

Advertisement-Programme Congruence in Memory of Sexual Fragrance

Advertisements

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Abstract

The current study explored the effect of sexual content in advertisements and the programme-advertisement congruence on the memory of sexual and non-sexual advertisements. Seventy participants (41 females, 29 males) were randomly allocated to one of four conditions. They viewed either *'The Bachelorette'* (sexual programme) or *'I'm a Celebrity...Get Me Out of Here'* (non-sexual programme) with sexual or non-sexual fragrance advertisements placed within the programme. The order of the advertisements was counterbalanced across participants to control for order effects. Free and cued recall of the advertisements were assessed. As predicted, there was a main effect of advertisement type, with the sexual advertisements better recalled than the non-sexual advertisements. Contrary to our prediction, the sexual content of the programme did not have an effect on advertisement recall. There was an interaction between the advertisement type and programme type; sexual advertisements were remembered better when embedded within a sexual programme. Limitations of this study are considered.

Keywords: memory, sexual media, advertisement-programme congruity

1 INTRODUCTION

Advertising aims to maximise the viewers' product awareness and influence their buying intentions. Memory for advertisements has long been considered by researchers as a good measure of advertisement effectiveness, because customers are more likely to purchase the products if they remember the advertising messages (Gunter, 2000). Based on this, advertisers often utilise sexual content to make the advertising messages more memorable (Nelson & Paek 2008). Early research on the use of sexual content in advertisements focused on print publication as it was the main source of advertising (Melgar & Elsner, 2016). However, amid increasing popularity and liberalisation of practices for broadcast television (TV) since the 1980s, sexual content on TV has become more prevalent (Rosenberg, 2014).

1.1 Sexual content in advertisement

Sexual themes are frequently used in TV advertisements and programmes (Lyons, 2013), but their effectiveness is rather unclear in a broadcast TV context (Bushman & Bonacci, 2002; Reichert, Heckler, & Jackson, 2001). Sexual content in advertisements often refers to naked or near naked actors, often in scenes of physical intimacy. A famous example is for the product *Elave* where all actors were completely nude and used in the study by King, McClelland, and Furnham (2015). The sexual content of a programme is where the theme of the programme includes intimate relationships, sexual behaviour or physical attractiveness. These may be either fact or fiction, perhaps the most dramatic being a programme called *Naked Attraction* where contestants at one stage completely naked choose one of six fully nude people to date.

The majority of studies on the effect of sexual content in advertisements suggests that sexual advertisements are more memorable than their neutral counterparts (e.g., King, McClelland, & Furnham, 2015; Leka et al., 2013; Toverljani et al., 2017). The positive effect

of sexual content in advertising has also been supported by behavioural measures of buying intention (Reichert, Heckler, & Jackson, 2001), as well as an increase in physiological measures such as skin conductance level (Belch, Holgerson, Belch, & Koppman, 1981) and heart rate (Sparks & Lang, 2015). Most studies in this area have used two types of dependent variable namely some measure of memory for the advertisement (free or cued recall or product recognition) and/or buying intentions. Some have also tried to measure how involved people reported to be when watching the programme as well as ratings of the actual advertisements.

While the majority of the studies found a positive influence of sexual content on advertisement recall, some studies found no effect (e.g., Parker & Furnham, 2007; Bushman, 2007), or contradicting results (e.g., Fried & Johanson, 2008). It is possible that the inconsistent results were due to the use of unconventional advertisement content. As noted above, in King et al. (2015), one of the advertisements contained full-frontal female nudity which would not be seen in UK TV advertising. Therefore, the current study deliberately avoided advertisements and programmes with unconventional sexual images and scenes, in order to avoid any disproportional effect and potential biases. Whilst it is difficult to find comparable advertisements for similar products with and without sexual content it is equally difficult to find those with equivalent amounts of “sexuality” in terms of themes, pictures and innuendo, though ever effort was made to do so in this study.

In a meta-analysis across 53 experiments, Lull and Bushman (2015) concluded that there was no effect of sexual content on advertisement recall. They further proposed the *evolutionary emotional arousal theory* in an attempt to interpret the lack of effect. The theory proposes that individuals are evolutionarily predisposed to paying attention to sexual cues, which symbolise possible reproductive opportunities. Therefore, sexual content in advertisements demands more cognitive resources, often at the expense of non-sexual neighbouring cues, such as the product information in an advertisement.

