**How Sexy Can a Paper Clip Get? Evidence For the Transfer of Erotic Meaning to "Unsexy" Products**

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## ABSTRACT

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## INTRODUCTION

Practitioners of advertising repeatedly claim that sex in advertising only works when the product is related to sex (Ogilvy, 1985). Advertising Professor Jef I. Richards from the University of Texas is cited with the statement: "Sex sells, but only if you're selling sex." (Kalb, 2012).

In their comprehensive analysis of research on the effectiveness of sex in advertising Lull and Bushman (2015) come to the conclusion that sex does not sell at all. However, most of the research reviewed solely considers variables like memory, valence of an attitude or intention to buy. In contrast, for many cases the primary intent of sex in advertising would be to load up the product with erotic content in order to give it an erotic image. Only little attention has been paid to the question whether sex in advertising is successful in reaching this goal. Moreover, the practitioner's claim cited above has rarely been challenged: Is it really impossible to "sex up" an unsexy product?

To address this issue we use a variant of evaluative conditioning. This kind of conditioning can be defined as the classical conditioning of liking or disliking by pairing a neutral stimulus (CS) with an unconditioned stimulus (US) which has a clear positive or negative valence (De Houwer 2009). The mechanisms behind evaluative conditioning, however, are not limited to elicit liking alone. Procedures similar to those of evaluative conditioning have also proven to be effective in changing meanings of the conditioned stimuli. These procedures have been labeled as a kind of "concept learning" (Glaser and Walther 2013) or "non-evaluative conditioning" (Förderer and Unkelbach 2011). For instance, Förderer and Unkelbach (2011) were successful in making neutral people seem more athletic by repeatedly presenting them with athletic people.

We use the paradigm of non-evaluative conditioning to prove that in the case of transferring erotic meaning to a product the effect is not restricted to certain stimuli. To do this we add an additional factor to the standard conditioning procedure: We present erotic and non-erotic US along with products that do have an erotic meaning on their own as well as with products that do not.

Moreover we hypothesize that the conditioning effect is not due to an effect on confounding variables. It can be argued that pairing neutral CSs with erotic USs may not go beyond evaluative conditioning after all: Since "erotic" for most people is a positive attribute the conditioning procedure may only transfer valence but no meaning. If the pairing of a product with an erotic stimulus results in higher evaluations on an attribute like "erotic" this may only be the result of an unspecific and general enhancement of the product's evaluation. To make sure that the product really gets a different meaning it should be demonstrated that the conditioning effect cannot be reduced to valence alone. Accordingly, we hypothesize that pairing a neutral CS with an erotic US has a much stronger effect on the ascription of attributes like "erotic" and semantically similar attributes (e.g., "exciting") than on the evaluation on attributes like "good".

To test these hypotheses we conducted an experiment in which erotic meaning was transferred to both "sexy" and "unsexy" objects. The acquisition of the attribute was captured by explicit ratings but also by an indirect measure, a semantic version of the affect misattribution procedure (AMP; Payne, Cheng, Govorun, and Stewart 2005). The indirect measure was important to make sure that the objects really acquired an erotic meaning and that the effect was not due to demand characteristics or explicit memory of the exposure during the conditioning stage.

## METHOD

The experiment used a standard EC procedure (Walther, 2002) to transfer the attribute erotic from erotic pictures (USs) to pictures of neutral objects (CSs). However, in contrast to regular conditioning procedures, we used two different sets of stimuli for CSs: One set of six objects consisted of objects which presumably were well suited for being charged with an erotic meaning while another set comprised six objects which were totally unrelated to sex and was thus not unsuitable for a transfer of erotic meaning. We will refer to these two sets of stimuli as "sexy" and "unsexy". This results in a two by two factorial design in which all conditions were varied within groups. The two factors were conditioning (erotic vs. nonerotic USs) and suitableness ("sexy" vs. "unsexy" objects).

As "erotic" is most likely a positive concept we controlled for valence in two ways: Firstly, we selected USs which were equal in valence. Secondly, we collected ratings of CSs valence and erotism to be able to control for valence statistically.

### Material

#### Conditioned stimuli

As CSs we used a sample of twelve objects half of which were regarded as very "unsexy" whereas the other half was supposedly well suited for being connected to an erotic content. We took these stimuli from the results of a preliminary study. More specifically, a sample of N = 32 participants was instructed to name objects which are well suited for being charged with an erotic meaning as well as objects which are very poorly suited to acquire an erotic meaning. These lists consisted of classes of objects. For example furniture or office supplies were frequently mentioned as "unsexy" objects, whereas jewelry, candles or alcoholic beverages were frequently mentioned as "sexy" objects. As CSs two sets each containing six pictures were chosen which showed either potentially erotic or unerotic objects (see figure 1 and 2 for examples).

