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Visual Aesthetics in Advertising

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Abstract

According to the processing fluency theory (Reber et al., 2004), fluently processed stimuli are preferred to more challenging stimuli. This contradicts Giora et al.'s (2004) Optimal Innovation Hypothesis, that predicts a preference for more challenging, optimally innovative stimuli. Hekkert et al.'s dual process model would explain both theories: Familiar stimuli would be preferred after short exposure, whereas optimally innovative stimuli would be preferred after longer exposure. An experiment was done to examine the effect of exposure time (20ms vs. 1000ms) on the aesthetic response to either familiar or optimally innovative advertising images. The results showed a higher aesthetic response to optimally innovative images regardless of exposure time. This study therefore did not support Reber et al.'s fluency theory nor Hekkert et al.'s assumption that two opposing mechanisms are at work at different exposure times.

Keywords: visual aesthetics; fluency; innovation; advertising.

Introduction

In advertising, people often adopt an experiential processing strategy (Meyers-Levy & Malaviya, 1999), basing their judgments of an advertising utterance on the feelings evoked by processing this utterance (consistent with Schwarz & Clore's (1983, 2003) feelings-as-information model). Previous research on rhetorical figures in advertising investigated to what extent people prefer cognitive challenges, such as resolving puzzles, or processing complex puns or metaphors to more simple rhetorical figures, such as rhyme. It turned out that the assumptions about people's preference to puzzle in advertising are incorrect: People prefer the more simple variants instead (see, e.g., Van Enschot, Beckers & Van Mulken, 2010). These findings are in line with Reber's fluency theory that assumes that the more fluently the perceiver can process an object, the more positive is his or her aesthetic response (Reber, Schwarz & Winkielman, 2004).

Reber's fluency theory seems to be contradicted by the work of Giora et al. (2004). They introduce the concept of 'optimal innovation'. An optimally innovative stimulus is a stimulus that evokes a salient (i.e., familiar, conventional) response together with a novel, conceptually different response. The Optimal Innovation Hypothesis assumes that optimally innovative stimuli (e.g., 'a peace of paper') are found more pleasant than stimuli with just salient meanings (e.g., 'a piece of paper') (which would be processed more fluently).

This paper reports on an experiment testing these contradictory theories. As images are omnipresent in advertising, the focus lies on the prominent pictures in magazine ads. Familiar images are compared with optimally innovative images. Two separate mechanisms may operate here: A fluency-based response to familiar images – at an early stage of processing - versus a more conscious and cognitively mediated response to optimally innovative images at a later stage (Hekkert, Snelders & Van Wieringen, 2003). Exposure time is varied to test this assumption (cf. Jakesch, Leder & Forster, 2013).

Theoretical Framework

Reber et al. (2014) adopt an interactionist perspective on beauty by seeing beauty as a pleasurable subjective experience based on and directed toward stimulus properties. Fluency of processing is key in their view: "The more fluently the perceiver can process an object, the more positive is his or her aesthetic response" (p.365). The reason why this response is assumed to be positive is because high fluency is associated with, e.g., "progress toward successful recognition of the stimulus, error-free processing, or the availability of appropriate knowledge structures to interpret the stimulus" (p.366). Several studies have confirmed the fluency theory (e.g., Winkielman & Cacioppo, 2001, Winkielman & Fazendeiro, 2003).

Fluency theory seems to be contradicted by Berlyne (e.g., 1957, 1960, 1971, 1974, see also Palmer, Schloss & Sammartino, 2013), Hekkert et al. (2003) and Giora et al. (2004). Berlyne distinguishes a group of stimulus features known as collative variables (such as complexity, novelty, ambiguity, uncertainty and conflict). A collative variable has arousal potential, the ability to influence the level of arousal and consequently the level of positive or negative affect. Berlyne suggests that affect follows an inverted U-curve, moving up from neutral to positive as arousal potential goes up, but shifting from positive to negative after arousal potential passes an optimal tipping point. Note that fluency theory would predict that the least complex, least ambiguous, etc. stimuli would be processed most fluently and would therefore be preferred most.

