

A path to our heart: Visual metaphors and “white” space in advertising aesthetic pleasure

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Abstract

Contemporary advertising is increasingly based upon the successful implementation of two creative design tools, visual metaphors, and “white” space. Yet, despite their established coexistence, there is not enough evidence on the mechanism that takes place to affect consumers’ attitude toward the ad (Aad). The present study builds on the scarce evidence on the combination of visual metaphors with “white” space to decipher the role of “white” space on the effectiveness of metaphoric advertising. A content analysis of 405 international print ads establishes the widespread use of visual metaphors (fusions) with extended “white” space (monochrome, in shades of grey). Based on Berlyne’s theory of aesthetic preference this study proposes a serial mediation model with novelty, arousal, aesthetic response, and pleasure as successive mediating factors on the impact of visual metaphors (and especially visual metaphors with “white” space) on Aad. Three between-subjects (two with a Greek sample and one with U.S. and U.K. sample) experiments provide solid evidence in support of the proposed model. The attested sequence of effects fire starts a discussion on the significant creative opportunities and the associated communication implications for both academics and practitioners.

Introduction

Contemporary creative approaches in the advertising industry seem to increasingly combine visual metaphors with extended “white” space, two elements of sophisticated and highly aesthetic advertising design (Kwan, Dai and Wyer 2017; Ryoo, Jeon, and Sung 2020; Sharma and Varki 2018). In the Guinness’ “Welcome Home” 2014 campaign, for example, extended, monochrome, black space, and a visual metaphor are combined to plot a story. The ad depicts white balloons that stand for the beer head in the absence of a glass, to denote the Guinness experience as a welcome home celebration (Adeevvee 2014).

Visual metaphors point consumers into deep elaboration, generate affective and cognitive responses and effectively, determine the persuasiveness of advertising (Kim, Baek and Choi 2012; Peterson 2019; Lee et al. 2019). Their artfulness alongside their complexity, and incongruity improves appreciation and generates positive attitudes (Mohanty 2008; Van Mulken, Van Hooft, and Nederstigt 2014). Prior research has addressed the mediating role of metaphoric meaning comprehension and its explanatory value on attitudes toward the ad and the brand (Van Enschoot and Hoeken 2015). However, visual metaphors are also a source of aesthetic pleasure that affects consumers’ overall experience (Hekkert 2006; Van Mulken, Le Pair, and Forceville 2010). This potential mediating effect of aesthetic response and pleasure on the visual metaphor - Aad relationship remains undetected.

“White” space as commercial rhetoric, liberates the stimulus from excessive tropes and ornamentations, reflects high quality, elegance, and refined taste, while it enhances visual aesthetics and attractiveness (Favier, Celhay, and Pantin-Sohier 2019; Olsen, Pracejus, and O’Guinn 2012; Pracejus, Olsen, O’Guinn 2006; Sharma and Varki 2018). Although “white” space signifies design simplicity, it is not always accompanied by explicit or zero assumptions, rather it can be rhetorical (Kwan, Dai, and Wyer 2017; Pracejus, Olsen, O’Guinn 2006). Practitioners venture into extended “white” space as it makes the ad more memorable, draws attention to the dominant key image or message, establishes a specific mood, elicits emotional responses, and prizes sophistication (Lister 2020).

Yet, despite the growing popularity of visual metaphors (Huang 2020) and extended “white” space (Pracejus, O’Guinn, and Olsen 2013) in advertising research and practice, no study has examined the role of “white” space on the effectiveness of metaphoric advertising. Addressing this research void, the present study has a twofold objective: Building on Berlyne’s (1970; 1971) theory of aesthetic preference, it proposes that a visual metaphor positively affects Aad through novelty, arousal, aesthetic response, and pleasure. Further, it suggests that the above path leads to a more positive Aad, in the presence of extended rather than limited “white” space. The discussion is based on the outcomes of a content-analysis and three experimental studies. Along these paths of analysis, the present paper highlights significant research gaps that act as avenues for potential contribution.

A content analysis of international print advertising is a timely response to a widespread business approach and attestation of the visual metaphors (i.e., juxtaposition, fusion, and replacement) and extended “white” space (i.e., extended, monochrome, and in shades of grey space) coexistence. This to the best of our knowledge is the first attempt to content analyze ads with respect to both these creative elements. Prior studies have examined the effectiveness of the three visual metaphor types (i.e., juxtaposition, fusion, and replacement) (Ryoo, Jeon, and Sung 2020) and that of “white” space (Kwan, Dai, and Wyer 2017) as distinct, unrelated creative characteristics. This study aims to establish an all-inclusive approach for further research in the context of visual metaphors and “white” space, by establishing the extent and the way these two creative elements are merged.

Our study further aims to elaborate on the role and significance of visual metaphors. Two experiments are used to test the robustness and generalizability of the proposed serial mediation model with aesthetic response and pleasure as mediating factors in the relationship between visual metaphors and consumer attitudes. They also test the hypothesis that aesthetic response generated by an ad stimulus is a more significant determinant of Aad compared to perceived pleasure. Such a result will indicate that aesthetic response is not only an antecedent of pleasure but also a source of cognitive, affective, and sensory reactions that directly influence Aad.

The role of “white” space is also discussed as a significant variable influencing the effectiveness of visual metaphor advertising. Previous research on “white” space has largely neglected its interaction with other creative elements and examined its direct effect on the advertised brand and its image. Yet, in reality,

“white” space is very often combined with other creative elements, to enhance their effects (Lister 2020). Focusing on this widespread practice, this study attempts to elucidate the combined effect of “white” space and visual metaphors on Aad. We consider this combination as an aesthetic phenomenon and not just as an incongruent stimulus that needs to be resolved and comprehended by the audience. This is a novel approach in the context of aesthetics, thereby establishing new avenues to understand a creative element that stimulates ongoing academic interest (Ryoo, Jeon, and Sung 2020; Peterson 2019; Van Mulken, Van Hooft, and Nederstigt 2014).

An additional experiment with an international sample (U.S.A. and U.K.) aims to further elaborate on the effect of visual metaphors with “white” space on Aad, through the mediating role of aesthetic response and pleasure. It further proposes two supplementary mediating factors, namely novelty, and arousal, and seeks to establish that the study’s conceptual models provide a solid basis for discussion across countries and ad sizes, as well as strong evidence in support of Berlyne’s (1971) aesthetic preference theory.

Building on Donthu, Kumar, and Pattnaik’s (2020) bibliographic clusters, the current study aims to expand prior significant research that primarily focuses on advertising effectiveness (Aitken, Gray, and Lawson 2008) and attractiveness (Amos, Holmes, and Strutton 2008).

Theoretical background

Visual metaphors in advertising

In today’s competitive advertising environment that addresses the audience with a multiplicity of messages (Angell et al. 2016; Kelly et al. 2010), the widely employed and studied visual metaphors (Myers and Jung 2019; Ojha, Gola, and Indurkha 2018) represent a significant design approach for the development of artful and polysemous advertising context. A metaphor perpetrates a comparison between two objects; the target and the source that share properties (Huang 2020) through connections, similarities, and oppositions (Phillips and McQuarrie 2004). Peterson (2019) argues that metaphors as special types of comparison are not balanced, but rather directional. As such, their aim is to comprehend a target domain better or imaginatively. Visual metaphors are defined by their level of complexity (Phillips and McQuarrie 2004) as (a) the low complex juxtapositions, that depict two images side by side (source and target is a complete entity), (b) the averagely complex fusions, that illustrate two amalgamated images (source and target are artificially combined into a hybrid entity) and (c) the highly complex replacements, that portray an image implying another, missing one (target replaces source).

For example, the juxtaposition in the “Gibson bomb” ad (AdsoftheWorld.com 2005, released in 2005, depicts the explosion of a nuclear bomb side by side with a Gibson guitar and implies that the sound of a Gibson guitar is so intense and powerful, as is a nuclear bomb explosion. The “Super True Gel” ad

(AdsoftheWorld.com 20218) released by Faber Castell in 2018, uses a fusion that transforms a gel pen into an airplane suggesting that the brand's gel pens guarantee a fast, comfortable and fluent movement as that of an airplane. The XiaoMi 2020 "Smart Home Alarm" campaign, (AadoftheWorld.com 2020) replaces a museum exhibit (i.e., a jewelry or a piece of art) with a hairdryer protected by XiaoMi's sensors to denote the effectiveness of the product (XiaoMi's sensors) to protect consumers' valuable property.

Several studies in advertising have focused on the role of comprehension as a mediator in the relationship between visual metaphors and favorable attitudes (Mohanty and Ratneshwar 2015; Van Mulken, Le Pair, and Forceville 2010). Visual metaphors represent semantic anomalies that require comprehension by an audience seeking an alternative metaphorical meaning that makes sense (Sopory and Dillard 2002). The puzzle-solving character of visual metaphors allows multiple readings and generates a pleasurable activity (Myers et al. 2011) that might improve Aad (Ang and Lim 2006). Tangible metaphors tend to be more understandable than the abstract ones (Morgan and Reichert 1999). Building on the issue of comprehension and ad liking, prior studies have also examined the effect of verbal anchoring (Lagerwerf, Van Hoojdonk, and Korenberg 2012; Phillips 2000). For instance, the recent study of Ryoo, Jeon and Sung (2020) unveils that explicit verbal messages when combined with complex metaphors (replacements) and implicit verbal messages mixed with the moderately complex fusions, lead to increased pleasure and appreciation. Metaphor complexity has also been linked to message comprehension and appreciation (Chakroun 2020; Mohanty and Ratneshwar 2015; Van Mulken, Van Hooft, and Nederstigt 2014). Moderately complex metaphors (fusions) lead to greater appreciation relatively to the least (juxtapositions) and the most complex ones (replacements) (Van Mulken, Van Hooft, and Nederstigt 2014). High perceived complexity seems to negatively affect appreciation, while moderate complexity is more persuasive and leads to improved Aad (Van Mulken, Van Hooft, and Nederstigt 2014; Van Mulken, Le Pair, and Forceville 2010).

Few studies provide an alternative perspective of visual metaphors as aesthetic objects that could result in positive Aad (Gkiouzepas and Hogg 2011; McQuarrie and Mick 1999). Yet, none of these studies examines the mediating effect of novelty, arousal, aesthetic response, and pleasure on the relationship between visual metaphors and attitudes. The above variables are fundamental constructs in Berlyne's (1971) theory of aesthetic preference and are further discussed in this study.

"White" space in advertising

"White" space as a dimension of minimalism originates from the 20th century architecture, aesthetics, and arts (Adcock 1990; Inbar, Tractinsky, and Meyer 2007; Stevanovich 2013). Between 1932 and 1982, the copy heavy ad layout transitioned to uncluttered, making "white" space an essential, creative tool that allows advertisements to stand out from the crowd and delight consumers (Feasley and Stuart 1987). Advertising effectiveness is thus linked to the lack of visual clutter (Fennis,

Das, and Fransen 2012; Pieters, Wedel, and Batra 2010). Pracejus, Olsen, and O’Guinn (2006) consider “white” space as the core element of minimalism that rules the aesthetics, harmony, and sequence of the whole and a salient element of visual lexicon in the commercial speech. “White” space is an unconventional, rhetorical figure that represents more than the absence of content. It is rather a humble but elegant visual trope, disengaged from superfluous elements and associated with positive brand evaluations (Pracejus, O’Guinn, and Olsen 2013; Pracejus, Olsen, O’Guinn 2006) and increased attention (Kwan, Dai, and Wyer 2017). “White” space makes design cleaner, more aesthetic, sophisticated, and tasteful (Kwan, Dai, and Wyer 2017; Olsen, Pracejus, and O’Guinn 2012) and allows consumers to draw their own conclusions, based on their willingness, ability and context (Pracejus, O’Guinn, and Olsen 2013). It has also a positive impact on logo design and brand evaluations (Sharma and Varki 2018). Consumers prefer a simple over a complex package design, that conveys high design aesthetics and brand values (i.e., modernity, success, and authenticity) (Favier, Celhay and Pantin-Sohier 2019).

A recent typology of contemporary minimal, print advertisements (Margariti et al. 2017) suggests that a typical minimal, print ad consists of at least an extended or/and monochrome “white” space and restricted in number and size images and text, highlighting the significance of “white” space. However, there is no reference on the coexistence of “white” space with visual metaphors and their impact on aesthetic pleasure and advertising effectiveness.

Aesthetic experience: Berlyne’s theory on aesthetic preference

There are contradicting underlying accounts behind individuals’ preference toward a stimulus and evaluation of the stimulus as more beautiful, more aesthetic or more pleasant than the others (Palmer, Schloss, and Samartino 2013). One of the most prominent approaches to aesthetic preference, the perceptual fluency theory (Reber, Schwarz, and Winkielman 2004), suggests that easier to process visual stimuli are better liked than the more difficult to process ones, since high fluency generates positive affect. The mental processing becomes fluent when it is characterized by high speed, low resource requirements and high accuracy (Winkielman, Schwarz, Reber, and Fazendeiro 2003). The ease of processing a stimulus’ features is defined as perceptual fluency and is affected by the stimulus’ color, contrast (Jacoby 1983), quality of visual information (Sheikh and Bovik 2005), symmetry, duration and repetition (Reber, Schwarz, and Winkielman 2004). The perceptual fluency of stimuli enhances pleasure and positive evaluation of the stimuli (Jacoby and Dallas 1981; Lee and Labroo 2004; Reber, Schwarz, and Winkielman 2004).