The *evolutionary emotional arousal theory* (Lull & Bushman, 2015) was further supported in a more recent meta-analysis across 78 studies conducted by Writz, Sparks and Zimbres (2017). They found no effect of sexual content on brand recall; but found a positive effect of sexual content on advertisement recall. They explained the inconsistent results in the literature with the product types used: whether these product types are congruent in terms of their product-sexual appeal. Product-sexual appeal congruence happens when audiences expect the product type to be presented with a sexual appeal (Simpson, Horton, & Brown, 1996). Examples of product-sexual appeal congruent products would be fragrances and massage oils, while examples of the incongruent ones may involve bread and USB drives. When the product type and sexual appeal are congruent, advertisement memory is facilitated, as viewers need fewer cognitive resources to process and encode such products (Lang, 2000). This was supported by Hebb's Law (Hebb, 1949) which suggests that the frequent occurrence of the same product type and sexual appeal strengthens the association link between them, thus requiring fewer cognitive resources for processing.

Earlier findings on the product-sexual appeal congruence effects may be explained by the level of association between the sexual content and product information. As suggested by Reichert (2002), there are different degrees of association between the sexual content and brand information in an advertisement. In the case of low association, sexual content would be used to draw attention to the product.

The lack of an effect of sexual content in the recent meta-analyses (Lull & Bushman, 2015; Writz et al., 2017) may be explained by the product-sexual appeal congruence of products used in the advertisements. If there is a high level of association between the sexual content and product information, the positive effect of sexual content in memory of advertisements may be more robust. In the current study, fragrance advertisements are used in an attempt to elicit a positive effect of sexual content in the memory of advertisements.

1.2 Contextual programme effects

Previous research has found that the effectiveness of an advertisement does not merely depend on its content, but also on the contextual programme which the advertisement is embedded in. Bushman and Bonacci (2002) found that sexual programmes inhibited audiences' memory for advertisements. Subsequently, Bushman (2005) found that participants had worse attitudes towards the brand if it was advertised within a sexual programme. This further supported Bushman and Bonacci's (2002) proposal of a negative influence of sexual programmes on advertisements.

Bushman and Bonacci (2002) provided two explanations for their results. The first explanation concerns attention capacity. Individuals have a limit on the capacity of processing resources available when viewing a TV programme (Lang, Newhagen & Reeves, 1996). The sexual content in the programme uses up a large amount of cognitive capacity (Lull & Bushman, 2015), leaving insufficient resources to process the advertisements. The second explanation is based on *cognitive neo-association theory* (Berkowitz, 1984), whereby the sexual programme triggers sexual thoughts (e.g., previous sexual encounters) in the minds of viewers during the advertisement breaks. Thus, viewers pay less attention to the advertisements and perform poorly in subsequent memory tests.

Bushman and Bonacci's (2002) findings were challenged by Fried and Johanson (2008), on the grounds that they did not adequately control for potential confounding factors in the programme content, such as the programme nature and humour.. Fried and Johanson (2008) found that sexual programmes did not reduce viewers' memory for the advertisements when the programme nature and humour were controlled, as also shown by later studies (see Leka et al., 2013; King et al., 2015).

Despite the inconsistent findings of the contextual programme effects, a growing number of studies have replicated Bushman and Bonacci's (2002) initial findings (Furnham &

Mainuad, 2011; Parker & Furnham, 2007). The current study aims to replicate Bushman and Bonacci's (2002) findings while controlling for the extraneous factors in the sexual and non-sexual programmes.

1.3 Programme-advertisement congruence

Besides the contextual effect of the programme, programme-advertisement congruence was suggested as a potential moderating variable in two meta-analyses (Lull & Bushman, 2015; Writz et al., 2017). Programme-advertisement congruence occurs when the content in both the programme and advertisements matches semantically (e.g. a humorous advertisement placed within a comedy show; Bello, Pitts & Etzel, 1983). Two competing hypotheses were suggested based on the results of programme-advertisement congruence; namely the *congruity priming hypothesis* (De Pelsmacker, Geuens, & Anckaert, 2002) and *cognitive interference hypothesis* (Furnham, Gunter, & Richardson, 2002).