Silvia (2005) convincingly explains why Berlyne's theory is outdated. Arousal can't be held as a homogeneous construct, as low correlations are found between different arousal measures, such as blood pressure, heart rate and

electrodermal responses: "the psychobiological assumptions of Berlyne's arousal model are known to be wrong" (p.345).

Although the concept of arousal may be something from the past, Berlyne's idea that collative variables would yield either positive or negative affect is still supported. Hekkert et al. (2003) performed a study on the effect of the collative variable novelty versus the opposing variable typicality, which would yield fluent processing on the aesthetic preference for various product designs (e.g., teakettles, telephones). According to fluency theory, the typical product designs would be processed most fluently and preferred most. But Hekkert et al.'s experiments supported their so-called MAYA principle (Most Advanced Yet Acceptable), and showed that people prefer an optimal combination of typicality and novelty. Both positively affected aesthetic preference, but – as they tend to be one another's opposite, each suppressed the positive effect of the other.

Similar findings can be seen in Giora et al.'s (2004) study testing their Optimal Innovation Hypothesis. According to Giora et al., an optimally innovative stimulus is a stimulus that contains both a salient (i.e., familiar, conventional, prototypical) meaning and a novel, conceptually different meaning (e.g., 'a peace of paper'). Optimally innovative stimuli create "a spin on the familiar" (p.116). Giora et al. find support for their hypothesis that optimally innovative stimuli are regarded as most pleasing, more than stimuli with just salient meanings (e.g., 'a piece of paper') or pure innovations (without salient meanings, e.g., 'a pill of pepper').

Therefore, we see a paradox between Reber et al.'s (2004) processing fluency theory and the work inspired by Berlyne (Hekkert et al., 2003, Giora et al., 2004), the former predicting an aesthetic preference for fluently processed (e.g., typical, familiar) stimuli and the latter predicting a preference for somewhat more challenging (atypical, optimally innovative) stimuli.

In their discussion section, Hekkert et al. (2003) propose a dual process model of aesthetic preference, in which two separate, opposing mechanisms operate: An automatic, tension-reducing mechanism which favors familiar, typical stimuli (a fluency based gut response, phrased differently) versus a more 'controlled' and cognitively mediated, tension-heightening mechanism, which seeks and prefers novel, atypical stimuli. Hekkert et al. suggest that the available processing time may affect the relative contribution of each mechanism. With little time available, the automatic mechanism would prevail and yield a preference for familiar, fluently processed stimuli over optimally innovative stimuli. With more time available, the cognitively mediated mechanism would become active and the optimally innovative stimuli would be preferred.

This dual process model is partially supported by a study of Jakesch et al. (2013) who examined the preference for ambiguous versus non-ambiguous artworks in combination with different exposure times. Surrealistic artworks were presented as opposed to non-ambiguous control artworks in which uncommonly placed objects had been removed or modified. According to fluency theory, non-ambiguous stimuli would be processed more easily and therefore liked more than ambiguous, more hard to process stimuli. The results showed that ambiguous artworks were liked more than non-ambiguous artworks at exposure times of 500ms and at 1000ms, whereas no difference occurred at 10ms and 100ms. This only partially supports Hekkert et al.'s dual process model and it does not support fluency theory, as non-ambiguous stimuli were not liked more with shorter exposure times.

Jakesch et al. (2013) included different exposure times not to test the dual process model but to bring about different levels of fluency. The present study continues the work of Reber et al. (2004), Giora et al. (2004) and Jakesch et al. (2013) and tests the dual process assumption of Hekkert et al. (2003) by focusing on advertising images. Our research question is:

> RQ: What is the influence of exposure time to the aesthetic response to familiar versus optimally innovative advertising images?

We expect to find an interaction effect (cf. Hekkert et al., 2003): a preference for familiar advertising images to optimally innovative images with little exposure time versus a preference for optimally innovative images to familiar images with more exposure time.

Method

An experiment was executed to test the effect of Exposure Time (20ms vs. 1000ms) * Type of Stimulus (familiar vs. optimally innovative stimuli) on the aesthetic response to the advertising image.

