assessing advertising creativity (e.g., see West et al., 2008; Kim & Yu, 2015; Satterfield & Muehlenhard 1997) and has certain advantages in comparison to the method of determining creativity on the basis of professional awards. In particular, in the latter approach the level or professional basis of the award could be important confounding factors. Determining the creativity category of advertisements via self-rating methods affords significant advantages for multiply-graded analysis rather than basing analyses on a more gross, qualitative categorization of "creative" versus "standard".

In addition to enriching knowledge relating to contemporary concerns with the link between creativity and attention (e.g., Carruthers, MacLean, & Willis, 2018) and the functional significance of mnemonic adaptability in facilitating creative associations (e.g., Ditta & Storm, 2018), the present findings also have some managerial implications. For one thing, the present study highlights the significance of creativity in advertising and marketing for better marketing effectiveness. Creative advertisements should be appropriately adopted according to their superiority in relation to both remembering and forgetting. Creative advertisements may be very useful for long-term product development, for newly-established

brands or companies with clear marketing goals and for brand extension rather than for short-term marketing of established products, especially those that are consistent with a company's mainstream services or products. In addition, the study's findings imply that advertising agencies would do well to acknowledge the dual-sided nature of the remembering and forgetting of advertisements, including the potential influence of prior creative advertising on subsequent advertising to avoid conflicts between previous (memorable) marketing ideas and new, updated marketing ideas. Furthermore, the capacity for creative advertising to engender relatively robust and persistent marketing effectiveness means that marketing managers could reduce the time and investment dedicated to continually generating new advertising schemes.

Naturally, the present study also has some deficiencies that should be noted. The reported findings are based on laboratory assessments, which made it easier to eliminate potential confounding factors, but which nevertheless limit the generalizability and ecological validity of the results. Because the participants were college students, this further limits the extent to which the findings can be generalized to real-life situations in which other populations are involved. As such, the present findings should be validated in a larger sample using a more ecologically valid design. Nevertheless, it is believed that this novel study, as an initial starting point, provides compelling evidence for the view that creative advertisements are easier to remember and harder to forget than less creative advertisements.

References

Ali, M. (2016). Evaluating advertising effectiveness of creative television advertisements for high involvement products. *Pakistan Business Review, 17*(4), 916-932.

Andreas, S. F., Zech, S., Coyle, T. R., & Rindermann, H. (2016). Unconventionality and originality: Does self-assessed unconventionality increase original achievement? *Creativity Research Journal*, *28*(2), 198-206.

Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and Organization Review, 3*(3), 335-371.

Baack, D. W., Wilson, R. T., & Till, B. D. (2008). Creativity and memory effects: Recall, recognition, and an exploration of nontraditional media. *Journal of Advertising*, *37*(4), 85-94.

Baack, D. W., Wilson, R. T., van Dessel, M. M., & Patti, C. H. (2016). Advertising to businesses: Does creativity matter? *Industrial Marketing Management, 55*, 169-177.

Bernardin, T., Kemp-Robertson, P., Stewart, D. W., Cheng, Y., Wan, H., Rossiter, J. R., ... & Fukawa, N. (2008). Envisioning the future of advertising creativity research: Alternative perspectives. *Journal of Advertising*, *37*(4), 131-150.

Carruthers, L., MacLean, R., & Willis, A. (2018). The relationship between creativity and attention in adults. *Creativity Research Journal*, *30*(4), 370-379.

Cheng, Y. L., Kim, K. H., & Hull, M. F. (2010). Comparisons of creative styles and personality types between American and Taiwanese college students and the relationship

between creative potential and personality types. *Psychology of Aesthetics, Creativity, and the Arts, 4*(2), 103-112.

Choi, H., Kelley, L., Reid, L. N., Uhrick, J., & Kuo, K. (2018). Judgments of highly creative advertising: Presence of functional matching and the FCB planning model in Clio-winning advertisements. *Creativity Research Journal, 30*(2), 152-163.

Ditta, A. S., & Storm, B. C. (2018). A consideration of the Seven Sins of Memory in the context of creative cognition. *Creativity Research Journal, 30*(4), 402-417.

Dumas, D., & Runco, M. (2018). Objectively scoring divergent thinking tests for originality: A re-analysis and extension. *Creativity Research Journal, 30*(4), 466-468.