Originating in the 1970s, Berlyne’s (1970; 1971) theory of aesthetic preference holds sway in the discussion of aesthetics. Aesthetic pleasure (or reward) is subject to the level of arousal exerted by a visual stimulus. Arousal can be either positive or negative, based on a primary reward and a primary aversion system. Moderate arousal is enjoyable up to a specific point (reward system); any increase beyond this level is unpleasant, whereas a decrease in arousal is pleasurable (aversive

system). These neural systems are influenced by collative, psychophysical, and ecological variables. Collative variables, such as novelty and complexity, are associated with people's expectations. Psychophysical variables, such as intensity, are related to sensory aspects of the stimulus, whereas ecological variables refer to the meaningfulness and associations to environmental objects. The collative variables of novelty and complexity are fundamental determinants of aesthetic pleasure (liking and preference) (Berlyne 1970). The interaction of novelty and complexity leads to pleasure through two distinct mechanisms: (a) high complexity and low novelty lead to medium arousal that positively affects pleasure and (b) low complexity and high novelty, lead to moderate arousal that in turn positively affects pleasure.

Building on Berlyne's (1970; 1971) aesthetic preference, the current study examines the relationships of arousal, aesthetic response, pleasure, and Aad, in ads of low complexity and high novelty. The theory of aesthetic preference (Berlyne 1970; 1971) is selected over the fluency theory (Reber, Schwarz, and Winkielman 2004) as prior research in advertising has underlined the importance of novelty and complexity, suggested by Berlyne (1970), for the effectiveness of visual metaphors (Mohanty and Ratneshwar 2015; Van Mulken, Van Hooft, and Nederstigt 2014). Particularly, Van Mulken, Van Hooft, and Nederstigt (2014) suggest that highly novel (unconventional) visual metaphors lead to higher levels of appreciation compared to the highly conventional ones. Besides according to Boeynaems et al. (2017) metaphors have indirect effects on cognitive and affective text perception through enhanced novelty. Instead, the perceptual fluency theory (Reber, Schwarz, and Winkielman 2004) underlines that familiarity and congruency are vital drivers of fluent processing and eventually of greater liking. The current study adopts the stance that novelty will be a more significant antecedent of aesthetic pleasure than familiarity to encourage positive attitudes toward the ad.

Study 1

Research Questions

As previously mentioned, a wide range of advertising campaigns worldwide incorporate visual metaphors combined with "white" space. The recent print advertising campaigns of Coca Cola, Guinness Beer, Faber Castell and Chanel are a testament to this. Academic research has also used advertising stimuli that incorporate visual metaphors surrounded by extended "white" space to evaluate consumers' attitudes (Van Mulken, Le Pair and Forceville 2010; Van Mulken, Van Hooft and Nederstigt 2014). Nevertheless, despite the apparent trend in the commercial and academic world for visual metaphors with subtle layouts, prior research has never addressed the coexistence of visual metaphors and "white" space in advertising nor, "white" space's design characteristics in visual metaphoric ads. Hence, Study 1 addresses the following research questions:

RQ1: Which is the most common type of visual metaphor (i.e., juxtaposition, fusion, or replacement) used in print advertising?

RQ2: To what extent are metaphoric images surrounded by “white” space (i.e., extended, monochrome and in shades of grey space) in international print advertising?

Methodology

Sample

Ads of the World (<http://adsoftheworld.com/>), one of the most popular and trusted archives of advertising content (Van Mulken, Le Pair, and Forceville 2010) provided the sampling frame for the advertisements to be content analyzed. Since Study 1 focused on analyzing the visual content format, content analysis was deemed appropriate. It allows the treatment of qualitative data in quantitative terms enabling the evaluation of visual content in an objective and reliable manner (Prieler et al. 2009). Overall, 405 international print ads were selected from a research population of 662 ads. As in prior research (Phillips and McQuarrie 2004; Ryoo, Jeon, and Sung 2020; Van Mulken, Van Hooft, and Nederstigt 2014), our consideration set consisted of contemporary, print advertisements with a visual metaphor that was either a juxtaposition, fusion or replacement.

Coding Scheme and Procedure

The metaphoric ads were classified into juxtaposition, fusion, or replacement, based on the typology of Phillips and McQuarrie (2004) and the presence or absence of an extended, monochrome and in shades of grey “white” space (Margariti et al. 2017) was recorded. Two independent coders (a male and a female), extensively trained on the task over a 100 print-ad sample, analyzed all ads. Discrepancies in coding were resolved by a third coder. Reliability coefficients ranged from .88 to .92, indicating a satisfactory inter-coder agreement (Table 1).

[Place Table 1 about here]

Results and Discussion

Single sample chi-square tests are used to address (RQ1) and examine the most common type of visual metaphor. Fusion prevails (62.8%) followed by replacement (31.3%), and juxtaposition (5.9%) ($\chi^2=197.92$, $df=2$, $p<.001$).

The extent of “white” space in its various forms used in the 405 international visual metaphor ads was also addressed (RQ2). Single sample chi-square tests indicated the majority of metaphoric ads to include an extended (84.7%, $\chi^2=195.8$, $df=1$, $p<.001$), monochrome (79.8%, $\chi^2=144.2$, $df=1$, $p<.001$) and in shades of grey “white” space (60.6%, $\chi^2=18.2$, $df=1$, $p<.001$) (Table 2).

[Place Table 2 about here]

Study 1 suggests that fusion is the most common type of visual metaphor. Moreover, most visual metaphor ads in the study combine an extended, monochrome and in shades of grey “white” space. Study 1 extends previous research establishing the first content analysis on international, metaphorical ads at various levels of “white” space. In line with previous research that underlines the effectiveness of fusions (Van Mulken, Van Hooft, and Nederstigt 2014) this study provides evidence on the popularity of fusions over juxtapositions and replacements. Moreover, fusions seem to be combined with “white” space, a design approach appraised for its contribution to advertising aesthetics (Pracejus, Olsen, and O’Guinn 2006) (Table 2). Following the results of Study 1, three experiments team up to examine the underlying mechanism behind this combined creative approach’s effect on consumer attitudes.

Hypotheses development

Studies 2 and 3 aim to unveil the synergistic effect of a visual metaphor (fusion) with extended “white” space on aesthetic response, pleasure, and Aad. Study 4 seeks to establish the generalizability of the findings, examining the proposed serial-mediation model in an international sample (U.S.A and U.K). Novelty and arousal are, also, considered as mediating factors in the above relationship.

Visual metaphor and aesthetic response

The present paper approaches visual metaphors as creative phenomena that primarily cause aesthetic reactions (i.e., aesthetic experience of beauty and attractiveness) to consumers. Studies in the context of consumer research occasionally alternate the notions of “aesthetic” and “hedonic” consumption (Holbrook 1980; Holbrook and Hirschman 1982; Venkatraman and MacInnis 1985), even though they represent distinct constructs. On one hand, aesthetic response pertains to the appreciation of beautiful stimuli and constitutes a combination of cognitive, affective, and sensory reactions (Wagner 1999). It is the resulting gratification (fulfillment or awe) experienced during exposure to a beautiful artwork (Bloch 1995; Schifferstein and Hekkert 2011). As Holbrook and Zirlin (1985) posited, “aesthetic responses to a stimulus surpass emotions to also include evaluative reactions to an object (e.g., as being beautiful or sublime)”. On the other hand, hedonic consumption is mainly associated with pleasure. Even though pleasure is a significant dimension of aesthetic appraisal affecting hedonic reactions, they are not alike and should be distinctively approached. Pleasure associated with simple or familiar objects can be explained by processing fluency, yet this is not the case for pleasure exerted by novel, complex objects (Armstrong and Detweiler-Bedell 2008).

According to Aristotle’s Rhetoric, metaphors generate aesthetic effects since they violate expectations and contain a resolved double meaning (Jebb 1909, p. 175).

Metaphors are aesthetic and artful objects that provide ways to distance from the familiar by deviating from the expected (McQuarrie and Mick 1996) and thus significantly affect consumers' aesthetic judgment (Hekkert 2006). Metaphors generate imagery and lead individuals to perceive an advertised brand as artistic and creative (Paivio and Clark 1986). They are aesthetically attractive, especially when they are highly figurative, stimulating and novel (unfamiliar) (Yang, Gao and Li 2019).

Berlyne (1970) suggests that increased novelty and low complexity can positively affect perceived arousal and eventually aesthetic response to a stimulus. Indeed, the moderately complex (compared to juxtapositions and replacements) and highly unconventional (novel) fusions are appreciated more than juxtapositions and replacements (Van Mulken, Van Hooft, and Nederstigt 2014). That is, even though juxtapositions arrange sources next to targets and replacements intentionally exclude targets from the advertisements, fusions are always an original, creative, novel combination of sources and targets that increases appreciation. Moreover, irrespective of the metaphor type, visual metaphors express novel ideas and lead to greater advertising effectiveness compared to literal visuals (Chang and Yen 2013, Jeong 2008). Thus, it is hypothesized that:

H1: Ads with visual metaphor (fusion) create higher aesthetic response than ads with a literal visual.

Visual metaphor with extended “white” space and aesthetic response

“White” space may affect aesthetic response to a visual metaphor ad in two ways: First, beauty lies on the degree of a stimulus' design harmony, unity, composition (Ulrich 1983), and patterning of elements (Allen and Greenberger 1978), that might influence aesthetic reactions (Bell, Holbrook, and Solomon 1991). As an expression of minimal aesthetics, “white” space strips down the stimulus and unifies the different parts to be perceived as an entity; it navigates consumers through the ad, deciphers complex meanings and thus leads to the stimulus' aesthetic value appreciation. “White” space enhances environmental harmony influencing the aesthetic preferences of consumers (Meyer 2015) as people favor things that support navigation, identification and elements that improve perception (Hekkert 2006).

Second, “white” space can also improve perceived novelty of a visual advertising message. Beauty is not only unraveled through a mere exposure to an excellent design, but also through an aesthetic experience that triggers further search for hidden meanings and their deeper consideration (Karvonen 2000). “White” space is a creative element that delights and aesthetically pleases consumers (Feasley and Stuart 1987). It also enhances aesthetic response as its artistic essence adds on the advertisement's quality and refined taste (Pracejus, Olsen, and O'Guinn 2006).

Advertisers focus on the creation of novel advertisements that present innovative themes and ideas, including reductive and abstract aesthetics (Eldesouky 2011). Furthermore, the technological progress made it easier for companies to

produce flourishes, embellishments, and more complex designs at lower cost. Thus, the decorative elements are usually associated with bad taste, whereas less complex, simple designs become synonymous with high aesthetics and elegance (Lidwell, Holden, and Butler 2010; Pracejus, Olsen and O’Guinn 2006; Heller and Vienne 2012).

Thus, it is expected that the coexistence of extended “white” space and visual metaphors will generate a highly aesthetic and sophisticated advertising stimulus. Building on the theory of aesthetic preferences (Berlyne 1970), it is presumed that an ad with a visual metaphor and extended “white” space will be of low/moderate complexity and high novelty that exert a positive influence on aesthetic response. Therefore, it is suggested that:

H2: Visual metaphor (fusion) ads with extended “white” space create higher aesthetic response than visual metaphor (fusion) ads with limited “white” space.

Aesthetic response and pleasure

There is a distinction between aesthetic response and aesthetic pleasure (Palmer, Schloss, and Sammartino 2013; Tuch et al. 2012). Consumers can judge a stimulus as having an aesthetic value (i.e., beauty, attractiveness) irrespectively of whether it generates pleasurable feelings or not. Silvia (2005) argues that both positive (happiness, enjoyment, and pleasure) and negative emotions (anger, disgust, and contempt) are relevant to understand aesthetic responses to art and visual aesthetics. For instance, many modern artists seek to create works of art that exert feelings other than pleasure, such as happiness, surprise, interest, embarrassment, anger or even guilt and disgust.

Marković (2014) suggests that in general both beauty and attractiveness (i.e., aesthetic responses) are positively associated with pleasure. However, the type of visual stimulus determines whether this relationship will be strong and positive. The coexistence of a visual metaphor with “white” space is expected to generate a highly novel, aesthetic, and sophisticated advertising stimulus. The stylistic design of visual metaphors will be effectively combined with the elegant nature of “white” space and their collaboration is bound to generate pleasurable feelings. Thus, it is assumed that the aesthetic response to a visual metaphor surrounded by “white” space exerts a positive impact on perceived pleasure. The following hypothesis is advanced:

H3: Aesthetic response has a positive effect on perceived pleasure.

Pleasure and Aad

In the context of aesthetic experiences, Berlyne and Ogilvie (1974) prove a positive relationship between pleasure and liking. Along this line, several neuro-imaging research reports on the aesthetic experience of artistic stimuli prove the activation of

different brain areas constituting the reward circuit (Lacey et al. 2011), which is related to pleasure and liking responses.

During exposure to an ad, the audience experiences several positive (e.g. upbeat feelings, pleasure, enjoyment, confidence) and negative feelings (e.g. irritation) that can influence advertising attitudes (Burke and Edell 1989). Prior research has documented that consumers' pleasurable feelings intervene between advertising content and Aad (Olney, Holbrook, and Batra 1991). Collative properties of an advertising stimulus, such as novelty, complexity and incongruity can increase perceived pleasure and in turn Aad. According to Phillips and McQuarrie (2004), pleasurable feelings generated by a visual element, are associated with ad liking.