"Sexy" (i.e., potentially erotic) objects were: Candles, strawberries, jewelry, chocolate, perfume and beer

"unsexy" objects were: Writing desk, chair, sticky notes, paper clip, writing pad, folder

To make sure that the objects were otherwise neutral (except for their potential erotic content) pictures did not show any hint on an existing product or brand.

#### Unconditioned stimuli

USs were generated from ratings participants gave in the first stage of the main experiment. In this stage participants rated a sample of 40 pictures, presented in randomized order, on a scale from 1 to 7 as to whether they consider this picture to be erotic (= 7) or not (= 1). The pictures comprised of males, females, and couples (hetero- and

**Figure 1: Example for a "sexy" (left) and an "unsexy" object (right) both used as CSs that were well or poorly suited for gaining erotic meaning**

homosexual) in different degrees of nudity but not in pornographic poses. For each participant the six pictures with the highest ratings were adaptively chosen as USs for the conditioning stage. This was done as long as the highest ratings were not lower than 4. For participants who did not give a rating of 4 or more for at least six pictures USs were taken from a standardized set of pictures, the International Affective Picture System (IAPS; Lang, Bradley and Cuthbert, 2008). The six erotic IAPS Items were chosen from the sample of "erotic couples". This ensured that they would appeal to both men and women. The IAPS stimuli are standardized – among others – with respect to valence and arousal. To make sure that the chosen pictures were equally attractive and arousing for both sexes we chose stimuli for which the difference of the mean values for valence and arousal for men and women were minimal.

As nonerotic USs we chose stimuli depicting sport and adventure (e.g., skiing, paragliding). The rationale behind this selection is that control stimuli should closely match the erotic material with regard to positivity and excitement. Analyses of the IAPS stimuli showed that sport-pictures closely matched the chosen erotic pairs in three respects: Arousal, positivity and minimum difference between men and women on both dimensions. So if one has to look for pictures that are just as positive and exciting as erotic pictures without the erotic content, pictures of sports and adventure would be a good guess. Note however that the control stimuli we employed are not an exact match of the erotic UCs as long as participants chose their own erotic material in the first stage.

## Participants and procedure

*N* = 112 participants completed all dependent measures. 56 women and 52 men took part in the experiment. Four participants provided no information on their gender. Participants were mostly students or visitors on the open house of a public university. Mean age was 24.30 (*SD* = 7.75). Participation was completely voluntary. There were no incentives such as monetary payments nor course credits. However, participants were served coffee and cake while being debriefed in a different room after the experiment.

For the programming we used Inquisit 4.0.4.0 (2013) by Millisecond Software. During the experimental sessions participants were seated in front of a PC and were told that they would see a number of pictures they should evaluate. Participants were placed in semi-cubicles during the experimental sessions. This ensured that they were not able to interact with each other. They were also told about the other parts of the experiment, one of which – the conditioning stage – consisted of a mere presentation in which no input was required. Participants were also informed that in the third part of the

experiment they were asked again to evaluate pictures or symbols. The initial instruction explicitly hinted on the total duration of about 20 minutes. Participants were asked to abort the experiment at the beginning if they should be afraid not to have this 20 minutes time for being concentrated on the experiment.

At the beginning of the experiment participants rated a number of erotic pictures on a scale ranging from 1 "not erotic at all" to 7 "very erotic". Participants could take any time they wanted for this task. A new picture was presented whenever participants provided their rating by entering the appropriate number and hitting the return button. Based on these ratings the computer selected the USs for the following conditioning stage by taking the pictures which were rated highest as erotic stimuli. As mentioned above, control stimuli for the conditioning stage were a fixed set of stimuli depicting sports and adventure.

The following stages of the experiment roughly follow the procedure employed by Förderer and Unkelbach (2011). In the conditioning stage, CS–US pairs were presented. They were assigned randomly anew for each participant. Since there were six "unsexy" products and six "sexy" (i.e., potentially erotic) products a total of twelve pairs were presented. Half of the CSs were presented together with an erotic US, the other half was presented along with unerotic USs. Each pair was presented six times, resulting in 72 pairings. CSs were visible for 1,5 s alone, then the respective US appeared for another 2.5 s. CSs were presented in the upper half of the screen and USs in the lower half. After a pause of 1.5 s, the next pairing was presented.

For the dependent measures, half of the participants completed the indirect measure (SMP) first and then rated each CS on a number of six attributes on 5-point scales; the other half completed the ratings first and afterward the SMP.

For the explicit ratings each CS was presented on the right side of the screen while ratings could be done on the left side. The attributes were "sexy", "erotic", "good", "likeable", "wild" and "exciting". The main dependent variable on the explicit measure was the mean of the two ratings for "sexy" and "erotic". Ratings of the other attributes should account for two potentially confounding variables: Valence and arousal.