Pretest A pretest was done to select adequate familiar versus innovative stimuli. The second goal of the pretest was to determine the minimum exposure time (20, 50 or 100ms). The maximum exposure time in the experiment was set to 1000ms, as Jakesch et al. (2013, p.10) indicate that this relatively long exposure time yields more pronounced liking scores. In the pretest, eight sets of familiar versus optimally innovative advertising images were tested with 65 participants (others than in the main experiment), with Exposure Time and Type of Stimulus both as between-subjects factors. After each ad, the participants were asked which product and brand they had seen. Then, they were asked to indicate the perceived innovativeness of the stimulus by means of three 5-point semantic differentials: 'The advertising image is familiar-innovative, predictable-original, straightforward-creative'. The extent of felt fluency was measured through two 5-point semantic differentials 'It doesn't take effort/takes effort to understand what is depicted' and 'The ad is easy/difficult to recognize'. Three out of the eight pre-tested ad pairs were selected for the main experiment: Heinz ketchup, Fructis shampoo and Lu Pim's

cookies. The innovative versions of these ads were perceived as more innovative than the familiar versions and the innovative versions were perceived as less fluent to process than the familiar versions. An ad pair of Tropicana orange juice was added to the main experiment. This ad pair was used in a previous experiment (Van Enschot, 2006), in which the innovative version was perceived as more creative than its familiar counterpart. 20ms was selected as the minimum exposure time. At 20ms, almost all participants were able to recognize the product and brand in the images of the selected ads.

Material Four advertisements of real brands (Heinz ketchup, Fructis anti-dandruff shampoo, Lu Pim's cookies and Tropicana orange juice) were presented. The images were manipulated to create a familiar version versus an optimally innovative version (see Figure 1-4: left is familiar, right is optimally innovative). The amount of text was limited. All familiar versions showed the product only. The innovative versions showed the product, but in a fusion with another element to create a meaningful twist (cf. Phillips & McQuarrie, 2004). Figure 1, for example, shows the ad pair of Heinz ketchup. The right ad is the optimally innovative version, in which the product is still shown (the familiar meaning) but an innovative aspect is added: The bottle of ketchup is depicted as a sliced tomato, illustrating the freshness of this ketchup. And the innovative version of the Fructis pair shows a fusion of the bottle of shampoo and a vacuum cleaner, to indicate that this shampoo removes all dandruff.

Figure 1: Heinz ketchup

Figure 2: Fructis anti-dandruff shampoo

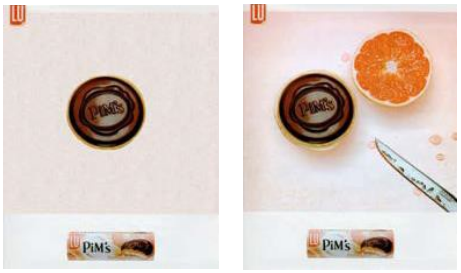

Figure 3: Lu Pim's cookies

Figure 4: Tropicana orange juice

Participants 157 respondents filled in the questionnaires: age 16-80 (M=30.4), male-female ratio 66.2-33.8%, education level from lower to higher vocational education (mainly higher vocational education: 73.9%).

Instrumentation To measure the aesthetic response to the advertising images, four 7-point semantic differentials were used: beautiful-ugly, pleasurable-unpleasurable, interesting-not interesting, like-dislike (average Cronbach's α = .94). A manipulation check was performed by means of three 7-point semantic differentials: 'The advertising image is familiar-innovative, predictable-original, straightforward-creative') (average Cronbach's α = .87). The extent of felt fluency was measured with two 7-point semantic differentials: 'It doesn't take effort/takes effort to understand what is depicted' and 'The ad is easy/difficult to recognize' (average Cronbach's α = .86). The items were largely based on Jakesch et al. (2013), Giora et al. (2004), Palmer et al. (2013) and Hekkert et al. (2003).