For visual metaphors, the affective reactions (i.e., feelings, such as pleasure) to the metaphoric stimulus exert a significant positive effect on ad perceptions and Aad (Kim, Baek, and Choi 2012). Also, the overall impact of affective elaborations on Aad appears to be greater than that of cognitive elaborations. In the same vein, Mohanty and Ratneswar (2016) show that the pleasure of processing a visual metaphor creates positive Aad. Thus, pleasure and liking, form a function of the puzzle-solving process that metaphors demand (McQuarrie and Mick 2003). Furthermore, pleasure is a function of aptness that refers to the relation between the source and target domain of a visual metaphor (Phillips 2003). If source and target are very similar, the metaphor becomes too trite, whereas if they are very dissimilar, the metaphor may be too difficult to comprehend, and result in displeasure and negative attitudes (Phillips 2003). All in all, the artfulness and sophistication of a metaphoric ad (Gkiouzepas and Hogg 2011), and especially a metaphoric ad with extended "white" space (Pracejus, Olsen and O'Guinn 2006) are expected to lead to aesthetic pleasure and in turn to favorable attitudes. Hence, it is assumed that:

H4: Perceived pleasure has a positive effect on Aad.

Overall, the present study assumes that an advertisement with a visual metaphor (especially a visual metaphor combined with "white" space) involves two appraisal components: novelty, and complexity. The appraisal of high novelty and low complexity in specific, that leads to aesthetic response, pleasure and positive Aad. As in many aesthetic experience models, when an individual comes across a stimulus, cognitive and affective reactions lead to the evaluation of the stimulus (Marković 2012). The stimulus in this study is an advertisement with a novel but of low complexity visual metaphor surrounded by extended "white" space. Aad stands as the evaluative judgment of the stimulus (the advertisement). Additionally, the conceptual model of the present study suggests that aesthetic response precedes pleasure. As underlined in prior studies (Armstrong and Detweiler-Bedell 2008), pleasure evoked by familiar, easily categorized objects is less intense than the exhilarating pleasure generated by aesthetic response, which is associated with beautiful novel objects that challenge the mind's ability to comprehend them (Figure 1). The following hypotheses are advanced:

H5: The presence of a visual metaphor (vs. a literal visual) has a positive influence (through aesthetic response to perceived pleasure) on Aad. [(Visual metaphor vs. literal visual) → aesthetic response → perceived pleasure → Aad].

H6: A visual metaphor ad with extended “white” space (vs. with limited “white” space) exerts a positive influence (through aesthetic response to perceived pleasure) on Aad. [(Visual metaphor ad with extended “white” space vs. visual metaphor ad with limited “white” space) → aesthetic response → perceived pleasure → Aad].

[Place Figure 1 about here]

Study 2

Experimental stimuli

A 2 (visual metaphor/ literal visual) x 2 (extended “white” space/ limited “white” space) experiment was conducted to test hypotheses H1-H6. The experimental design was based on the definitions and settings of prior studies on visual metaphors (Phillips and McQuarrie 2004) and “white” space (Margariti et al. 2017; Olsen, Pracejus, and O’Guinn 2012). A professional graphic designer modified an existing advertisement for Nescafe coffee. An unfamiliar to the public advertisement was chosen along with a fictitious brand name (Steamy Cup) to enhance external validity (Thorson 1990). The original advertisement that was manipulated for the purposes of the experiment employed a fusion (a cup of coffee transformed into an alarm clock). Fusion was preferred as it is the most common type of visual metaphor combined with “white” space (see Study 1). All four versions of the ad noted the slogan “Ο καφές που σε ξυπνάει” (“The coffee that wakes you up”). The manipulation of the metaphoric visual depicted a cup of coffee converted into an alarm clock (metaphor) (Figures 2a, 2b), or a plain cup of coffee (literal visual) (Figures 2c, 2d). The manipulation of “white” space resulted in an extended, monochrome (extended “white” space) (Figures 2a, 2c), or reduced “white” space condition (limited “white” space) (Figures 2b, 2d) based on the Pracejus, O’Guinn and Olsen (2013) study. To manipulate “white” space, Pracejus et al. (2013) changed the size of the image surrounded by “white” space and compared the extent of “white” space against the size of ad image, resulting in two versions of advertisements with respect to “white” space, the low and high “white” space condition.

[Place Figure 2 about here]

Measures

The translation and back-translation technique was used for the questionnaire development. Artful deviation (one item, “The visual is 1=Plain/Matter of fact...7=Artful/Clever”) and deviation from reality (two items, e.g., “The visual is 1=realistic...7=unrealistic”) were used to test the visual metaphor manipulation

(Gkiouzepas and Hogg 2011). The manipulation checks for “White” space were based on a 7-item scale (e.g., The ad uses extended, empty space 1=strongly disagree...7=strongly agree). Complexity and novelty were also measured since they constitute collative variables with a pivotal role in the theory of aesthetic preference (Berlyne 1971). Based on this theory, the present study employs a metaphoric visual (i.e., fusion) of high novelty and relatively low complexity. Manipulation checks for complexity and novelty were based on a 3-item (Lévy et al. 2006) (e.g., The ad is 1=Straightforward...7=Confusing) and a 6-item scale (Sheinin, Varki, and Ashley 2011) (e.g., This ad is different from my expectations of a print advertisement, 1=strongly disagree...7=strongly agree), respectively. Aesthetic response was measured by a combination of a 4-item scale for aesthetic response (Hirschman 1986) (e.g., This image is 1=not beautiful...7= beautiful) and a 3-item scale for aesthetic quality (Zarzosa and Huhmann 2019) (e.g., This image could be art, 1=strongly disagree...7=strongly agree). Pleasure was measured by a 6-item scale (Simpson, Horton and Brown 1996) (e.g., The ad made me feel 1=unhappy...7=happy) and Aad by a 6-item scale (Baker and Kennedy 1994) (e.g., I like this advertisement a lot 1=strongly disagree...7=strongly agree). All measures satisfied Cronbach’s alpha criterion ($\alpha > 0.7$). Demographics, such as gender, age and education were also recorded. Embedded attention items (e.g., I have 17 fingers in my right hand) resulted in 7 responses being excluded from the analysis (Table 3).

[Place Table 3 about here]

Pretest

A pretest (172 undergraduate and postgraduate students) evaluated the manipulation of the visual metaphor and “white” space conditions in the four advertisements, as well as their complexity and novelty. All recorded variables satisfied Cronbach’s alpha condition ($\alpha > .7$). Artful deviation was significantly higher in the visual metaphor condition ($M_{vm}=6.0$, $SD=1.19$) compared to the literal visual ($M_{lv}=3.93$, $SD=1.97$) ($t_{ad}(130.5)=8.24$, $p<.001$). Deviation from reality was also higher for the visual metaphor ($M_{vm}=5.74$, $SD=1.29$) compared to the literal visual ($M_{lv}=2.95$, $SD=1.69$) ($t_{df}(151.4)=12.11$, $p<.001$). Therefore, the manipulation of visual metaphor (artful deviation and deviation from reality) was successful.

Perceived “white” space was significantly higher in the extended “white” space ads ($M_{ws}=6.04$, $SD=.75$) as opposed to the limited “white” space ads ($M_{lws}=4.42$, $SD=.88$) ($t_{ws}(170)=13.05$, $p<.001$), indicating a successful manipulation of “white” space.

Perceived complexity was low across the different conditions and there was no statistically significant difference between the presence ($M_{vm}=2.5$, $SD=1.28$) or absence ($M_{lv}=2.21$, $SD=.96$) ($t_{compl}(164.08)=1.62$, $p>.05$) of a visual metaphor and similarly between the visual metaphor with extended “white” space ($M_{vm*ws}=2.37$, $SD=1.29$) and the visual metaphor with limited “white” space condition

($M_{vm*lws}=2.61$, $SD=1.27$)($t_{compl}(88)=.88$, $p>.05$). Complexity was found to be relatively low across all cases, as predicted.

Perceived novelty was higher for the visual metaphor ($M_{vm}=5.41$, $SD=.67$) and lower in the literal visual condition ($M_{lv}=3.86$, $SD=1.33$) ($t_{novel}(116.9)=9.44$, $p<.001$) and equally higher for the visual metaphor with extended “white” space ($M_{vm*ws}=5.67$, $SD=.74$) as opposed to the visual metaphor with limited “white” space condition ($M_{vm*lws}=5.17$, $SD=.5$) ($t_{novel}(72.7)=3.73$, $p<.001$). Therefore, the visual metaphor advertisements and especially the ones with extended “white” space were considered more novel than the other ads, as was expected.

Participants and Procedure

Overall, 403 undergraduate and postgraduate students (87.56% undergraduates, 44.76% men, mean age: 21.88) from two large Greek universities participated in the online study. Participants were assured that their answers would remain anonymous and would be used merely for research purposes. They were divided in four groups, each of them receiving a different version of the advertising stimulus: visual metaphor with extended “white” space, visual metaphor with limited “white” space, literal visual with extended “white” space, and literal visual with limited “white” space. Undergraduate and postgraduate students were equally divided into four groups to avoid inter group bias. Participants were asked to evaluate a new advertisement for a fictitious coffee brand and were awarded extra class credit for their participation.

Results

Manipulation Checks

All independent variables were successfully manipulated. The visual metaphor ad created higher levels of artful deviation ($M_{vm}=5.4$, $SD=1.67$, $M_{lv}=4.31$, $SD=2.1$, $t_{ad}(370.73)=5.94$, $p<.001$), deviation from reality ($M_{vm}=5.11$, $SD=1.7$, $M_{lv}=2.75$, $SD=1.62$, $t_{dfr}(400)=14.25$, $p<.001$), and novelty ($M_{vm}=4.43$, $SD=1.09$, $M_{lv}=3.09$, $SD=1.27$, $t_{novel}(382.62)=11.36$, $p<.001$) than the literal ad. Perceived complexity was low in both conditions but it was slightly higher in the visual metaphor condition ($M_{vm}=2.37$, $SD=1.26$, $M_{lv}=2.12$, $SD=1.22$, $t_{compl}(400)=2.0$, $p<.001$). Perceived “white” space, was also higher in the ads with extended “white” space ($M_{ws}=5.65$, $SD=.97$) than those with limited “white” space ($M_{nws}=5.28$, $SD=1.01$) ($t_{ws}(400)=3.77$, $p<.001$). The visual metaphor ad with extended “white” space indicated higher levels of novelty ($M_{vm*ws}=4.66$, $SD=1.02$, $M_{vm*nws}=4.23$, $SD=1.11$, $t_{novel}(205)=2.87$, $p=.005$) compared to the visual metaphor ad with limited “white” space. Complexity was low in both conditions ($M_{vm*ws}=2.24$, $SD=1.23$, $M_{vm*nws}=2.49$, $SD=1.28$, $t_{compl}(205)=1.07$, $p>.05$).

Main Results

Two serial mediation analyses with multi-categorical independent variables (model 6 with 5000 bootstrap samples) were applied (Hayes 2013). Message type was the independent variable, aesthetic response and pleasure were the mediating factors, and Aad was the dependent variable. The objective was to examine the superiority of visual metaphor over the literal visual, and that of the combined visual metaphor with extended “white” space over the visual metaphor with limited “white” space. Message type was dummy coded in two independent variables (visual metaphor vs. literal visual; visual metaphor with extended “white” space vs. visual metaphor with limited “white” space).

In support of H1, a visual metaphor (vs. literal visual) generates higher levels of aesthetic response ($\beta=.92$, $SE=.11$, $t=8.71$ $p<.001$). As reported in Table 4, the combination of visual metaphor and extended “white” space was also found to be a significant predictor of aesthetic response ($\beta=1.08$, $SE=.09$, $t=11.86$, $p<.001$), thus, visual metaphor ads with extended “white” space create higher levels of aesthetic response than ads with visual metaphors with limited “white” space (H2 is supported). Aesthetic response had a significant positive effect on pleasure in both visual metaphor (vs. literal visual) ($\beta=.79$, $SE=.26$, $t=30.02$, $p<.001$) and visual metaphor with extended “white” space (vs. visual metaphor with limited “white” space) ($\beta=.79$, $SE=.56$, $t=13.96$, $p<.001$) models in support of H3. Pleasure had a significant positive effect on Aad in the visual metaphor (vs. literal visual) ($\beta=.32$, $SE=.06$, $t=5.36$, $p<.001$) and the visual metaphor with extended “white” space (vs. visual metaphor with limited “white” space) ($\beta=.2$, $SE=.07$, $t=3.1$, $p=.002$) models. Thus, H4 is also supported. Visual metaphors (vs. literal visuals) ($\beta=.33$, $SE=.072$, $t=4.63$, $p<.001$) as well as visual metaphors with extended “white” space (vs. visual metaphors with limited “white” space) ($\beta=.41$, $SE=.9$, $t=4.62$, $p<.001$) had a significant direct effect on Aad (Table 4).

[Place Table 4 about here]

The analysis also indicates a significant serial mediation effect of visual metaphor on Aad via aesthetic response and pleasure ($\beta=.23$ $SE =.05$, 95% CI [.136, .336]) (H5). There was a significant effect of visual metaphor on Aad via aesthetic response only ($\beta=.59$, $SE =.10$, BC 95% CI [.438, .753]) but not only via pleasure ($\beta=.02$, $SE =.02$, BC 95% CI [-.015, .062]). The analysis also indicated a significant serial mediation effect of visual metaphor with extended “white” space on Aad via aesthetic response and pleasure ($\beta=.17$, $SE=.06$, 95% CI [.053, .294]) (H6). There was a significant effect of visual metaphor on Aad via aesthetic response only ($\beta=.55$, $SE =.09$, BC 95% CI [.363, .764]) but not only through pleasure ($\beta= .03$, $SE = .02$, BC 95% CI [-.011, .078]). Hence, H5 and H6 were supported (Table 4 & Figure 3).