Proponents of the *congruity priming hypothesis* argue that congruence facilitates memory for advertisements (De Pelsmacker et al., 2002). According to this hypothesis, programme content primes relevant thoughts in memory, and increases the accessibility of similar information, mood structures, and associations. In their meta-analysis on violent and sexual advertisements, Lull and Bushman (2015) provided evidence in support of the *congruity priming hypothesis*, which states that programme-advertisement congruence improves both advertisement brand recall and buying intentions. However, the results should perhaps be treated with caution because the meta-analysis only uses eight experiments ($N = 366$), half of which were on violent content (e.g. Gunter, Tohala, & Furnham, 2001).

In contrast, proponents of the *cognitive interference hypothesis* suggest that programme-advertisement congruence impairs advertisement memory (Furnham et al., 2002). They suggest that in a programme-advertisement congruent condition, advertisements are

prone to a process called “meltdown,” in which details of the advertised brands merge with surrounding programme content. Similarly, under a programme-advertisement incongruent condition, the novel and unexpected sexual content in advertisements would be more likely to be recalled because it stands out from the contextual programme content. This may be further illustrated by the von Restorff effect (von Restorff, 1933), which states a stimulus that differs from the surroundings is more likely to be recalled. Although the von Restorff effect has been widely studied in the memory literature (Chee & Goh, 2018), none of them focused on sexual media.

While earlier research provided evidence for the effectiveness of programme-advertisement congruence on advertisement recall (Leka et al., 2013), the majority of our recent studies have failed to find such an effect (King et al., 2015; Leka et al., 2013; Furnham & Mainuad, 2011; Furnham & Hiranandani, 2009). The lack of a programme-advertisement congruence effect on advertisement recall may be explained by the difference in proximity between the sexual scenes in the programme and the advertisements. In previous studies, the programmes used were longer in duration, ranging from 26 (King et al., 2015) to 32 minutes (Leka et al., 2013). During the course of the programme, the intensity of sexual content will typically fluctuate (e.g., a sexual scene may be followed by a neutral family barbecue scene). In order to elicit the programme-advertisement congruence effect, the current study will use shorter excerpts that have strong references to romance and sexual interests throughout.

Moreover, the methodology employed in the King et al. (2015) study may explain the lack of an interaction effect. King et al. (2015) employed a within-subject design, whereby the sexual and non-sexual advertisements were presented adjacent to one another to participants. The programme-advertisement congruence effect may be facilitated by the same mood structures evoked by the programme and advertisements (De Pelsmacker et al., 2002). In King et al. (2015), each participant watched both sexual and non-sexual advertisements. Under such

arrangement, the activation of sexual constructs while watching the sexual programme may be eliminated or interrupted by non-sexual advertisements, demonstrating a lack of programme-advertisement congruence effect. The current study utilises a between-subject design in which only one type of advertisements (sexual or non-sexual) will be presented to participants throughout the programme.

1.4. Individual Difference Effects

A number of studies in this area has examined individual difference effects on memory such as sexual attitudes (Furnham, & Hiranandani, 2009). Many studies have also looked at the gender of the participant though results have not always been consistent. Whilst some researchers assumed that males would be more distracted than females and hence forget important product details other concluded that much depends on whom the advertisement was aimed at. That is, if the product was predominant aimed a female purchaser the sexual content effect would be greater for females vs males and vice versa.

Sampson (2018) found support for a motivational information-processing and the distraction hypothesis in male viewers. Her results indicated that sexual appeals enhance memory for the advertisements and that they distract men from processing brand-related information. As in other studies male participants encoded and recalled less brand-related information from advertisements with sexual appeals. In this study we examined the effect of participant gender on memory but formulated no hypotheses.

1.5 This Study

This study will investigate the effectiveness of sexual content and programme-advertisement congruence on advertisement recall, while addressing the methodological

problems identified in previous studies. Foreign programmes and fragrance advertisements are used to control for any effects of familiarity with the material. Fragrance advertisements are utilised because of their association with sexual attraction and behaviour (Reichert, LaTour, & Ford, 2011). Three hypotheses are explored in the current study:

1. There will be a main effect of advertisement type on advertisement recall. Better recall will be observed in sexual advertisements than non-sexual advertisements, as the sexual content would induce an elevated state of arousal and attention (Belch et al., 1981).
2. There will be a main effect of programme type on advertisement recall. Memory for advertisements presented in a sexual programme context will be worse than in a non-sexual programme context, as watching a sexual programme will require more cognitive resources, leaving insufficient cognitive resources to process the advertisements (Bushman and Bonacci, 2002).
3. There will be support for the *congruity priming hypothesis* (De Pelsmacker et al., 2002) (advertisements would be better recalled under a programme-advertisement congruent condition) rather than the *cognitive interference hypothesis* (Furnham et al., 2002) (advertisements would be better recalled under a programme-advertisement incongruent condition)