For the SMP, participants were instructed they would see two pictures in rapid succession, the first being a familiar picture and the second being a chinese character, a Kanji. They were told that the first picture served as an orientation stimulus and they should decide whether the Kanji represents a word with an erotic or nonerotic meaning as fast as possible. They should react only to the Kanji and not to the preceding picture. Each trial consisted of a CS being visible for 75 ms, followed by a blank screen for 125 ms and a Kanji for 100 ms. A black-and white noise picture immediately replaced the Kanji until participants made their decision by pressing one of two marked keys on the keyboard (see Imhoff, Schmidt, Bernhardt, Dierksmeier and Banse, 2011, for a similar approach). Since Kanji were judged on a conceptual level the procedure is labeled SMP for "Semantic Misattribution Procedure" After finishing the dependent measures all participants were thanked and debriefed.

## RESULTS

In the following paragraphs CSs that were paired with erotic USs will be labeled "erotic". CSs that were paired with nonerotic USs will be labeled "nonerotic". Remember, that half of our CSs supposedly were unfit for being charged with an erotic meaning. These stimuli are labeled "unsexy". Accordingly those stimuli for which an erotic meaning seemed appropriate are called "sexy".

Gender of the participants had no effects in all analyses, therefore we omit this factor from the analysis report.

*Direct Rating.* The six explicit ratings for each CSs were aggregated to three variables: one rating for "erotism" as the mean of the single ratings of the attributes "erotic" and "sexy", another rating for "valence" as the mean of "good" and "likeable" and a third rating for "arousal" as the mean of "wild" and "exciting".

We calculated participant's mean ratings of these three variables for the six erotic CSs and the six nonerotic CSs and compared them within a repeated-measures ANOVA. As predicted, CSs repeatedly paired with erotic USs were rated as being more erotic ($M = 2.35$, $SD = 0.98$) than CSs paired with nonerotic USs ($M = 1.92$, $SD = 0.73$; $F(1, 111) = 25.25$; $p < .001$). Valence ratings for erotic and nonerotic CSs did not differ significantly ($M = 2.87$, $SD = 0.76$ vs. $M = 2.94$, $SD = 74$; $F(1, 111) = 1.89$; NS). However, erotic CSs were also rated as more arousing ($M = 2.21$, $SD = 0.86$) than nonerotic CSs ($M = 2.03$, $SD = 0.80$; $F(1, 111) = 10,91$; $p = .001$). So it seems that the conditioning effect does only spread to a conceptual confound of "erotic" but not to an evaluative confound. This supports the assumption that the conditioning procedure indeed transfers meaning and not valence alone.

But are erotic stimuli only effective in charging suitable objects with an erotic meaning? To address this question we assessed the conditioning effect separately for "sexy" and "unsexy" CSs. The mean ratings for erotism can be found in table 1. They were analyzed in a two (conditioning: erotic US vs. nonerotic US) by two (suitableness: "sexy" vs. "unsexy" products) ANOVA. Results indicate both a strong effect for conditioning ($F(1, 109) = 21.72$, $p < .001$) and for suitability ($F(1, 109) = 235.06$, $p < .001$). This latter effect suggests that the "unsexy" products we chose were indeed not sexy at all. But that does not mean that the pairing with the erotic USs had no effect. When paired with an erotic US "unsexy" products got higher ratings for erotism than after pairing with a neutral US. The effect of the conditioning procedure is not stronger for suitable products than for unsuitable ones (see table 1). The interaction between conditioning and suitableness is not significant ($F(1, 109) = 0.31$, $p = .58$, NS).

*SMP.* Of course the direct and explicit evaluation of an object that has repeatedly been paired with erotic stimuli goes along with high experimental demand. Therefore it is important to replicate the results with a more indirect method. Participants completed a variant of the Affect Misattribution Procedure (AMP, Payne et al. 2005) in which they had to decide whether the meaning of a Kanji comes from the field of sexiness, sensuality, erotism or affectionateness.

We computed the probability to judge a Kanji as having an erotic meaning when it appeared after erotic compared to nonerotic CSs. Table 1 presents these probabilities. We analyzed them with the same ANOVA as the direct ratings: Kanji following erotic CSs were more likely judged as erotic than Kanji following nonerotic CSs ($F(1, 109) = 11.03$, $p < .001$). The probability of an "erotic" judgment was also significantly higher when the Kanji was preceded by a "sexy" product as opposed to an "unsexy" product ($F(1, 109) = 4.13$, $p = .044$). However, again there was no interaction: The effect

of pairing with an erotic stimulus was not stronger for "sexy" than for "unsexy" products ($F(1, 109) = 1.60$, $p = .21$, NS).