[Place Figure 3 about here]

Discussion

Building on Berlyne's (1971) theory of aesthetic preference, Study 2 demonstrates that a visual metaphor and especially a visual metaphor complemented by extended "white" space, leads to aesthetic response and pleasure and eventually to positive Aad. Aesthetic response exerts a positive effect on Aad either directly or via pleasure. This might be attributed to the fact that visual metaphors especially when combined with "white" space constitute a stimulus of high novelty, high aesthetics, and relatively low complexity. As such, the current study contributes to the existing literature highlighting the pivotal role of aesthetics on the effectiveness of ads with visual metaphors and "white" space. Given that Study 2 is product-specific, it is important to verify whether a similar pattern is followed in a different product category and a broader, other than student, sample. Therefore, a second experiment is conducted to improve the generalizability of the findings and enhance the study's ecological and external validity.

Study 3

Experimental design and Sample

A second 2 (visual metaphor/ literal visual) x 2 (extended "white" space/ limited "white" space) between-subjects experiment aimed to verify and complement the results of Study 2. A fictitious advertisement of a toast bread brand "Crunchy Toast" in four different versions was used. Two ads (Figures 4a, 4b) included a fusion (a toast transformed into scale), while the other two (Figures 4c, 4d) represented a literal visual version. As in Study 2, the size of the image against the size of "white" space was altered in order to manipulate "white" space (Pracejus, O'Guinn, and Olsen 2013).

[Place Figure 4 about here]

A convenience sample of 290 individuals (67.59% women, 86.55% higher education, mean age: 33.23 years) in four treatment groups (one for each condition) participated in an online questionnaire (the same as in Study 2). To avoid methodological contamination, it was certified that each respondent participated in only one group. Furthermore, the participants in each group were chosen so as not to be able to communicate and influence each other, controlling for subject bias. Manipulation checks, dependent variables and attention check items were all kept identical to the first experiment. Attention check items excluded 11 respondents from further analysis. Cronbach's alpha was satisfactory ($\alpha > 0.7$) for all variables (Table 3).

Pretest

A pretest with 140 participants evaluated the four advertisements with respect to the manipulation of "white" space and visual metaphor conditions, as well as their complexity and novelty. Visual metaphor and "white" space manipulation were

successful. Participants rated artful deviation significantly higher in the condition of the visual metaphor ($M_{vm}=5.91$, $SD=1.33$) than in the literal visual ($M_{lv}=2.47$, $SD=1.91$) ($t_{ad}(129.1)=12.46$, $p<.001$). Deviation from reality was also higher for the visual metaphor ($M_{vm}=5.88$, $SD=1.05$) compared to the literal visual ($M_{lv}=1.82$, $SD=1.1$) ($t_{dfr}(138)=22.33$, $p<.001$). The analysis further indicated a statistically significant difference in the perception of “white” space in ads with extended “white” space ($M_{ws}=6.05$, $SD=.76$) and those with limited “white” space ($M_{lws}=3.3$, $SD=1.50$) ($t_{ws}(100.21)=13.62$, $p<.001$).

Furthermore, perceived complexity was rated higher in the visual metaphor ($M_{vm}=2.51$, $SD=.61$) than the literal visual ($M_{lv}=2.13$, $SD=.64$) ($t_{compl}(138)=3.68$, $p<.001$) condition, as well as the visual metaphor with extended “white” space ($M_{ws}=2.61$, $SD=.4$) than the visual metaphor with limited “white” space condition ($M_{lws}=2.39$, $SD=.79$) ($t_{compl}(40.62)=1.41$, $p>.05$). As expected, complexity was relatively low in all cases.

Perceived novelty was also successfully manipulated. It rated higher in the visual metaphor ($M_{vm}=5.41$, $SD=.81$) and lower in the literal visual ($M_{lv}=3.49$, $SD=1.38$) ($t_{novel}(118.19)=10.14$, $p<.001$) condition. Similarly, it was higher in the visual metaphor with extended “white” space ($M_{ws}=5.73$, $SD=.75$) compared to the visual metaphor with limited “white” space ($M_{lws}=5.01$, $SD=.7$) ($t_{novel}(65)=4.02$, $p<.001$) condition.

Results

Manipulation checks

All variables in Study 3 were successfully manipulated. In particular, the visual metaphor ad created higher levels of artful deviation ($M_{vm}=4.89$, $SD=1.92$, $M_{lv}=2.5$, $SD=1.9$, $t_{ad}(370.73)=5.94$, $p<.001$), deviation from reality ($M_{vm}=5.01$, $SD=1.7$, $M_{lv}=1.98$, $SD=1.27$, $t_{dfr}(400)=14.25$, $p<.001$), and novelty ($M_{vm}=4.47$, $SD=1.13$, $M_{lv}=3.16$, $SD=1.48$, $t_{novel}(277.77)=8.5$, $p<.001$) compared to the literal ad. The level of perceived complexity was low in both conditions but interestingly it was higher in the metaphor condition ($M_{vm}=2.57$, $SD=1.43$, $M_{lv}=1.74$, $SD=1.13$, $t_{compl}(400)=2.0$, $p<.001$).

Perceived “white” space was also higher in the ads with extended “white” space ($M=5.95$, $SD=.84$) than those with limited “white” space ($M=5.14$, $SD=1.24$) ($t_{ws}(271.69)=6.55$, $p<.001$). Moreover, the visual metaphor ad with extended “white” space was considered more novel ($M_{vm*ws}=4.8$, $SD=1.11$, $M_{vm*lws}=4.14$, $SD=1.06$, $t_{novel}(138)=3.61$, $p<.001$) than the visual metaphor ad with limited “white” space. The level of complexity was low in both conditions ($M_{vm*ws}=2.79$, $SD=1.53$, $M_{vm*lws}=2.35$, $SD=1.3$, $t_{compl}(134.47)=1.83$, $p>.05$).

Main study

The objective of Study 3 was to verify and strengthen the results of Study 2. Thus, two mediation analyses (model 6 with 5000 bootstrap samples, Hayes 2013) with message type as the independent variable, aesthetic response, and pleasure as mediating factors, and Aad as the dependent variable were conducted. Message type was dummy coded in two independent variables (visual metaphor vs. literal visual; visual metaphor with extended “white” space vs. visual metaphor with limited “white” space).

A visual metaphor (vs. literal visual) exerts greater aesthetic response ($\beta=1.45$, $SE=.15$, $t=9.42$, $p<.001$) (H1 is supported). Furthermore, the coexistence of a visual metaphor with extended “white” space is also a significant predictor of aesthetic response ($\beta=0.76$, $SE=.19$, $t=3.94$, $p<.001$), thus visual metaphor ads with extended “white” space lead to higher levels of aesthetic response than the ads with visual metaphors and limited “white” space (H2 is supported).

Aesthetic response had a significant positive effect on pleasure in both visual metaphor (vs. literal visual) ($\beta=.7$, $SE=.03$, $t=23.7$, $p<.001$) and visual metaphor with extended “white” space (vs. visual metaphor with limited “white” space) ($\beta=.73$, $SE=.05$, $t=14.6$, $p<.001$) models. Thus, H3 is supported. Pleasure had a significant positive effect on Aad in both the visual metaphor (vs. literal visual) ($\beta=.27$, $SE=.08$, $t=3.52$, $p<.001$) and visual metaphor with extended “white” space (vs. visual metaphor with limited “white” space) ($\beta=.16$, $SE=.07$, $t=2.2$, $p=.03$) models (H4 is supported). Visual metaphors (vs. literal visuals) ($\beta=.46$, $SE=.12$, $t=4.0$, $p<.001$) as well as visual metaphors with extended “white” space (vs. visual metaphors with limited “white” space) ($\beta=1.1$, $SE=.1$, $t=10.51$, $p<.001$) had a significant direct effect on Aad (Table 4).

The analysis also demonstrated a significant serial mediation effect of visual metaphor on Aad via aesthetic response and pleasure ($\beta=.28$, $SE=.08$, 95% CI [.126, .444]) (H5). There was a significant effect of visual metaphor on Aad via aesthetic response only ($\beta=.72$, $SE=.13$, BC 95% CI [.481, .977]) but not only via pleasure ($\beta=.003$, $SE=.02$, BC 95% CI [-.044, .053]). The analysis indicated a significant serial mediation effect of visual metaphor with extended “white” space on Aad via aesthetic response and pleasure ($\beta=.09$, $SE=.05$, 95% CI [.002, .187]) (H6). There was a significant effect of visual metaphor on Aad via aesthetic response only ($\beta=.29$, $SE=.11$, BC 95% CI [.119, .523]) but not only via pleasure ($\beta=.002$, $SE=.02$, BC 95% CI [-.038, .053]). Hence, H5 and H6 are supported (Table 4 & Figure 5).

[Place Figure 5 about here]

Discussion

Focusing on a different product category Study 3, replicates Study 2, underlining the proposed relationships and providing further evidence in support of the robustness and generalizability of the model. Study 3 establishes that visual metaphors, and especially visual metaphors combined with extended “white” space, lead to improved Aad via aesthetic response and pleasure. Furthermore, Study 3 provides evidence in

support of Berlyne's (1971) research, suggesting that a stimulus of high novelty and low complexity can generate aesthetic response. Yet, even though the first two experiments support the suggested conceptual model, they are culture specific as they focus on Greek consumers. Study 4 uses a broader, international sample to further support the preceding findings and introduce a more comprehensive model.

Study 4

The hypotheses developed in Studies 2 and 3 were based on the notion that an ad with a visual metaphor, especially when combined with extended "white" space is of high novelty but relatively low complexity, that lead to increased arousal and in turn higher aesthetic response, increased pleasure, and improved Aad. The role of novelty and arousal dominated the reasoning of Studies 2 and 3, but they were not tested as mediators in the model (novelty was considered as a cognitive appraisal). Study 4 seeks to address this gap, and establish the generalizability of Studies 2 and 3, testing the above relationships on a different product category. It further examines the role of ad size with respect to "white" space as highlighted in previous studies (Olsen, Pracejus and O'Guinn 2012; Pracejus, Olsen and O'Guinn 2006).

Novelty and arousal

Novelty is associated with terms such as "fresh", "unique", "distinctive" "divergent", "unusual" and "unexpected" and is considered the bedrock of creative advertising (Ang et al. 2014). Individuals seek new and original stimuli since novelty is intriguing, stimulates arousal and offers the pleasure of discovering and learning (Bornstein 1989). It is the processing of novel stimuli that leads individuals to experience increased pleasure and gratification (Biederman and Vessel 2006). Novelty also results in positive Aad (Sheinin, Varki, and Ashley 2011).

Berlyne's (1970; 1971) theory on aesthetic preference, proclaims that a stimulus high in novelty but low in complexity has average arousal potential. Moderate arousal enhances individuals' positive aesthetic response and pleasure. In other words, novelty increases aesthetic response and pleasure when it produces a moderate increase in arousal. As indicated in Studies 2 and 3, aesthetic response influences directly and indirectly, through pleasure, Aad. Putting all together, it is assumed that the innovative design of metaphorical images, especially when combined with the rhetorical "white" space will exert higher levels of novelty, and in turn arousal, aesthetic response, and higher levels of pleasure, that could eventually be attributed to the ad (Figure 6). Therefore, the following hypotheses are advanced:

H7: The presence of a visual metaphor (vs. a literal visual) has a positive influence (through novelty, arousal, aesthetic response, and in turn pleasure) on Aad. [(Visual metaphor vs. literal visual)→ novelty→ arousal→ aesthetic response→ pleasure→ Aad].

H8: A visual metaphor ad with extended “white” space (vs. with limited “white” space) exerts a positive influence (through novelty, arousal, aesthetic response and in turn pleasure) on Aad. [(Visual metaphor ad with extended “white” space vs. visual metaphor ad with limited “white” space)→ novelty→ arousal→ aesthetic response→ pleasure→ Aad].

[Place Figure 6 about here]

Experimental design and Sample

A between-subjects, 2 (visual metaphor/ literal visual) x 2 (extended “white” space/ limited “white” space) x 2 (large ad size/ small ad size) experiment was performed to extend and verify Studies 2 and 3. Study 4 replicates the experimental design applied by Pracejus, O’Guinn and Olsen (2013), with respect to the manipulation of “white” space and ad size. A fictitious advertisement of a liquid detergent brand “Surf, liquid detergent” was used. Four versions (Figures 7a, 7c, 7e, 7g) included an extended “white” space, while the other four (Figures 7b, 7d, 7f, 7h) included a limited “white” space. Four versions (Figure 7a, 7b, 7c, 7d) were of large size (A4 page), whereas four versions (Figures 7e, 7f, 7g, 7h) were of small size (a quarter A4 page). Furthermore, four versions (Figures 7a, 7b, 7e, 7f) included a fusion (a bottle of liquid detergent transformed into a bottle of perfume), while the remaining four (Figures 7c, 7d, 7g, 7h) represented a literal visual version, a plain bottle of liquid detergent.