2. Method

2.1 Participants

Seventy participants were recruited in London for the current study (41 females, 29 males) ranging from 18 to 52 years old ($M = 20.67$, $SD = 5.57$). Participants of the current study described themselves as Asian (40.00%), White (31.43%), Black (14.29%), Multi-racial (8.57%) and Other (5.71%). Nearly all were British and had therefore not seen the

advertisements shown. An analysis with G*Power 3.1 (Faul, Erdfelder, Buchner & Lang, 2009) indicated that a sample of 67 participants would produce adequate power (80%) to detect a moderate to large effect size ($f = 0.35$; Cohen, 1988)..

2.2 Materials

Programmes

Two programmes were used, one contained sexual content and the other did not contain any sexual content. These programmes were chosen by an independent panel of 10 individuals (6 females, 4 males), aged 18 to 23 years. Four TV programmes (2 sexual and 2 non-sexual) were separated and presented in twelve 15-minute long excerpts. The presented programmes were well-matched in length (around 60 minutes) and were Australian reality TV shows that have never been broadcasted in the UK. Panel members answered questions on how informative, interesting, and sexually arousing the programme excerpts were. They responded to each question on a 5-point Likert scale (1: 'not at all' to 5: 'extremely'). Irrelevant questions were added to ensure that panel members were not aware of the aim of the questionnaire. Those with the highest and lowest mean ratings on the sexual scale were selected as the sexual and non-sexual programmes for this study.

The sexual programme was an excerpt from a 15+-rated episode of *The Bachelorette Australia* (Season 3, Episode 5), which was selected for its strong sexual references. In the pilot study, both female and male members of the independent panel found it to be sexually arousing with its explicit sexual and romantic content. The non-sexual programme was extracted from a G-rated (appropriate for audiences of all ages) episode from the reality show *I'm a Celebrity...Get Me Out of Here* (Season 3, Episode 16). Both programmes were Australian reality TV shows about a team of participants living in an isolated place, completing tasks to compete for a prize. These programmes were also produced within the past year, hence they

had good ecological validity, as they resembled materials that people watch on TV in their daily lives.

Advertisements

Twenty-four fragrance advertisements were presented to the same independent panel who selected the programmes in two sets (sexual and non-sexual). Those with the highest and lowest mean ratings on the sexual scale were selected as the sexual and non-sexual advertisements for this study. Of these twenty-four fragrance advertisements, three non-sexual and three sexual advertisements were chosen by the panel. These advertisements have never been broadcast on UK TV and were matched for humour and length (30 seconds \pm 2 seconds). Previous research found that males responded more positively to female nudity than females (Wan, Luk, & Chow, 2014; Kyrousi, Panigyrakis, & Panopoulos, 2016).

The sexual advertisements chosen by the panel were from *Dolce & Gabbana*, *Calvin Klein*, and *Gucci*, and the non-sexual ones were from *Marc Jacobs*, *Ariana Grande*, and *Taylor Swift*. The sexual advertisements would be classified as containing scenes with ‘suggestive content’, ‘revealing clothes’ and ‘breasts or buttocks visible’, which is the second-highest level on Lull and Bushman’s (2015) sexual content intensity scale.

Thus, one group may have watched the sexual programme (The Bachelorette, Australia) with sexual scent advertisements (Dolce & Gabbana, Calvin Klein and Gucci) while another group watched the sexual advertisements in a non-sexual programme (I’m a Celebrity).

2.3 Questionnaire measures

Two questionnaires on advertisement recall were administered to all participants. The first questionnaire measures free recall by instructing participants to record anything they could remember about the advertisements. The maximum score on this questionnaire was nine, with one point allocated to brand, slogan, and scene details recall. To test the participants’ cued recall, the second questionnaire consists of nine multiple-choice questions related to the

advertisements they had watched, such as the brand logo, slogan, and scene details. (These are available from the first author). Pilot work on scoring suggested there was no problem with rater reliability.

2.4 Procedure

Departmental ethics approval was sought and obtained (CEHP/2015/714). The experiment was presented to the participants via Qualtrics.com (2017 version, Qualtrics, Provo, UT).. Participants were asked to maximise their screen size in order to imitate a broadcast TV channel and they were instructed to use headphones and to complete the study in a quiet environment without any distractions. During the presentation, fast-forwarding was prevented, and attention checks were included.