Harrison, R. (2013). Forgetting to remember, remembering to forget: late modern heritage practices, sustainability and the 'crisis' of accumulation of the past. *International Journal of Heritage Studies, 19*(6), 579-595.

Hsieh, A. Y., Lo, S. K., & Chiu, Y. P. (2016). Where to place online advertisements? The commercialization congruence between online advertising and web site context. *Journal of Electronic Commerce Research, 17*(1), 36-46.

Jacoby, J., & Hoyer, W. D. (1982). Viewer miscomprehension of televised communication: Selected findings. *Journal of Marketing, 46*(4), 12-26.

Kaid, L. L., Chanslor, M., & Hovind, M. (1992). The influence of program and commercial type on political advertising effectiveness. *Journal of Broadcasting & Electronic Media, 36*(3), 303-320.

Kim, B. H., & Yu, J. (2015). Level of creativity and attitudes toward an advertisement. *Creativity Research Journal, 27*(2), 133-138.

Kim, B. H., Han, S., & Yoon, S. (2010). Advertising creativity in Korea. *Journal of Advertising*, *39*(2), 93-108.

Koslow, S. (2015). I love creative advertising: What it is, when to call for it, and how to achieve it. *Journal of Advertising Research*, *55*(1), 5-8.

Koslow, S., Sasser, S. L., & Riordan, E. A. (2003). What is creative to whom and why? Perceptions in advertising agencies. *Journal of Advertising Research, 43*(1), 96–110.

Lehnert, K., Till, B. D., & Carlson, B. D. (2013). Advertising creativity and repetition: Recall, wearout and wearin effects. *International Journal of Advertising, 32*(2), 211-231.

Lehnert, K., Till, B. D., & Ospina, J. M. (2014). Advertising creativity: The role of divergence versus meaningfulness. *Journal of advertising*, *43*(3), 274-285.

Lin, C., & Wang, M. (1994). *The Creativity Assessment Packet*. Taipei, Taiwan: Psychological Publishing.

Ludmer, Dudai, & Rubin. (2011). Uncovering camouflage: amygdala activation predicts long-term memory of induced perceptual insight. *Neuron, 69*(5), 1002-1014.

Manning, J. R., Hulbert, J. C., Williams, J., Piloto, L., Sahakyan, L., & Norman, K. A. (2016). A neural signature of contextually mediated intentional forgetting. *Psychonomic Bulletin & Review*, *23*(5), 1534-1542.

Rizio, A. A., & Dennis, N. A. (2013). The neural correlates of cognitive control: successful remembering and intentional forgetting. *Journal of Cognitive Neuroscience*, *25*(2), 297-312.

Sajjacholapunt, P., & Ball, L. J. (2014). The influence of banner advertisements on attention and memory: Human faces with averted gaze can enhance advertising effectiveness.

Frontiers in Psychology, 5, Article 166, 1-16.

Sasser, S. L., & Koslow, S. (2008). Desperately seeking advertising creativity: Engaging an imaginative "3Ps" research agenda. *Journal of Advertising, 37*(4), 5-20.

Satterfield, A. T., & Muehlenhard, C. L. (1997). Shaken confidence: The effects of an authority figure's flirtatiousness on women's and men's self-rated creativity. *Psychology of Women Quarterly*, *21*, 395-416.

Shen W., Hommel, B., Yuan, Y., Chang, L., & Zhang, W. (2018). Risk-taking and creativity: Convergent, but not divergent thinking is better in low-risk takers. *Creativity Research Journal*, *30*(2), 224-231.

Shen W., Yuan, Y., Liu, C., & Luo, J. (2017). The roles of the temporal lobe in creative insight: An integrated review. *Thinking and Reasoning, 23*(2), 321-375.

Shen W., Yuan, Y., Liu, C., Yi, B., & Dou, K. (2016). The development and validity of a Chinese version of the Compound Remote Associates Test. *American Journal of Psychology*, *129*(3), 245-258.

Skorupa, P., & Dubovičienė, T. (2015). Linguistic characteristics of commercial and social advertising slogans. *Coactivity: Philology, Educology/Santalka: Filologija, Edukologija*, *23*(2), 108-118.