[Place Figure 7 about here]

Overall, 300 individuals (115 men and 185 women, 21.6% primary/ secondary education, 63.3% higher education, and 15% postgraduate degree, 28.3% of 18-24 years old, 26.3% of 25-34 years, 21.3% of 35-44 years, 14% of 45-54 years, 10.1% of 55-74, Mean age=34.7, S.D=13.14) in eight treatment groups (one for each condition) participated in an online survey through Qualtrics. The questionnaire was distributed via Prolific to U.S.A. and U.K. residents (107 Americans, 193 British), over a week. Manipulation checks, dependent variables and attention check items were identical to the previous experiments. Arousal (e.g., “Rate your emotions according to the way the advertisement made you feel”, 1=Unhappy...7=Happy, 1=Bored...7=Relaxed etc.) (Mehrabian and Russell 1974) was measured in this experiment. Ad size was also measured with a single item (“The ad size is...”, 1=Very small...7=Very large”). The manipulation of fusion was also measured with a single item (“The image is a synthesis of two other images, 1=strongly disagree...7=strongly agree”). Attention check items and quality controls in Prolific excluded 14 respondents. Cronbach’s alpha was satisfactory ($\alpha > 0.7$) for all variables (Table 3).

Pretest

The manipulation of “white” space and visual metaphor was pretested on 38 (14 male and 24 female, higher education, mean age 36 year) American and British participants (through Prolific). Both independent variables were successfully manipulated. Participants evaluated artful deviation significantly higher for the visual metaphor ($M_{vm}=4.94$, $SD=1.83$) than the literal visual ($M_{lv}=3.70$, $SD=1.80$) ($t_{ad}(35.491)=2.104$, $p<.05$). Deviation from reality was higher for the visual metaphor ($M_{vm}=4.22$, $SD=1.54$) compared to the literal visual condition ($M_{lv}=2.95$, $SD=1.44$) ($t_{dfr}(34.96)=2.625$, $p<.05$). Fusion was also successfully manipulated; the visual metaphor was perceived as a synthesis of two images ($M_{vm}=4.67$, $SD=1.88$) to a greater extent than the literal visual ($M_{lv}=3.15$, $SD=2.13$) ($t_{fus}(35.99)=-2.230$, $p<.05$) condition.

A statistically significant difference was also found in the perception of “white” space in ads with extended “white” space ($M_{ws}=5.08$, $SD=1.27$) and those with limited “white” space ($M_{lws}=4.08$, $SD=1.13$) ($t_{ws}(35.51)=-2.556$, $p<.05$).

No statistical significant differences were recorded for perceived complexity between the visual metaphor ($M_{vm}=2.85$, $SD=1.16$) and the literal visual ($M_{lv}=2.55$, $SD=0.85$) ($t_{compl}(30.99)=-.904$, $p=.37$) conditions, as well as between the visual metaphor with extended “white” space ($M_{ws}=3.19$, $SD=1.26$) and the visual metaphor with limited “white” space condition ($M_{lws}=2.52$, $SD=1.01$) ($t_{compl}(15.31)=1.236$, $p=.24$). As expected, complexity was relatively low in all cases.

Results

Manipulation checks

All variables in Study 4 were successfully manipulated. The visual metaphor ads generated higher levels of artful deviation ($M_{vm}=4.51$, $SD=1.79$, $M_{lv}=3.15$, $SD=1.84$, $t_{ad}(294.73)=6,520$, $p<.001$), deviation from reality ($M_{vm}=4.24$, $SD=1.27$, $M_{lv}=3.03$, $SD=1.27$, $t_{dfr}(296.22)=-8,313$, $p<.001$) and complexity ($M_{vm}=3.31$, $SD=1.14$, $M_{lv}=2.5$, $SD=1.19$, $t_{compl}(293.91)=-5,745$, $p<.001$) than the literal ads. The manipulation of fusion was also successful; the visual metaphor was considered as a synthesis of two images ($M_{vm}=4.74$, $SD=1.77$) to a greater extent than the literal visual ($M_{lv}=3.07$, $SD=1.77$) ($t_{fus}(296.13)=-8.187$, $p<.05$) condition.

Perceived “white” space was found higher in the ads with extended “white” space ($M=5.27$, $SD=1.15$) than those with limited “white” space ($M=4.62$, $SD=1.28$) ($t_{ws}(297.92)=-4,602$, $p<.001$).

Perceived complexity was higher in the visual metaphor ads ($M_{vm}=3.31$, $SD=1.14$) than in the literal ads ($M_{lv}=2.53$, $SD=1.19$) ($t_{compl}(298)=5,753$, $p<.05$). Perceived complexity was lower in the visual metaphor ads with extended “white” space ($M_{vm*ws}=2.90$, $SD=1.08$) than in the visual metaphor ads with limited “white” space ($M_{vm*lws}=3.64$, $SD=1.08$) ($t_{compl}(147.61)=4,214$, $p<.05$). Complexity was relatively small/moderate in all cases, as expected.

The ad size was also successfully manipulated. There was a statistically significant difference between the large ($M_{las}=3.83$, $SD=.79$) and small ad size ($M_{sas}=2.80$, $SD=1.00$) ($t_{adsize(298)}=9.637$, $p<.001$).

Main results

A MANOVA with visual metaphor (vs. literal visual), extended “white” space (vs. limited “white” space) and large ad size (vs. small ad size) as independent variables, and novelty, arousal, aesthetic response, pleasure and Aad as dependent variables was conducted. The results indicate that ad size does not have any direct (Wilks' lambda=.987; $p=.44$) or interaction effect (Wilks' lambda=.972; $p=.08$) on the dependent variables and it was excluded from further analysis.

Study 4 replicates the models tested in Studies 2 and 3 (Visual metaphor vs. literal visual) → aesthetic response → perceived pleasure → Aad and (Visual metaphor with extended “white” space vs. visual metaphor with limited “white” space) → aesthetic response → perceived pleasure → Aad (Table 4 & Figure 8).

[Place Figure 8 about here]

Two mediation analyses (model 6 with 5000 bootstrap samples, Hayes 2013) with message type as the independent variable, novelty, arousal, aesthetic response, and pleasure as mediating factors, and Aad as dependent variable were conducted to test H7 and H8. Message type was dummy coded in two independent variables (visual metaphor vs. literal visual; visual metaphor with extended “white” space vs. visual metaphor with limited “white” space).

The results of Study 4 demonstrate that visual metaphor ($\beta=1.44$, $SE=.14$, $t=10.24$, $p<.001$) is a significant predictor of novelty, which has a significant positive effect on arousal ($\beta=.49$, $SE=.04$, $t=11.41$, $p<.001$) (Table 5). Taking the form of chain reactions, arousal seems to have a significant positive effect on aesthetic response ($\beta=.32$, $SE=.06$, $t=5.16$, $p<.001$) which in turn significantly positively affects pleasure ($\beta=.48$, $SE=.04$, $t=11.34$, $p<.001$) that eventually leads to a significant positive effect on Aad ($\beta=.40$, $SE=.06$, $t=6.39$, $p<.001$). At the same time, it is evident that visual metaphors (vs. literal visuals) ($\beta=-.43$, $SE=.11$, $t=-3.39$, $p<.000$) are significant predictors of Aad. Moreover, a significant serial mediation effect of visual metaphor on Aad via novelty, arousal, aesthetic response, and pleasure has been recorded ($\beta=.05$, $SE=.01$, 95% CI [.022, .077]). Thus, H7 is supported (Table 5 & Figure 9).

[Place Table 5 about here]

[Place Figure 9 about here]

The combination of visual metaphor with extended “white” space ($\beta=.54$, $SE=.20$, $t=2.75$, $p<.05$) is also recorded as a significant predictor of novelty, which in

turn positively affects arousal ($\beta=.50$, $SE=.06$, $t=7.79$, $p<.001$) (Table 6). An identical to the aforementioned chain of reactions, mechanism takes place indicating that arousal significantly, positively affects aesthetic response ($\beta=.39$, $SE=.08$, $t=4.62$, $p<.001$), that exerts a significant positive effect on pleasure ($\beta=.48$, $SE=.06$, $t=8.26$, $p<.001$), eventually resulting in a significant positive effect on Aad ($\beta=.38$, $SE=.09$, $t=4.23$, $p<.001$). Visual metaphor with extended “white” space (vs. visual metaphor with limited “white” space) ($\beta=.02$, $SE=.13$, $t=.13$, $p=.90$) is yet again a significant predictor of Aad. As before, a significant serial mediation effect of visual metaphor with extended “white” space on Aad via novelty, arousal, aesthetic response, and pleasure has been recorded ($\beta=.02$, $SE=.01$, 95% CI [.004, .044]) Thus, H8 is supported (Table 6 & Figure 9).

[Place Table 6 about here]

Discussion

Study 4 confirms that visual metaphors and visual metaphors with “white” space lead to more positive Aad via novelty, arousal, aesthetic response, and pleasure. Arousal serves as a mediator between a novel stimulus and aesthetic response and pleasure as suggested by Berlyne’s (1970) theory of aesthetic pleasure. Yet, it is evident that arousal is not a key determinant of the aesthetic response, since novelty can positively affect aesthetic responses and in turn pleasure and Aad, irrespective of the existence of arousal. This finding aligns with some previous studies suggesting that arousal is not always required to explain aesthetic preference (Martindale, Moore, and Bokrum 1990; Martindale 1984).

General discussion

Theoretical implications

Study 1 confirms the popularity of fusion in visual metaphoric ads and unveils the tendency to combine metaphorical images with extended “white” space. Most international ads with visual metaphors seem to contain an extended, monochrome and in shades of grey “white” space. This is the first content analysis study on the use of the three different types of visual metaphors and the three facets of “white” space in print advertising. A prior study by Phillips and McQuarrie (2002) examines visual rhetoric as a broad concept but does not distinguish the various approaches in metaphoric advertising nor the different characteristics of “white” space.

Studies 2, 3 and 4 elucidate on the growing use of visual metaphor ads with extended “white” space; they seek to unveil and verify the mechanism through which visual metaphor ads and especially those that combine extended “white” space affect Aad. The three studies establish that visual metaphors (and especially visual metaphors combined with extended “white” space) create aesthetic response that positively affects pleasure and Aad. Study 4 incorporates novelty and arousal and

tests a more comprehensive model indicating that visual metaphors (and especially visual metaphors with extended “white” space) lead to positive Aad through novelty, arousal, aesthetic response, and pleasure.

Novelty features as a prominent driver of the visual metaphor with extended “white” space advertising effectiveness. In this sense, the present paper extends previous research addressing the role of novelty on the development of positive Aad (Hopp and Gangadharbatla 2016; Sheinin, Varki, and Ashley 2011). The present paper also supports Berlyne’s (1970) assumption that medium arousal leads to more positive aesthetic preference. It indicates that increased novelty and relatively low complexity lead to moderate perceived arousal (i.e., 3.5 out of 7), especially for those ads with visual metaphors and extended “white” space.

All studies support the hypothesis that ads with a metaphoric image generate higher levels of aesthetic response relative to the ads with literal images. Our findings extend prior research on the visual metaphors’ aesthetic nature (McQuarrie and Mick 1999) and artistic deviance from expectations (Gkiouzepas and Hogg 2011). They also contribute to prior research on the aesthetic dimensions of “white” space (Pracejus, Olsen, and O’Guinn 2006). As established, a visual metaphor ad with extended “white” space leads to better aesthetic responses than a visual metaphor ad with limited “white” space. Extended “white” space enhances consumers’ aesthetic response because of its artfulness and associations with minimalism, while it upgrades the ad’s refined supreme quality (Pracejus, Olsen and O’Guinn 2006).

The assumption that aesthetic response leads to enhanced pleasure is supported for both visual metaphor (vs. literal visual) and visual metaphor with extended “white” space (vs. visual metaphor with limited “white” space) conditions. The artful character of an ad with a visual metaphor and especially a visual metaphor with extended “white” space leads to aesthetic pleasure and underlines that in metaphoric advertising (as in product design, Holbrook and Zirlin 1985), aesthetic response is an essential source of pleasure.

Furthermore, it appears that exerted pleasure from a visual metaphor ad and especially a visual metaphor with extended “white” space ad improves Aad. As Phillips and McQuarrie (2004) also suggested, pleasurable feelings generated by a visual element, are associated with ad liking. An aesthetically pleasurable advertising stimulus, such as a visual metaphor ad (Van Enschoot and Van Mulken 2014) and especially a visual metaphor ad with extended “white” space (Pracejus, Olsen and O’Guinn 2006) leads to improved Aad.

The present paper builds on previous research and extends it in three distinct ways. First, prior studies on the effect of visual metaphors on Aad focused on the role of complexity (Van Mulken, Van Hooft, and Nederstigt 2014; Van Mulken, Le Pair, and Forceville 2010) and comprehension (Mohanty and Ratneshwar 2015; Phillips 2000). Limited reference has been made to the potential effect of visual metaphors on Aad through aesthetic responses and pleasure. Given the novel, aesthetic (McQuarrie and Mick 1999) and artistic (Gkiouzepas and Hogg 2011) value of visual metaphors, establishing their effect on consumers’ aesthetic reactions, pleasurable feelings and attitude becomes timely and essential. The present study addresses this gap and

establishes that visual metaphors (vs. literal visuals) and especially visual metaphors with extended “white” space (vs. visual metaphor with limited “white space”) have a significant effect on Aad, established through consumers’ aesthetic responses and exerted pleasure.