Design A mixed design was used with Exposure Time (20 vs. 1000 ms) as between-subjects factor and Type of Stimulus (familiar versus optimally innovative advertising image) as within-subjects factor. This led to four versions in which the order was kept constant. The image pairs were balanced across participants: Participants saw either the familiar image or the optimally innovative image of the pair.

Procedure The online survey software of Qualtrics (www.qualtrics.com) was used. Participants were randomly referred to one of the four versions. A practice ad (Karvan Cevitam, familiar version) was presented first. The aesthetic response and felt fluency were measured after limited exposure to the ads (20ms or 1000ms). The manipulation

check was performed in the second phase of the experiment, after a self-paced exposure to the ads. It took the participants 10 to 15 minutes to complete the questionnaire. As the questionnaire was online, participants were asked whether they were disturbed while filling in the questionnaire (85.5% not disturbed), whether their Internet connection was stable (92.4% stable) and whether they were focused on filling in the questionnaire (96.8% focused). These factors did not affect the aesthetic response (disturbed: t (155) = .68, p = .489; Internet connection: t (155) = .01, p = .996; focused: (t (155) = .85, p = .398).

Results

Manipulation check Perceived innovation was tested with a one-way ANOVA with Type of Stimulus as a factor. A main effect was found of Type of Stimulus (F (1, 156) = 369.90, p < .001). Optimally innovative images (M = 4.96, SD = 1.24) were indeed regarded as more innovative than the familiar images (M = 2.34, SD = 1.13).

The effects on felt fluency and the aesthetic response can be found in Table 1.

Table 1: The effect of Type of Stimulus * Exposure Time on the extent of felt fluency (1 = fluent, 7 = not fluent) and the aesthetic response (1 = low, 7 = high) (M's with SDs between brackets)

	Felt fluency	Aesthetic response
Familiar		
20ms	2.05 (1.06)	3.99 (0.96)
1000ms	2.19 (1.23)	5.05 (1.68)
Total	2.12 (1.14)	4.51 (1.45)
Optimally innovative		
20ms	3.31 (1.44)	4.30 (1.13)
1000ms	2.93 (1.36)	5.67 (1.18)
Total	3.12 (1.41)	4.98 (1.34)
Total		
20ms	2.68 (1.41)	4.14 (1.06)
1000ms	2.56 (1.34)	5.36 (1.50)

Felt fluency A two-way ANOVA with repeated measures was done to measure the effect of Type of Stimulus and Exposure Time on the extent of felt fluency. An interaction effect was found of Type of Stimulus * Exposure Time (F (1, 155) = 4.35, p = .039). The difference in the extent of felt fluency was present at 20ms (F (1, 79) = 48.62, p < .001) as well as at 1000ms (F (1, 76) = 16.87, p < .001): The familiar images were perceived as slightly *more* fluent at 20ms (M = 2.05, SD = 1.06) than at 1000ms (M = 2.19, SD = 1.23); the optimally innovative images were perceived as *less* fluent at 20 ms (M = 3.31, SD = 1.44) than at 1000 ms (M = 2.93, SD = 1.36). A main effect was found of Type of Stimulus (F (1, 155) = 61.53, p < .001). Optimally innovative images (M = 3.12, SD = 1.41) were experienced as less fluent to process than familiar images (M = 2.12, SD = 1.14). No main effect was found of Exposure Time (F (1, 155) < 1).

Aesthetic response A similar ANOVA was performed for the aesthetic response. We found a main effect of Type of Stimulus (F (1, 155) = 14.51, p < .001) and a main effect of Exposure Time (F (1, 155) = 58.42, p < .001). The aesthetic response to the optimally innovative images was higher than to the familiar images and it was higher when the exposure time was 1000 ms than when it was 20ms. However, there was no interaction effect of Type of Stimulus * Exposure Time (F (1, 155) = 1.61, p = .206).

Conclusion and Discussion

This study focused on two conflicting lines of research: Reber et al.'s fluency theory versus the Optimal Innovation work of Giora et al. (2004). Hekkert et al. (2003) suggest that two opposing underlying mechanisms could be at work: A fluency based gut response and preference for familiar stimuli versus a more cognitively mediated mechanism explaining a preference for optimally innovative stimuli. Exposure time was varied to test this assumption.