So in all cases conditioning of an erotic meaning was successful: Regardless of the measure (direct or indirect) or the type of CS (sexy or unsexy) erotic meaning was significantly stronger for stimuli paired with an erotic US.

## DISCUSSION

The results clearly support the notion of a transfer of meaning from USs to formerly neutral CSs. By simple repeated pairings with erotic stimuli neutral objects acquired an erotic meaning. It should be noted that only few studies have demonstrated a transfer of a specific attribute through evaluative conditioning independent of and beyond valence (see Förderer and Unkelbach, 2011, or Glaser and Walther, 2013, for exceptions). The transfer seems robust in the sense that conditioning of erotism can be proved on direct and indirect measures. Highlighting the attribute through priming (like Olson, Kenrik and Fazio, 2009, did) was unnecessary.

The main purpose of this study was to challenge the popular notion that sex in advertising only works for products that are related to sex. To do this we extended the regular conditioning procedure by including an additional factor: the expected suitability of the CS for conditioning. Or results suggest that erotic advertising works for any product, at least if you consider an erotic evaluation of the product as a main target of sex in advertising.

Our results also raise questions concerning the real effects of sex in advertising. After all it has already been demonstrated that erotic advertising has poor if not adverse effects on variables such as memory, favorability of attitude or purchase intention (Lull and Bushman 2015). It seems, however, that one obvious variable has been neglected in this discussion. When it comes to the actual content of an attitude toward the product, sex in advertising seems to have exactly the effect that the advertiser must have had in mind.

What does that mean for marketing and consumer behavior beyond the refutation of a popular notion? Maybe research on the effectiveness of sex in advertising has asked the wrong questions. Whether erotic advertising has a positive effect depends on the variable under consideration. Pairing a product with erotic stimuli may not affect buying intentions, memory or favorability directly, but it does affect the attributes ascribed to that product, which in turn may have their own effects on memory, attitudes or buying intention. Thus the effect of sex in advertising on variables more relevant to marketing may be more indirect. For instance, erotic advertising may affect implicit attitudes more than explicit evaluations. It may also affect implicit memory instead of explicit memory.

Future research should also address the issue of product choice after erotic conditioning. Existing evidence (e.g. Lull and Bushman 2015) does not encourage the expectation that sex has a strong and direct effect on product choice. This may be because erotic image interacts with other variables before it affects product choice. For instance some consumers may act on the (implicit) rule that an erotic paperclip may have poor quality. Another interacting variable may

**Table 1: Mean Eroticism-Ratings and mean probabilities of erotic responses for "sexy" and "unsexy" products after presentations along with erotic or nonerotic stimuli**

| | Erotic US | | | | Non-erotic US | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | "sexy" products | | "unsexy" products | | "sexy" products | | "unsexy" products | |
| | M | SD | M | SD | M | SD | M | SD |
| **Mean erotic-Ratings1** | 2.88 | 1.07 | 1.79 | 1.09 | 2.46 | 0.97 | 1.31 | 0.57 |
| **Mean probabilities of erotic responses to Kanji** | .52 | .29 | .45 | .30 | .41 | .27 | .38 | .28 |

$N = 112$; [1] Values range from 1 to 5; higher values indicate high ratings of eroticism

regard self concept: It has been shown that brand personalities "rub off" on consumers, especially when they contribute to a desired self (Park and Roedder John 2010). As it seems sexiness can be part of a product's attributes even if the product itself has little relation to sex and the attribute is ascribed only in an automatic and implicit manner. Still it is possible that in situations in which sexiness contributes to a desired self the more erotic product is preferred over the unerotic one, regardless of the product category and regardless of where the erotic attributes come from. From the same reasoning follows that it should be questioned if experiments in controlled settings are appropriate to evaluate effects of sex in advertisements on consumers' preferences, since in a typical experimental situation participants are rather unlikely to desire a self in which sexiness plays a dominant role.

Among the limitations of the study is the narrow scope of products which were supposed to be unfit for erotic advertising. Although our results strongly support the expectation that our "unsexy" products were not related to sex we only used products from two classes: furniture and office supplies. Future research should demonstrate that the results really can be generalized to other "unsexy" products.

Another limitation is that we only showed short time effects of conditioning. It has already been demonstrated that conditioned responses to products can persist over weeks (Grossmann and Till 1998). It remains an open question, however, whether this stability also applies to effects of semantic conditioning.

Finally, our data of course do not support a null hypothesis according to which there is no difference whatsoever between suitable and unsuitable products when it comes to the effectiveness of sex in advertising. It may still be that conditioning works better with some products than with others. What the data suggest, however, is that – contrary to what many advertisers and consumers believe (Kalb 2012) – via conditioning almost any product can be "sexed up".

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