Second, the present paper elucidates the mechanism behind visual metaphor and especially visual metaphor with extended “white” space advertisement’s significant positive effect on Aad. Elaborating on Berlyne’s (1971) theory of aesthetic preference, we attest that visual metaphor ads (visual metaphor ads with extended “white” space) lead to higher perceived novelty than ads with literal visuals (visual metaphor ads with limited “white” space). As Berlyne (1971) advocated, we found that a stimulus high in novelty (but low/ moderate in complexity) has average arousal potential and as a result maximum aesthetic value. In this manner, this paper supports the main assumptions of the theory of aesthetic preference (Berlyne 1970) and its applicability to advertising. However, the debate on the explanatory power of Berlyne’s (1970) theory of aesthetic preference against the fluency theory (Reber, Schwarz, and Winkielman 2004) and other theories remains open, since Study 4 indicates that novelty can also affect aesthetic response and pleasure directly without the mediation of arousal. Indeed, some prior studies (Martindale, Moore, and Borkum’s 1990) suggest that arousal is not always necessary to explain aesthetic preference and that a multi-factor (e.g., a combination of complexity, novelty, arousal, etc.) rather than a single-factor (i.e., emphasis only on arousal) approach can offer a more complete understanding of aesthetic preference and experience (see Leder and Nadal 2014; Marin et al. 2016). Along these studies, the present paper extends Berlyne’s (1970) theory of aesthetic preference and sheds light on the differential role of complexity, novelty, and arousal on aesthetic response and pleasure.

Third, the three experiments also illustrate that aesthetic response is a key determinant of positive attitudes toward a visual metaphor and a visual metaphor with “white” space, irrespectively of whether pleasure is generated or not. Aesthetic response has a significant positive, direct, and indirect through pleasure, effect on Aad. Instead, if aesthetic response does not precede pleasure, there is no positive Aad through the mediating effect of pleasure. In general, consumers can develop a positive Aad irrespectively of whether they are pleased from it, provided they consider it of a significant aesthetic value (Tuch et al. 2012). In other words, aesthetic response is not identical to pleasure, meaning that to aesthetically respond to a stimulus doesn’t solely mean to experience a pleasurable feeling (Palmer, Schloss, and Sammartino 2013). A potential explanation could be that among others, both sensation (synaesthesia) and understanding (gnosis) constitute significant dimensions of an aesthetic experience (Root-Bernstein 1996), signifying that aesthetic stimuli are appealing to emotion and intellect, too. As such, an aesthetic experience is much more than a pleasurable, arousing, and exciting one (Mehrabian 1996; Mehrabian and Russell 1974). Individuals form positive attitudes not only toward things that they enjoy and are pleased by, but also toward unfamiliar experiences they find challenging and intriguing (Kashdan and Silvia 2009; Zuckerman 1994).

Managerial implications

Our research highlights the prevalence of fusions and suggests that marketing managers should prefer visual metaphors (fusions) in print advertising campaigns as they exert higher levels of novelty, arousal, aesthetic response, and pleasure, thus generating positive Aad. The preference for fusions by both practitioners and consumers can be explained by their combination of moderate/low levels of complexity and high levels of novelty. As such, fusions invite consumers to experience and enjoy their ambiguous messages, not only through their tolerable level of complexity but also through their novel and creative design. Marketers could use fusions to target sensation seekers, thereby, consumers who prefer intense, novel, and challenging stimuli (Kashdan and Silvia 2009; Zuckerman 1994).

Furthermore, we attest the tendency among practitioners to combine visual metaphors with extended “white” space and establish the effectiveness of this synergy. Based on the criterion of simple and homogenous spaces, the present paper suggests that “white” space is far from meaningless, or a waste of money; it is rather a fundamental design element, able to co-exist with rhetorical figures and construct smart and aesthetic, pleasurable advertising entities. Advertisers could balance the visual noise of contemporary advertising by accompanying it with less cluttered, appealing backgrounds that communicate high quality, aesthetics, and status. Such advertisements are especially apt for companies aiming to reduce unnecessary information but still attract attention and provide consumers with space and time to freely elaborate and appreciate their messages.

The three experiments conducted in the current research manipulated novel visual metaphors and proved that novelty is a fundamental dimension in our conceptual model. Therefore, advertisers could incorporate visual metaphors in their ads that are not conventional but highly creative and novel, thus enhancing the chances to increase aesthetic reactions and pleasure and generate positive attitudes.

Novel and attractive advertising stimuli could lead to an exhilarating emotional experience (Amstrong and Detweiler-Bedell 2008), that can also be attributed to Aad. The current study demonstrates that aesthetic responses generated by visual metaphors affect Aad irrespective of the existence of pleasure. To achieve a strong impact on Aad, advertising companies should not merely emphasize on creating a pleasurable visual metaphor, but rather an aesthetically appealing metaphoric ad stimulus.

The current study also provides evidence that the synergy of visual metaphors and “white” space can be fruitful and effective across countries (i.e., Greece, the UK, and the USA). Therefore, it is suggested that companies could use this creative execution as the cornerstone of their brand's international advertising strategy. Visual metaphors with “white” space could constitute the base for international integrated marketing communications strategies. A visual metaphor with “white space is a creative theme than can serve different strategic intents, such as brand familiarization, argument, symbolic association and information (for more creative strategies see Koudelova and Whitelock 2001).

Moreover, it is recommended that the synergy of visual metaphors and extended “white” space could be applied to other types of advertising, such as online banner ads. Metaphoric images surrounded by extended, blank space could create positive consumers’ attitudes as for instance the Nivea part of “Nivea Age Reverse” campaign and the GlaxoSmithKline of the “Party” campaign (Digital Synopsis 2020) online banner ads that combine extended “white” space with a visual metaphor.

On a final note, the present study suggests that creatives in advertising agencies could benefit from an approach oriented toward the practical application of visual metaphors and “white” space in advertising design problem solving. Advertising creatives can position a brand uniquely in consumers' minds, combining the brand and the unique selling proposition in a figurative and novel way. Metaphorical thinking, which is defined as “a description of an object or event, real or imagined, using concepts that cannot be applied to the object or event in a conventional way” (Indurkha 1992, p. 18), can help creatives to establish infrequent relations with remote domains (e.g., emotions, values, ideas, lifestyles) not directly related to the advertised brand. A visual metaphor, the final product of the creatives’ metaphorical thinking process, should be surrounded by “white” space, to ensure the best aesthetic outcome and hence the best advertising result.

Limitations and Further Research

The present paper is type-specific in the sense that it focuses on fusions. Yet, the content analysis in Study 1 unveiled fusions as the most popular type of visual metaphors. Moreover, prior studies also argued in favor of fusions’ moderate complexity (Van Mulken, Van Hooft, and Nederstigt 2014). Nonetheless, future research should, also, consider juxtapositions and replacements (Phillips and McQuarrie 2004) in terms of their impact on consumers’ responses. Considering their different level of complexity (Van Mulken, Van Hooft and Nederstigt 2014), they might generate different outcomes.

Beside this, Peterson (2019) expanded the typology of Phillips and McQuarrie (2004) that excluded some intermediate types of visual metaphors (i.e., identification, categorical juxtaposition, replacing fusion etc.). Hence, future research could content-analyze worldwide ads based on these additional categories and examine the impact of them on consumer’s responses.

Future research endeavors could also consider examining other types of consumers’ responses toward metaphoric advertising and metaphoric advertising with extended “white” space, as for instance attitude toward the brand or purchase intentions.

Finally, this study focuses on three low involvement products leaving room for potential expansion and replication in different product categories to verify the existence of similar underlying mechanisms (Chang et al. 2018).

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TABLES

Table 1. Typology and coding values (Study 1)

Variables and Sub-variables	Brief description	Coding	Inter-coder reliability (Cohen's Kappa)
Visual Metaphors			
Visual metaphor	The ad includes a visual metaphor (juxtaposition, fusion or replacement) or not	0=absence 1=presence of visual metaphor	.92
<i>Juxtaposition</i>	The ad depicts two images side by side with properties associated through connection, similarity and opposition.	0=absence 1=presence of juxtaposition	.90
<i>Fusion</i>	The ad depicts two images that are combined. Their properties are associated through connection, similarity and opposition.	0=absence 1=presence of fusion	.92
<i>Replacement</i>	The ad depicts an image that implies another missing/absent image. The absent and the present images are associated through connection, similarity and opposition.	0=absence 1=presence of replacement	.89
“White” Space			
<i>Extended space</i>	The extent of “white” space compared to the total ad layout	0=($< 1/2$ of the total ad layout) 1=($\geq 1/2$ of the total ad layout)	.90
<i>Monochrome space</i>	“White” space is monochrome or not	0=not monochrome 1=monochrome	.92
<i>Space in grayscale</i>	“White” space is in shades of grey or not	0=not grayscale 1=grayscale	.90

Table2. The design characteristics of “white” space in visual metaphor ads (Study 1)

Types of Metaphor	International Sample			
	Types of “White Space”			Total
	<i>Extended space</i>	<i>Monochrome Space</i>	<i>Space in Grayscale</i>	
	%(N)	%(N)	%(N)	%(N)
<i>Juxtaposition</i>	75.0 (18)	79.2 (19)	58.3 (14)	5.9 (24)
<i>Fusion</i>	82.7 (211)	79.2 (202)	61.6 (157)	62.8 (255)
<i>Replacement</i>	90.6 (115)	81.1 (103)	59.1 (75)	31.3 (127)
Total	344 (84.7)	324 (79.8)	246 (60.6)	

Table 3. Items used in Studies 2, 3 and 4 and Cronbach's Alpha for each scale

Variables	Items	Responses	Cronbach's alpha		
			Study 2	Study 3	Study 4
"White" space	<ul style="list-style-type: none"> The ad is minimal/ reductive The ad's style is very simple The content of the ad is simplified The ad incorporates minimal/reductive space The ad uses extended, empty space The ad's space is uncluttered The ad applies minimal/reductive design approach 	1=Strongly disagree...7=Strongly agree	.836	.861	.881
Visual Metaphor vs. non metaphor	<ul style="list-style-type: none"> The image/visual is... 	1=Plain/Matter of fact... 7=Artful/Clever	.856	.935	.790
Artful deviation	<ul style="list-style-type: none"> The image/visual is... The image/visual is... 	1=Realistic... 7=Unrealistic and 1=Real...7=Fictitious			
Deviation from reality	<ul style="list-style-type: none"> The image is a synthesis of two other images 	1=Strongly disagree ...7=Strongly agree	-	-	-
Fusion	<ul style="list-style-type: none"> The ad is.. 	1=Simple...7=Elaborated 1=Straightforward...7=Confusing 1=Homogenous...7=Shattered	.789	.883	.700
Complexity	<ul style="list-style-type: none"> This advertisement is original This advertisement is different from my expectations of a print advertisement This advertisement is memorable 	1=Strongly disagree...7=Strongly agree	.854	.851	.890

Novelty	<ul style="list-style-type: none"> • This advertisement is visually interesting • This advertisement is interesting • This advertisement is interesting 				
Arousal	Rate your emotions according to the way the advertisement made you feel	1=Relaxed...7=Stimulated 1=Calm...7=Excited 1=Sluggish...7=Frenzied 1=Dull...7=Jittery 1=Sleepy...7=Wide awake 1=Unaroused...7=Aroused	-	-	.886
Ad familiarity	<ul style="list-style-type: none"> • This ad is... 	1=Completely Unfamiliar... 7=Completely Familiar	-	-	-
Brand familiarity	<ul style="list-style-type: none"> • This brand is... 				
Aesthetic response	Aesthetic response <ul style="list-style-type: none"> • This ad is... • This ad makes me... Aesthetic quality <ul style="list-style-type: none"> • This image could be art • This image has an artistic appeal • This image has been created by an artist 	1=Not attractive ...7=Attractive 1=Not desirable... 7=Desirable 1=Not Arousing... 7=Arousing 1=Not beautiful... 7=Beautiful 1=Strongly disagree...7=Strongly agree	.933	.949	.885*
Pleasure	<ul style="list-style-type: none"> • Rate your emotions according to the way the ad made you feel... 	1=Unhappy...7=Happy 1=Annoyed...7=Pleased 1=Unsatisfied...7=Satisfied 1=Despairing...7=Hopeful 1=Melancholic...7=Contented 1=Bored...7=Relaxed	.919	.935	.915
	<ul style="list-style-type: none"> • I like this advertisement a lot • I think this advertisement is interesting • I think this advertisement is very 	1=Strongly disagree...7=Strongly agree	.918	.918	.904

Aad	convincing <ul style="list-style-type: none">• This advertisement is very appealing• This advertisement is easy to forget*• This advertisement is not effective				
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* The item “1=Not Arousing... 7=Arousing” did not used in study 4, because arousal was considered as a distinct variable

Table 4. Direct effects in mediation model and bootstrap 95% confidence intervals for indirect effects of visual metaphors (and visual metaphors with “white” space) on Aad with aesthetic response and pleasure as mediating factors in Studies 2, 3 and 4