They subsequently watched a neutral gap-filler video, then a programme excerpt (sexual or non-sexual), with three fragrance advertisements (sexual or non-sexual) embedded within, and finally another neutral gap-filler video. The advertisements were presented within the 15-minute long programmes, with the first presented 5 minutes after the programme started, the second presented 10 minutes after the start, and the last presented after the programme had ended. The order of the advertisements was counterbalanced across participants to control for order effects. Both of the programmes were 15-minutes in length. After watching the video, participants filled out the two questionnaires to test their memory for the advertisements. Finally, participants answered the attention checks questionnaire and read a debriefing sheet about the aims of the experiment

4. RESULTS

Since participant gender was previously found to be a potential moderating variable (Leka et al., 2013), it was added as a blocking variable in the ANOVAs. Two 2 x 2 x 2 ANOVAs were conducted on the effect of programme content (sexual or non-sexual),

advertisement content (sexual or non-sexual) and gender (male or female) on the (i) advertisement free recall scores, and (ii) advertisement cued recall scores.

Insert Figure 1 here

3.1 Advertisement free recall

There was a significant main effect of advertisement type on advertisement free recall, $F(1, 62) = 5.28, p = .025, \eta_p^2 = 7.8\%$. Sexual advertisements ($M = 5.59, SD = 2.22$) were better recalled than non-sexual advertisements ($M = 4.28, SD = 2.61$). There was no main effect of programme type on advertisement free recall, $F(1, 62) = 2.32, p = .12, \eta_p^2 = 2.3\%$ (sexual programme: $M = 5.54, SD = 2.47$; non-sexual programme: $M = 4.29, SD = 2.41$). A significant interaction between advertisement type and programme type was found in advertisement free recall scores, $F(1, 62) = 4.43, p = .039, \eta_p^2 = 6.7\%$ (see Figure 2a). Simple effects analyses showed that in the context of a sexual programme, free recall for sexual advertisements ($M = 6.68, SD = 1.06$) were better than that for non-sexual advertisements ($M = 4.19, SD = 2.97$), $t(33) = 3.42, p = .002, d = 1.12$. There was no significant difference between free recall scores of sexual advertisements ($M = 4.20, SD = 2.54$) and non-sexual advertisements ($M = 4.35, SD = 2.37$) when embedded within a non-sexual programme, $t(33) = 0.18, p = .86, d = 0.06$.

3.2 Advertisement cued recall

There was a significant main effect of the advertisement type on advertisement cued recall, $F(1, 62) = 5.39, p = .024, \eta_p^2 = 8.0\%$. Sexual advertisements ($M = 6.50, SD = 2.53$) were better recalled than non-sexual advertisements ($M = 4.86, SD = 2.91$). The main effect of programme type failed to reach significance, $F(1, 62) = 3.48, p = .067, \eta_p^2 = 5.3\%$ (sexual: $M = 6.37, SD = 2.89$; non-sexual: $M = 4.94, SD = 2.62$). There was a significant interaction effect between advertisement type and programme type, $F(1, 62) = 6.11, p = .016, \eta_p^2 = 9.0\%$ (see

Figure 2b). Simple effects analyses revealed that in a sexual context, cued recall for sexual advertisements ($M = 7.79$, $SD = 1.51$) was better than that for non-sexual advertisements ($M = 4.69$, $SD = 3.26$), $t(33) = 3.71$, $p = .001$, $d = 1.22$. No significant difference was found between cued recall scores for sexual advertisements ($M = 4.87$, $SD = 2.64$) and non-sexual advertisements ($M = 5.00$, $SD = 2.68$) when embedded within a non-sexual programme, $t(33) = -.15$, $p = .88$, $d = 0.19$.

Among all the advertisements, the *Ariana Grande* advertisement was the most memorable. Eighty-three percent of the participants who watched non-sexual advertisements recalled the brand, slogan or scene details of the *Ariana Grande* advertisement. The theme of the *Ariana Grande* advertisement was fantasy and it had an unconventional presentation style which involved an ice cream truck. This might have manifested the von Restroff effect (von Restroff, 1933).