In our study, exposure time did not affect the aesthetic preference for either familiar or optimally innovative advertising images. The optimally innovative images were overall liked more than the familiar images and liking scores were higher at 1000ms than at 20ms, despite the fact that the felt fluency of the familiar versions was higher than of the innovative versions. Where Jakesch et al. (2013) did not find any differences in liking for the short exposure times, our findings even showed an effect in the opposite direction, with higher liking scores for the optimally innovative stimuli.

Our findings do not back Reber et al.'s (2004) processing fluency theory nor do they provide evidence for Hekkert et al.'s (2003) dual process model. An explanation may be found when looking at the optimally innovative stimuli in this study. Despite the fact that the optimally innovative stimuli were processed less fluently than the familiar stimuli (as expected), all stimuli – familiar and optimally innovative - were regarded as rather easy to process; all scores were on the fluent side of the scale. It may be that the optimal tipping point of the inverted U-curve (cf. Berlyne, e.g., 1974) was not reached yet. A follow-up study that would use several levels of innovation (cf. Giora et al., 2004), which would put different spins on the familiar, so to speak, is necessary to be able to put fluency theory and Hekkert et al.'s dual process model further to the test. Familiar stimuli may be preferred more than more complex, more innovative stimuli when processing time is limited, whereas the more complex stimuli – as the optimally innovative stimuli in this study - would be preferred more with ample processing time.

Fluency theory distinguishes perceptual and conceptual fluency. By using images with familiar versus innovative meanings, the present experiment focused on *conceptual* fluency: "the ease of mental operations concerned with

stimulus meaning and its relation to semantic knowledge structures" (Reber et al., 2004, p.366). However, fluency theory is mainly supported by studies on *perceptual* fluency, which concerns the ease of identifying the physical identity of the stimulus (p.366). Studies on advertising images may also depart from perceptual fluency. We may think of studies in which advertising images are constructed based on Gestalt principles (see, e.g., Wagemans et al., 2012) such as symmetry, figure-ground contrast and goodness-of-form. Good Gestalts, i.e., easily identifiable stimuli, can be compared with stimuli that creatively bend the Gestalt principles, for example by cropping an advertising image (cf., e.g., Wang & Peracchio, 2008). It may be that fluency theory only holds for perceptual fluency, in the advertising domain at least.

We might also want to look at the domains under study. Art (in Jakesch et al., 2013) and advertising are relatively safe domains, rather detached from the real world. The preference for fluently processed stimuli may apply more in real-world situations; Reber et al. (2004) point out that high fluency may "feel good because it signals that an external stimulus is familiar, and thus unlikely to be harmful" (p.366). However, art and advertising offer, as Jakesch et al. (2013) put it, "a fictitious playground to 'train' problem solving and resolving ambiguity in real-world scenarios" (p.12). We are allowed to interpret freely; no 'danger' or punishment is involved when making mistakes.

This study has expanded theory development to the advertising domain. It also gives us more insight into the paradox between Reber's fluency theory and Giora et al.'s (2004) Optimal Innovation Hypothesis.

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Axiological Approaches to Aesthetic Experience in Neuroaesthetics

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Abstract

Recent approaches in neuroaesthetics appeal to reward and pleasure mediating systems to explain the distinct character of aesthetic experience. In this paper I review studies that (a) claim that in aesthetic experience we employ a liking system without a wanting system (Chatterjee 2014); (b) propose a separation of early and late aesthetic systems related to different values (Cela-Conde et al. 2013); and (c) show how intense aesthetic liking involves exteroceptively driven self-evaluation (Vessel et al. 2013). I argue that these studies support a theory that can provide an alternative to more traditional axiologically-oriented approaches in philosophical aesthetics that claim that aesthetic experience is essentially valued for its own sake (Carroll 2002).

Keywords: aesthetic experience; neuroaesthetics; axiological approaches; philosophical aesthetics; aesthetic value; DMN.