	Aesthetic response						Pleasure						Aad							
	Study 2		Study 3		Study 4		Study 2		Study 3		Study 4		Study 2		Study 3		Study 4			
	β	$t(400)$	β	$t(288)$	β	$t(298)$	β	$t(399)$	β	$t(287)$	β	$t(297)$	β	$t(400)$	β	$t(288)$	β	$t(296)$		
Visual metaphor (VM)	.92***	8.71	1.45***	9.42	.58***	3.67	.07	1.20	.01	.12	.01	.06	.33***	4.63	.46***	3.99	-.04	-.42		
Aesthetic response					.79**	30.02	.69***	23.7	.62**	19.43	.64***	11.43	.49***	7.43	.44***	8.19				
Pleasure											.32***	5.36	.27***	3.52	.49***	7.52				
Mediation												Index	LLCI	ULCI	Index	LLCI	ULCI	Index	LLCI	ULCI
VM->Aesthetic response->Aad												.59	(+.44, +.75)	.72	(+.48, +.98)	.26	(+.12, +.41)			
VM->Pleasure->Aad												.02	(-.02, +.06)	.01	(-.04, +.05)	.01	(-.09, +.09)			
VM->Aesthetic response->Pleasure->Aad												.23	(+.14, +.34)	.28	(+.12, +.44)	.18	(+.07, +.31)			
	β	$t(205)$	β	$t(138)$	β	$t(154)$	β	$t(204)$	β	$t(137)$	β	$t(153)$	β	$t(203)$	β	$t(136)$	β	$t(152)$		
Visual metaphor x “white” space (VM x WS)	1.1***	11.86	.76***	3.94	.63***	2.81	.14	1.41	.00	.08	.08	.63	.41***	4.61	1.09***	10.51	.07	.51		
Aesthetic response					.79***	13.96	.73***	14.60	.64***	14.71	.51***	6.98	.38***	5.52	.39***	5.01				
Pleasure											.20**	3.10	.16*	2.19	.51***	5.04				
Mediation												Index	LLCI	ULCI	Index	LLCI	ULCI	Index	LLCI	ULCI
VMxWS->Aesthetic response->Aad												.55	(+.36, +.76)	.29	(+.12, +.52)	.25	(+.07, +.47)			
VMxWs->Pleasure->Aad												.03	(-.01, +.08)	.01	(-.04, +.05)	.04	(-.09, +.17)			
VMxWS->Aesthetic response->Pleasure->Aad												.17	(+.05, +.29)	.09	(+.01, +.19)	.20	(+.06, +.39)			

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5. Direct effects in mediation model and bootstrap 95% confidence intervals for indirect effects of visual metaphors on Aad with novelty, arousal, aesthetic response, and pleasure as mediating factors in Study 4

	Novelty		Arousal		Aesthetic Response		Pleasure		Aad	
	β	$t(298)$	β	$t(279)$	β	$t(296)$	β	$t(295)$	β	$t(294)$
Visual metaphor (VM)	1.44***	10.24	-.11	-.88	-.45***	-3.37	-.17	-1.70	-.43***	-3.99
Novelty			.49***	11.41	.58***	10.22	-.09*	-.05	.35***	6.62
Arousal					.32***	5.16	.18**	3.80	.02	.39
Aesthetic response							.48***	11.34	.28***	5.13
Pleasure									.40***	6.39
Mediation										
VM->Novelty->Aad									.50	(+.32, +.70)
VM->Arousal->Aad									-.01	(-.02, +.01)
VM->Aesthetic response->Aad									-.13	(-.23, -.05)
VM->Pleasure->Aad									-.07	(-.16, +.01)
VM->Novelty-> Arousal->Aad									.01	(-.07, +.09)
VM->Novelty-> Aesthetic Response ->Aad									.24	(+.13, +.35)
VM->Novelty-> Pleasure->Aad									.06	(-.00, +.13)
VM->Arousal->Aesthetic Response->Aad									-.01	(-.03, +.01)
VM->Arousal-> Pleasure->Aad									-.01	(-.03, +.01)
VM->Aesthetic->Pleasure-Aad									-.08	(-.15, -.04)
VM->Novelty->Arousal->Aesthetic response->Aad									.07	(+.03, +.11)
VM->Novelty->Arousal->Pleasure->Aad									.05	(+.02, +.10)

VM->Novelty-> Aesthetic Response->Pleasure->Aad	.16	(+.09, +.25)
VM->Arousal-> Aesthetic response->Pleasure->Aad	-.01	(-.02, +.01)
VM->Novelty->Arousal->Aesthetic response->Pleasure->Aad	.05	(+.02, +.08)

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6. Direct effects in mediation model and bootstrap 95% confidence intervals for indirect effects of visual metaphors x “white” space on Aad with novelty, arousal, aesthetic response and pleasure as mediating factors in Study 4

	Novelty		Arousal		Aesthetic Response		Pleasure		Aad	
	β	$t(154)$	β	$t(153)$	β	$t(152)$	β	$t(151)$	β	$t(150)$
Visual metaphor x“white” space (VV x WS)	.54*	2.75	-.04	-.23	.25	1.50	.06	.54	.02	.12
Novelty			.50***	7.79	.55***	6.89	.14*	2.16	.38***	5.16
Arousal					.39***	4.62	.18***	2.80	.04	.52
Aesthetic response							.48***	8.26	.24***	3.08
Pleasure									.38***	4.23
Mediation										
VMxWS->Novelty->Aad									.20	(+.05, +.39)
VMxWS->Arousal->Aad									-.01	(-.03, +.03)
VMxWS->Aesthetic response->Aad									.06	(-.02, +.16)
VMxWS->Pleasure->Aad									.02	(-.06, +.12)
VMxWS->Novelty-> Arousal->Aad									.01	(-.03, +.06)
VMxWS->Novelty-> Aesthetic Response ->Aad									.07	(+.01, +.15)
VMxWS->Novelty-> Pleasure->Aad									.03	(+.01, +.08)
VMxWS->Arousal->Aesthetic Response->Aad									-.01	(-.04, +.03)
VMxWS->Arousal-> Pleasure->Aad									-.01	(-.03, +.02)
VMxWS->Aesthetic->Pleasure-Aad									.05	(-.01, +.12)
VMxWS->Novelty->Arousal-> Aesthetic response->Aad									.03	(+.01, +.06)
VMxWS->Novelty->Arousal->Pleasure->Aad									.02	(-.01, +.04)

VMxWS->Novelty-> Aesthetic Response->Pleasure->Aad	.05 (+.01, +.11)
VMxWS->Arousal-> Aesthetic response->Pleasure->Aad	-.01 (-.03, +.02)
VMxWS->Novelty->Arousal->Aesthetic response-> Pleasure->Aad	.02 (+.00, +.04)

* $p < .05$, ** $p < .01$, *** $p < .001$.

FIGURES

Figure 1: Conceptual path model 1 and 2 (merged)

Figure 2: Experimental stimulus of Study 2

Figure 3: Path model 1 and 2 Study 2

Figure 4: Experimental stimulus of Study 3

Figure 5: Path model 1 and 2 Study 3

Figure 6: Conceptual path model 3 and 4 (merged)

Figure 7: Experimental stimulus for Study 4

Figure 8: Path model 1 and 2 Study 4 (merged)

Figure 9: Path model 3 and 4 Study 4 (merged)

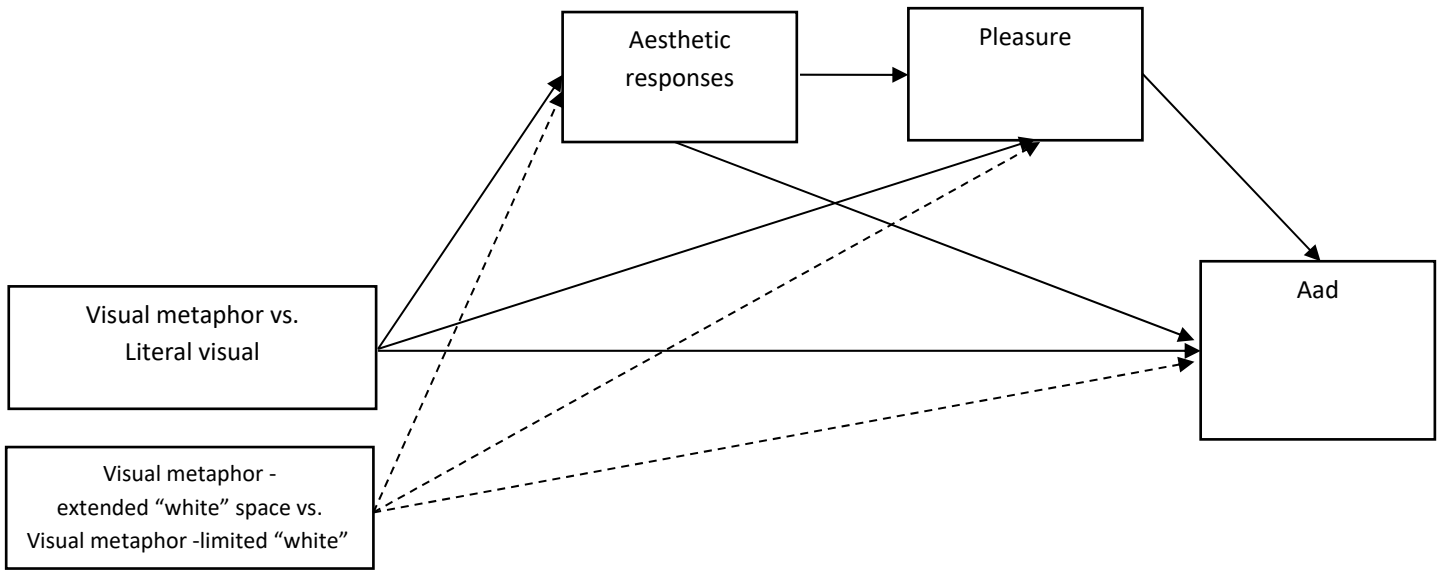


Figure 1

Note: *Solid lines and bold numbers indicate the effects of visual metaphor*
Dashed lines and italics indicate the effects of visual metaphor with "white" space



a



b



c



d

Figure 2

(Slogan: Ο καφές που σε ξυπνάει = The coffee that wakes you up)

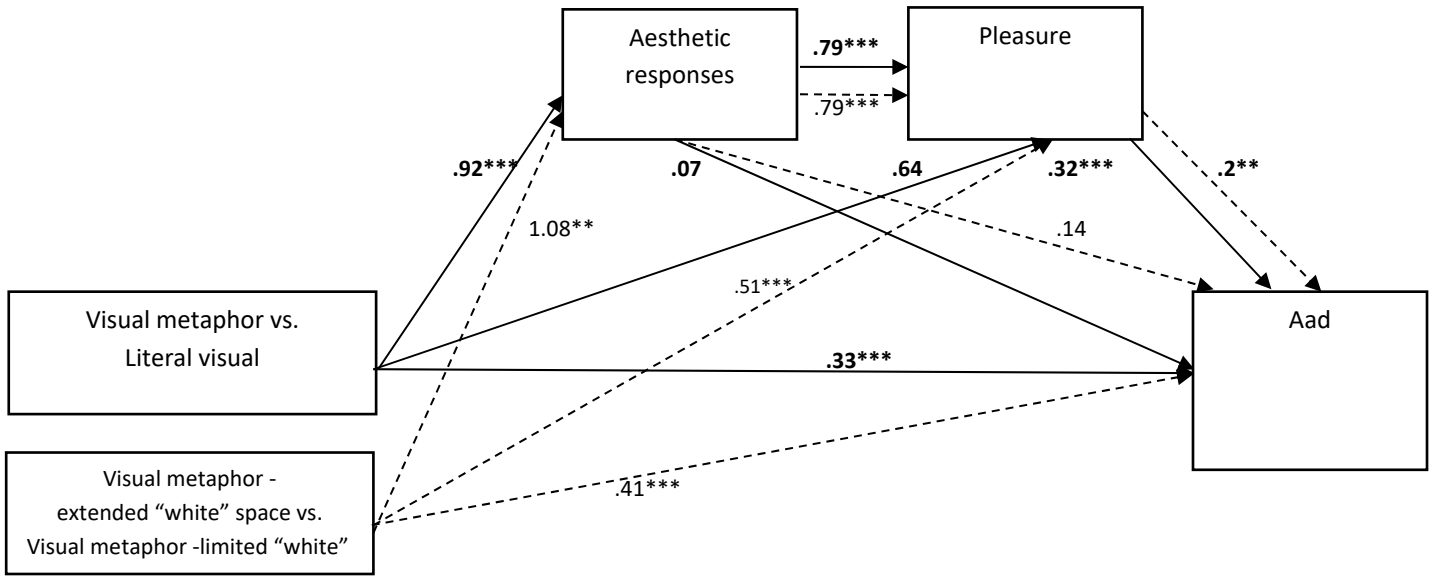
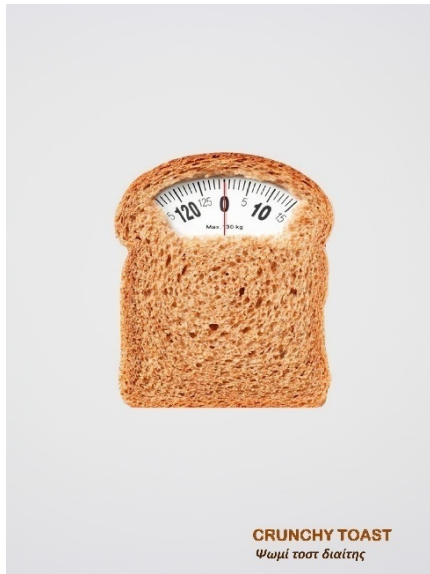


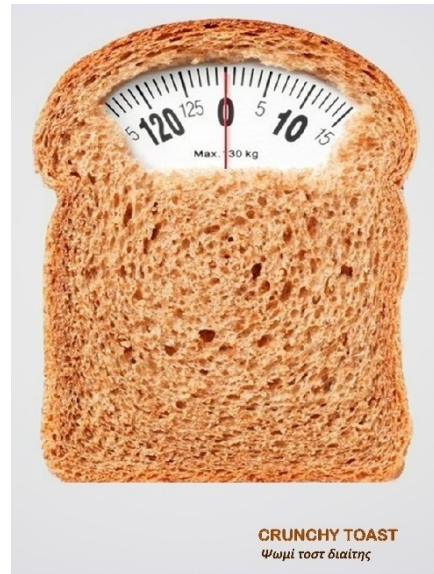
Figure 3

Note: *Solid lines and bold numbers indicate the effects of visual metaphor*
Dashed lines and italics indicate the effects of visual metaphor with "white" space

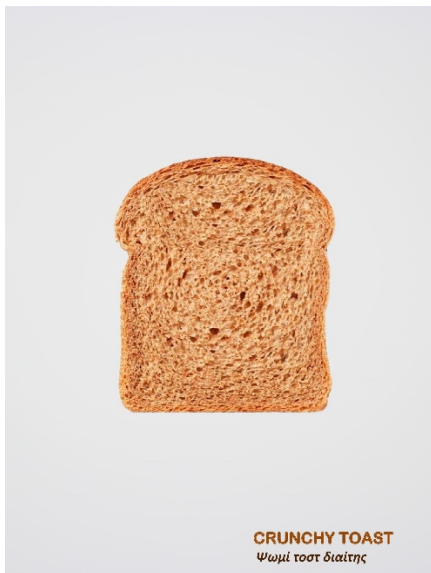
* $p < .05$, ** $p < .01$, *** $p < .001$.