3.3 Gender and advertisement recall

There was no main effect of gender in advertisement free recall, $F(1,62) = 2.11$, $p = .151$, $\eta_p^2 = 3.3\%$. There was no interaction between gender and programme type, $F(1,62) = 1.43$, $p = .236$, $\eta_p^2 = 2.3\%$, nor between gender and advertisement type, $F < 1$. There was no interaction between gender, programme type, advertisement type, $F(1,62) = 1.21$, $p = .275$, $\eta_p^2 = 1.9\%$.

Similarly, there was no main effect of gender on advertisement cued recall, $F(1,62) = 3.49$, $p = .067$, $\eta_p^2 = 5.3\%$. There was no interaction between gender and programme type, $F < 1$, nor between gender and advertisement type, $F(1,62) = 3.18$, $p = .080$, $\eta_p^2 = 4.9\%$. There was no interaction between gender, programme type, advertisement type, $F < 1$.

5. DISCUSSION

As predicted, better recall was observed in both free and cued recall of sexual advertisements than in non-sexual advertisements. This finding is consistent with a number of studies indicating the positive effect of sexual content in advertisement effectiveness (Furnham & Hiranandani, 2009; King et al., 2015; Leka et al., 2013), which can be associated with elevated arousal and attention (Belch et al., 1982; Sparks & Lang, 2015).

These findings do not support the *evolutionary emotional arousal theory* proposed by Lull and Bushman (2015). The sexual content in the advertisements did not seem to have consumed the cognitive resources for the surrounding non-sexual cues nor prevented participants from recalling them. The sexual content in the advertisements attracted attention and enhanced recall of advertisement content.

Consistent with the findings of Writz et al. (2017), sexual content had a positive effect on advertisement recall for the fragrance advertisements, which were congruent in product-sexual appeal. In contrast to our prediction, memory for advertisements was not affected by the content (sexual or non-sexual) of the programme. This is inconsistent with the findings from Bushman (2005) and Bushman and Bonacci (2002), but is consistent with King et al. (2015), Leka et al. (2013) and Fried and Johanson (2008). The current study supports Fried and Johanson's (2008) argument that the programme type main effect found in previous studies could be attributed to a lack of control over the extraneous aspects of the programme, such as the programme nature and humour.

The current study controlled for these potential confounding variables in the programme content. Both the sexual and non-sexual programmes were similar with respect to the amount of humour, and had the similar theme, which was a competition within a group for a prize at a remote location. Consistent with the results found by Fried and Johanson (2008), sexual content in the programme did not affect memory for the advertisements when these potential confounds were controlled in the current study

Furthermore, while the lack of main effect of programme on advertisement recall could be attributed to an improvement in experimental design, it might also indicate age and cohort effects. As compared to the past (i.e. 1990s or before), sexually explicit materials have become more accessible with the emergence of the internet. Since young participants may be more often exposed to sexual content as they grow up, they may be more accustomed to the sexual content in the programme and thus may not be distracted by such content. Hence, this may be why contextual programme did not have an effect on advertisement recall in the current study, as the average age of the participants in this study was 20.6 years. Similar findings were observed in other studies with young participants, such as those conducted by Leka et al. (2013), and King et al. (2015), in which participants had a mean age of 20.1 and 24.4 years respectively. As age is associated with wealth as well as an interest in particular products it is always desirable to have a reasonably age spread of participants and to investigate as a potentially mediating factor.

There was also a predicted interaction between the programme type and advertisement type with respect to advertisement recall. However, and contrary to the prediction, advertisements were best recalled in the congruent programme-advertisement condition, while sexual advertisements were remembered the best when embedded within the sexual programme. This is, however, consistent with the results from Lull and Bushman (2015) and provide support for the *congruity priming hypothesis* (De Pelsmacker et al., 2002), whereby sexual programmes context primes sexual thoughts in memory, increasing the accessibility of relevant information, and thus facilitating the encoding of sexual advertisements. On a neural level, this may be explained with the spreading activation model (Collins & Loftus, 1975), that the sexual programme semantically primes sexual thoughts in memory and enhances subsequent encoding processes.

In the current study, there was no significant difference between the recall of sexual and non-sexual advertisements when embedded in the non-sexual programme. The congruence effect in the non-sexual condition might have been less pronounced because there were a lot of themes involved in the non-sexual programme, which might not stand out as the sexual theme did in the sexual programme. These themes in the non-sexual programme would appeal to each viewer differently based on their personal preferences, and therefore may not have elicited a detectable congruence effect when non-sexual advertisements were embedded within a non-sexual programme.