Smith, R. E, Chen J., & Yang, X. (2008). The impact of advertising creativity on the hierarchy of effects. *Journal of Advertising, 37*(4), 47-62.

Stevens, E. M. (2018). What's so appealing? An examination of emotional appeals and viewer engagement in safe-sex PSAs and condom advertisements. *Health Marketing Quarterly, 35*(1), 18-31.

Stewart, D. W., Cheng, Y., & Wan, H. (2008). Creative and effective advertising: Balancing spontaneity and discipline. *Journal of Advertising*, *37*(4), 135–139.

Till, B. D., & Baack, D. W. (2005), Recall and persuasion: Does creative advertising matter? *Journal of Advertising*, *34*(3), 47–57.

Tulin, U. R. A. L., Yildirim, E. S., & Durmuscelebi, C. (2015). Attitudes of Turkish young people toward organ donation: The roles of public service advertisements and personality differences. *European Journal of Business and Social Sciences, 4*(2), 113-126.

Wang, Y., Mao, X., Li, B., Wang, W., & Guo, C. (2016). Dissociating the electrophysiological correlates between item retrieval and associative retrieval in associative recognition: From the perspective of directed forgetting. *Frontiers in Psychology*, *7*, Article 1754, 1-14.

Wen, Z., Huang, B., & Tang D. 2018. Preliminary work for modeling questionnaire data. *Journal of Psychosocial Science, 41*(1), 204-210.

West, D. C., Kover, A. J., & Caruana, A. (2008). Practitioner and customer views of advertising creativity: same concept, different meaning? *Journal of Advertising*, *37*(4), 35-46.

White, A., & Smith, B. L. (2001). Assessing advertising creativity using the creative product semantic scale. *Journal of Advertising Research, 41*(6), 27-34.

Wilson, R. T., Baack, D. W., & Till, B. D. (2015). Creativity, attention and the memory for brands: An outdoor advertising field study. *International Journal of Advertising*, *34*(2), 232-261.

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Table 1

Descriptive results and rating consistency across creativity categories for pictorial advertisements

Creativity category	*N*	Mean (*SD*)	95% CI	Cronbach's alpha	*t*	Cohen *d*
Creative	48	3.82 (0.30)	±0.04	0.84	-6.03***	-1.24
Standard	48	3.46 (0.28)	±0.04	0.83		

Note: The mean (M), standard deviation (SD) and 95% confidence interval (95% CI) are shown; $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 2

Descriptive results for hit rate and recognition latency for pictorial advertisements across conditions

		Hit rate		Recognition latency	
		Standard advertisements	Creative advertisements	Standard advertisements	Creative advertisements
Commercial advertisements	TBR	0.94±0.12	0.97±0.08	2221.41±1259.41	2090.03±1182.86
	TBF	0.89±0.18	0.91±0.16	2435.17±1397.78	2674.51±1559.21
Non-commercial advertisements	TBR	0.92±0.13	0.96±0.05	2436.09±1486.05	2097.16±1056.35
	TBF	0.88±0.22	0.92±0.13	3169.19±2545.02	2392.40±1462.76
Foil	NO	0.02±0.05	0.02±0.04	3301.88±2096.51	3446.06±2126.25

Table 3

Hit rate across five levels of self-rated creativity ranging from Level 1 (not at all creative) to Level 5 (extremely creative)

	Self-assessed creativity level				
	Level 1	Level 2	Level 3	Level 4	Level 5
TBR	0.94±0.11	0.89±0.21	0.94±0.13	0.95±0.14	0.97±0.07
TBF	0.83±0.33	0.90±0.22	0.89±0.20	0.90±0.18	0.96±0.10