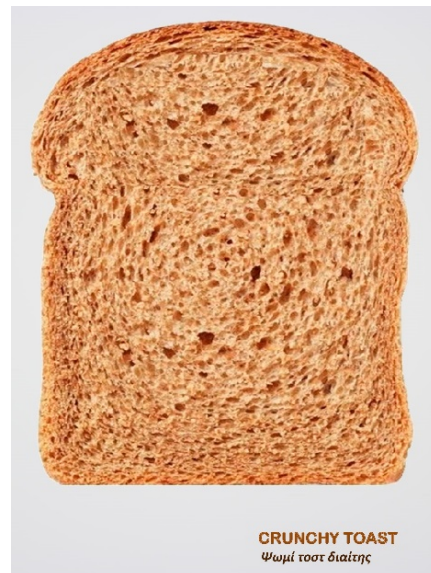
a



b



c



d

Figure 4

(Slogan: Ψωμί τοστ διαίτης = Diet toast bread)

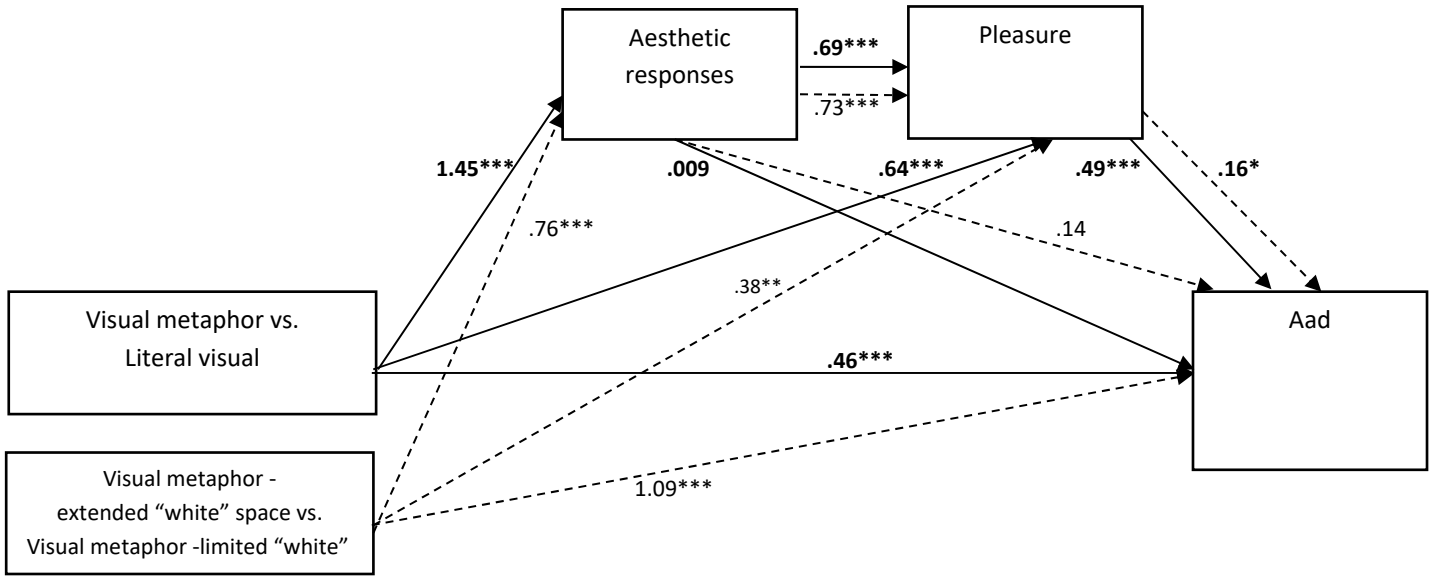


Figure 5

Note: Solid lines and bold numbers indicate the effects of visual metaphor
 Dashed lines and italics indicate the effects of visual metaphor with "white" space

* $p < .05$, ** $p < .01$, *** $p < .001$.

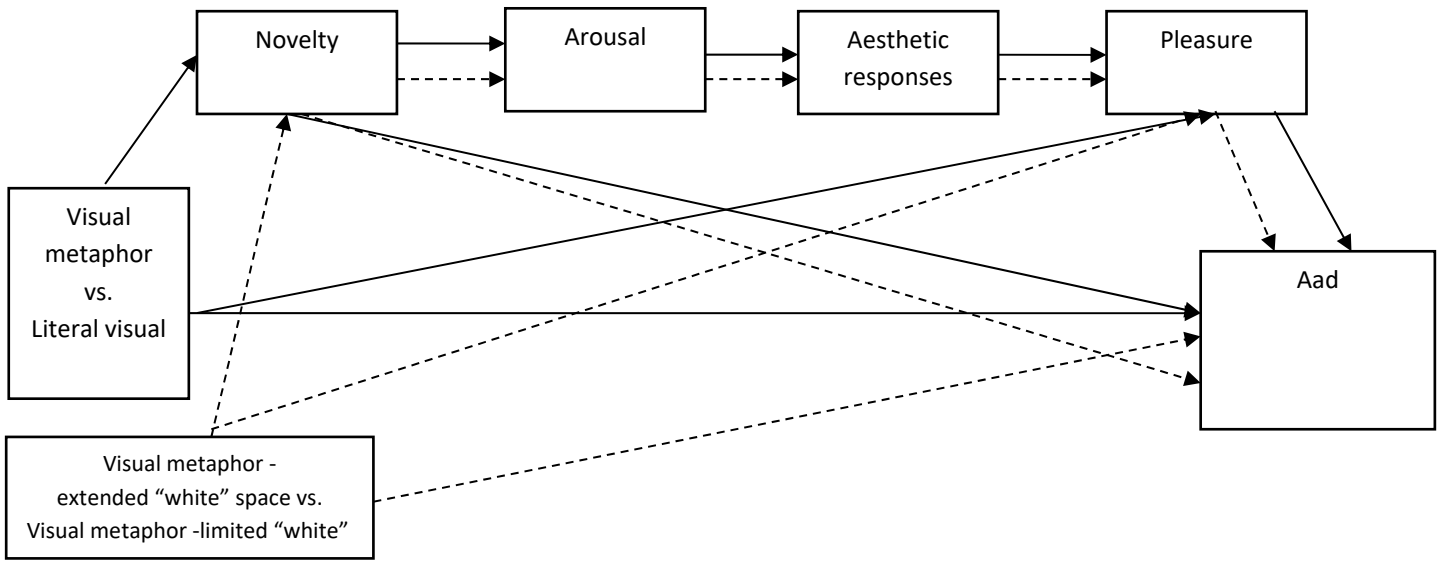


Figure 6

Note: Solid lines and bold numbers indicate the effects of visual metaphor
 Dashed lines and italics indicate the effects of visual metaphor with "white" space



a



b



c



d



e



f



g

Figure 7



h

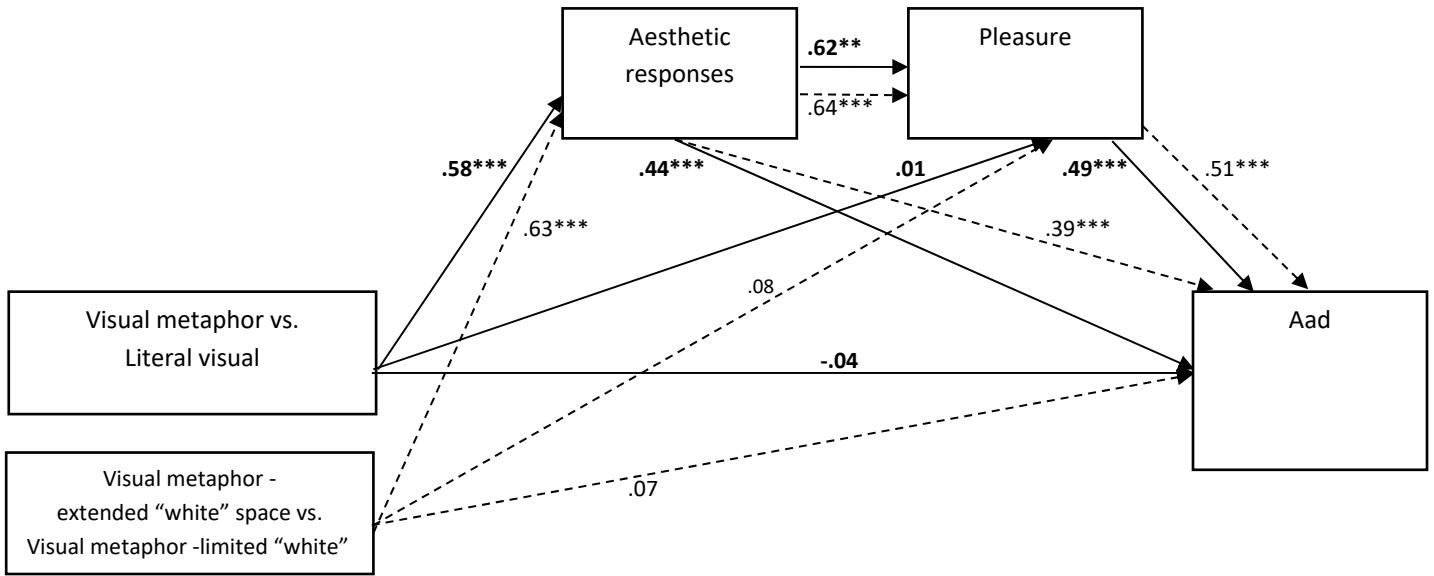


Figure 8

Note: Solid lines and bold numbers indicate the effects of visual metaphor
 Dashed lines and italics indicate the effects of visual metaphor with "white" space

* $p < .05$, ** $p < .01$, *** $p < .001$.

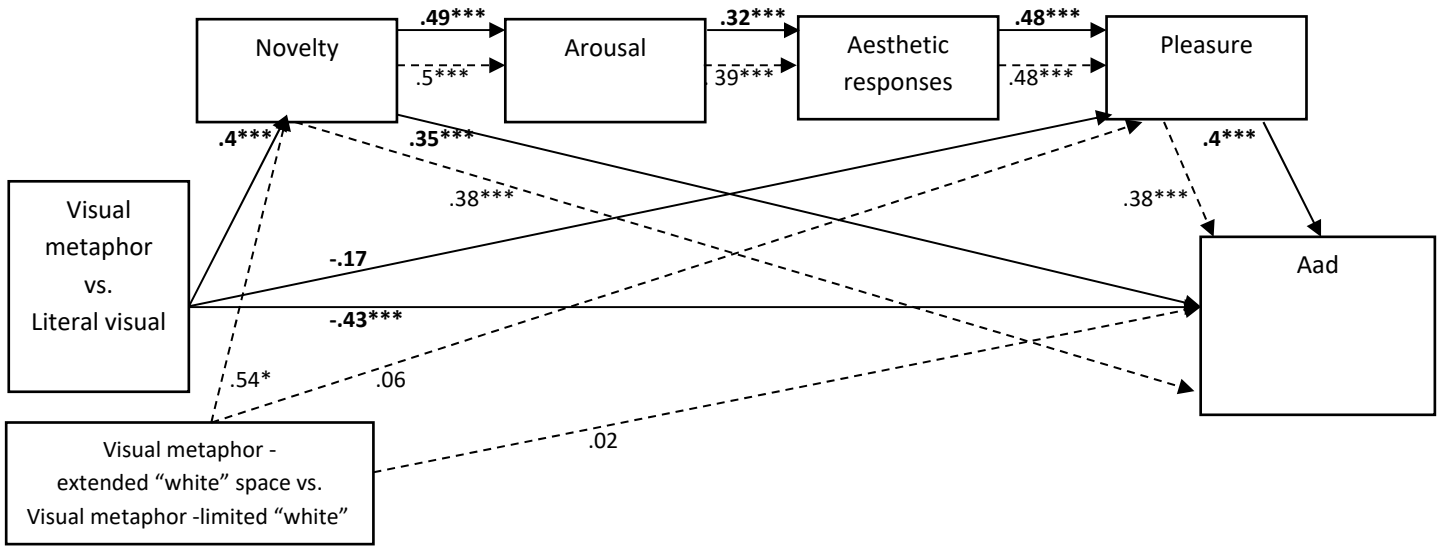


Figure 9

Note: Solid lines and bold numbers indicate the effects of visual metaphor
 Dashed lines and italics indicate the effects of visual metaphor with "white" space

* $p < .05$, ** $p < .01$, *** $p < .001$.