A number of studies have not found a programme-advertisement interaction (e.g., Furnham & Mainaud, 2011; King et al., 2015; Leka et al., 2013). This may be explained by the difference in proximity between the sexual content in the programme and advertisements. As compared to King et al. (2015) and Leka et al. (2013) who used 26-minute long and 32-minute programme excerpts, respectively, the current study used shorter excerpts (15 minutes) that had strong references to romance and sexual interests throughout. The closer proximity between the sexual content in programme and the advertisements in the current study might have elicited the congruence effect. Therefore, advertisement effectiveness may be enhanced if advertisers schedule their sexual advertisements during programme breaks closely before or after the sexual content of a programme. This has important practical implications for advertisers and broadcasters.

As previously suggested by Bushman (2007), it is also possible that the lack of interaction effect in early studies was due to the viewing condition of the study. For example, in the Furnham and Mainaud (2011) study, participants watched the programme in a laboratory and in groups. As Leka et al. (2013) suggested, watching sexually explicit content in the company of others might have caused participants discomfort and embarrassment, thus overloading their cognitive resources. In the current study, in addition to watching the

programme alone, participants watched it online in a comfortable setting of their choice. This manipulation might allow participants to be more comfortable and focused on the programme instead of the presence and implicit judgement of others.

As previous research found differences in processing sexual information of advertisements across female and male populations (Jones, Stanaland, & Gelb, 1998), gender was included as a blocking variable in the analysis of the data from the current study. However, no gender main effects or interaction effect with other variables was found for any of the recall measures. Mixed results were reported among previous studies that investigated a gender effect in advertisement recall.

Overall, the current study strongly suggests that sexual content enhances memory and effectiveness of advertisements. More importantly, advertisements were better recalled when there was congruence between the programme and the advertisement, and this was particularly the case when both the programme and advertisement were of a sexual nature. This finding indicates that placing sexual advertisements adjacent to the sexual content within a TV programme may be a useful strategy for advertisers wishing to enhance brand recall.

This study, like all others, had limitations. We did not enquire about the participants viewing habits, nor did we collect data on the context (setting, time-of-day) where the programme was watched. We also did not enquire about participant's sexual attitudes, purchasing habits or indeed knowledge of perfumes. Each of these factors may have had an effect on the results. Further, and inevitably with studies such as this using "real world" as opposed to "experimentally design" stimuli (namely advertisements) a perfect match was not possible.

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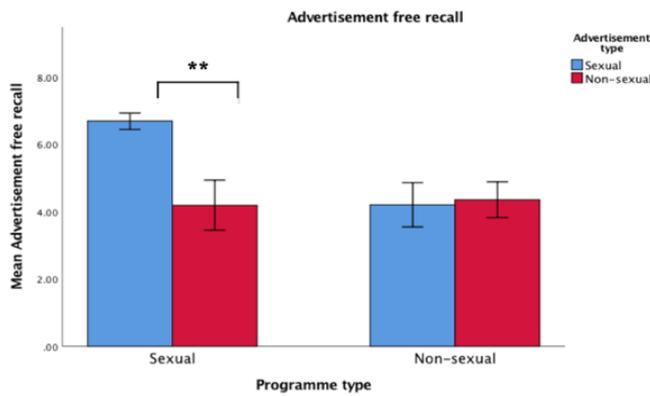


Fig. 2a

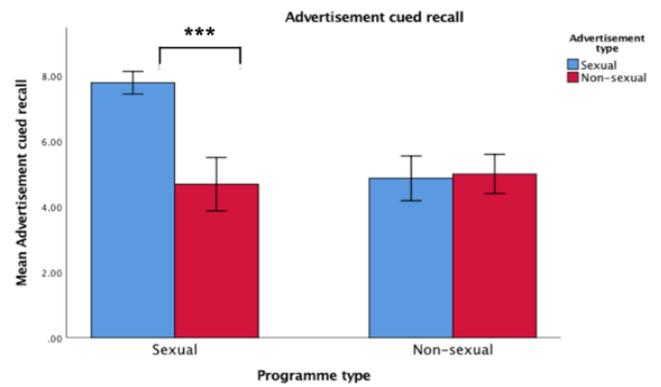


Fig. 2b

Figure 1. Mean advertisement free recall (Fig. 2a) and cued recall (Fig. 2b) scores as a function of programme type and advertisement type. Error bars represent ± 1 standard error. $**p < .01$.

$***p < .001$.