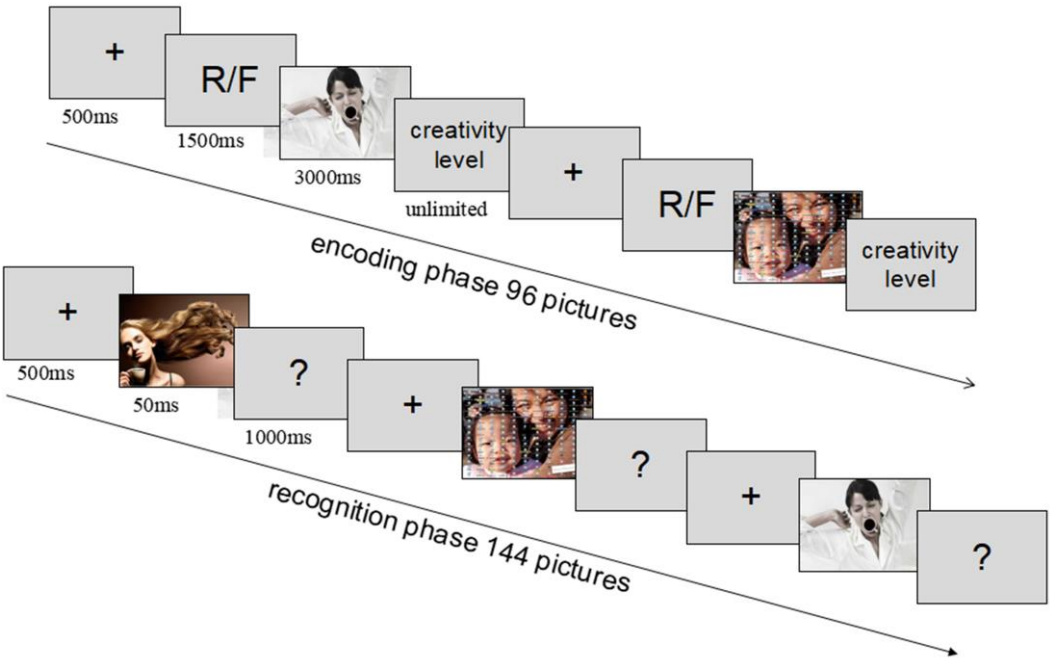

Figure 1. Schematic diagram of the advertising effectiveness test.

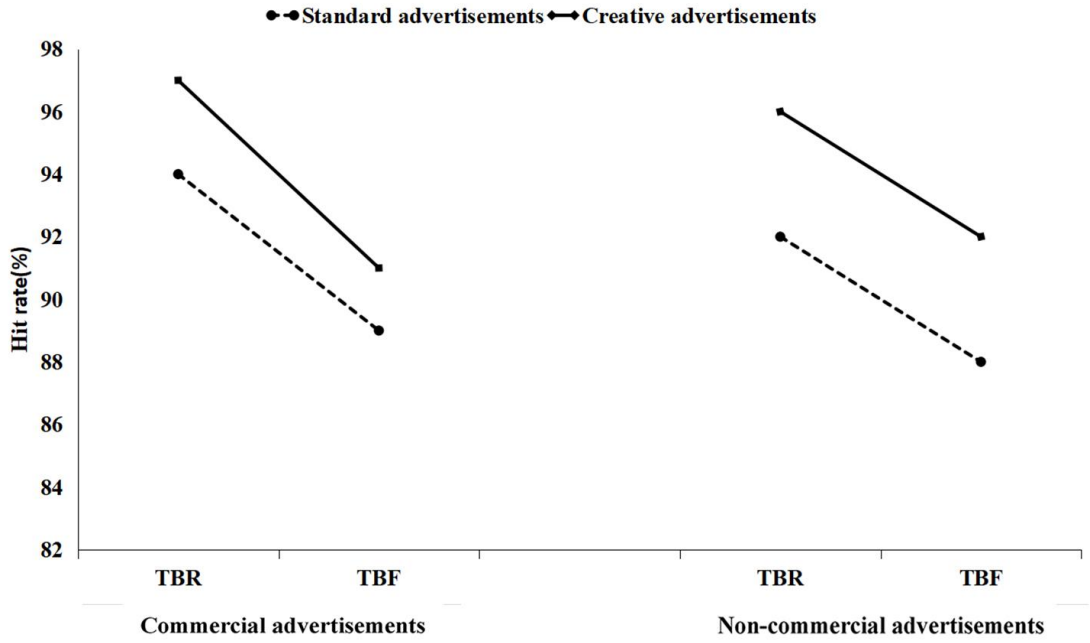

Figure 2. Graphical depiction of recognition hit rates for pictorial advertisements under different conditions