

An eye tracking study of attention to print advertisements: Effects of typeface figuration

Irma Puškarević
University of Novi Sad

Uroš Nedeljković
University of Novi Sad

Vladimir Dimovski
University of Novi Sad

Klementina Možina
University of Ljubljana

The use of rhetorical figures has become a widely-accepted method for capturing attention and positively increasing cognitive effort in print advertisements. So far research studies mostly analyzed the effect of rhetorical figures in the written as well as pictorial elements of an ad. However, there have been few studies addressing the effect of rhetorical figuration in the specific area of typeface design. This study analyzes the effects of typeface figuration (i.e., regular vs. irregular stylization of the form) on attention and attitude of the viewers. The study also looks at how the effect of typeface figuration changes in relation to the type of a product (hedonistic vs. utilitarian) being advertised. Through the use of a 2×2 experimental design, the study measures data using a combination of eye tracking (an objective method) and attitude scaling (a subjective method). Sixty-five volunteers participated in the study. The eye tracking results show that using rhetorical figures in typeface mainly affects attention of the viewers. We have also determined that they influence their attitude. Additionally, the study shows that a typeface and a type of products are correlated; it shows that the hedonistic type of products can benefit more from the figuration. In conclusion, our study builds on and expands the current understanding of the use of rhetorical figures by proving that there is a correlation between the use of rhetorical figures in typeface and viewers' attention, depending on the type of product being advertised.

Keywords: advertising effectiveness, attention, bottom-up process, gaze, eye tracking, region of interest, typography, visual rhetoric

Introduction

The role of advertising is to present the advertised message in such a way as to hold viewers' attention. Advertisements that fail to meet this objective cannot be considered effective. In modern communication environment, where advertisements appear in abundance, it is very difficult to attract and keep viewers' attention. To increase the argumentative power of advertisements, advertisers use rhetorical figuration. This figuration is regarded as a creative form of expression that is different from the expected one. The rhetorical figuration is mostly

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found in the pictorial part of an advertisement (Delbaere, Mcquarrie, & Phillips, 2011; Gkiouzepas & Hogg, 2011; Mcquarrie & Mick, 1999), due to the superior effect of the pictorial over textual elements. According to cognitive psychology, an image holds a greater recognition power in comparison to verbal cue (Childers & Houston, 1984; Kostić, 2006). Since an advertisement is composed of the key elements (picture, slogan, logo, typeface) that influence perception, each of the key elements has a distinct effect on viewers' response. A key element that has been neglected in modern communication studies is the rhetorical figuration of typefaces and their effects on attention and attitude.

In the studies on advertising effectiveness and theory, a great focus is placed on the effects of the pictorial rhetoric in marketing communication (Mick, 1986; Mick & Politi, 1989; Scott, 1994). According to Kjeldsen (2012), rhetorical figures in the pictorial part of an advertisement provide a certain kind of argument. Even though images play an important role in visual marketing, typefaces are undoubtedly the most ubiquitous elements of marketing materials. The art of typography, according to Trummel (1988), is the integral part of the art of rhetoric, where the parallel between the work of the typographer and rhetorician exists. Consequently, typeface figuration may be an argument in its own right. Arguably, a procession of typeface figuration results in the formation of the semantic code which exists independently of the semantic nature of the verbal part (Foltz, Poltrock, & Potts, 1984; Lewis & Walker, 1989). Thus, we can discuss the concept of words being "dressed up" in typographic styles, which implies that typeface figuration is an important key element for attention, and consequently, brand information processing in advertisements.

The methodology of the previous studies on the influence of typeface characteristics was predominantly subjective (e.g., Henderson, Giese, & Cote, 2004; Morrison, 1986; Rowe, 1982). Although subjective measures can provide more detailed insights of viewers' responses, because of the human factors (fatigue, bias, etc.) we also need the objective methods when testing effects of advertisement key elements. The methodology of tracking eye movements is one such objective method. Eye movements are considered indicators of visual attention, and that is why analysing eye-paths during advertisement gazing has

been an interest of numerous studies in recent years (Higgins, Leininger, & Rayner, 2014; Rayner, Miller, & Rotello, 2008; Wedel, 2013). However, inferences based on previous eye tracking studies refer to the picture figuration effect and integration of the picture with longer passages of text—a common element of the advertisement design solution in the past. These findings, although considerable and informative, need an update. There is a need for the research that would better explain effects of certain key elements in the contemporary advertising environment, namely the appearance of the shorter passages of text. New design solutions of advertisements have a tendency to "say" more with fewer visual elements. Hence, rhetorical figurativeness of typefaces emerged as a new key element for communication. Consequently, typeface design for shorter slogans became more complex. Therefore, the purpose of this study is to employ an objective and a subjective method to measure the effects of typeface figuration on attention and attitudes. These effects will be investigated in different contexts (types of products). Advertisements that are not word-driven will be tested, where a typeface serves as a "dressing" style for headlines or short slogans.

Theoretical background

Rhetoric is regarded as a discipline of argumentation that seeks the most effective persuasive method to present a message. It frequently uses rhetorical figures—figures of speech. In the traditional sense, "a rhetorical figure of speech is one that differs from normal usage to make communication more effective" (Bonsiepe, 1965). Saussure (1972), who studied functions of signs in linguistics, believed that language is only one aspect of the system of signs. From this point of view, interpretation of signs and codes (figures of speech) originating from literary and linguistic contexts became a point of interest in other areas of communication. Theoreticians of visual communication and semiotics (Bonsiepe, 1965; Eco, 1973, 1976) recognised stylistic properties of text in visual marketing materials (e.g., advertisements). They began interpreting visuals using the analogy with interpreting signs and codes from linguistics. Bonsiepe (1965) considered rhetorical figures a contribution to the stylistic properties of the text.

Figurations	All rhetorical figures			
Figurative mode	Schemes (regularity)		Tropes (irregularity)	
Rhetorical operation	Repetition	Reversal	Substitution	Destabilization
	Rhyme Alliteration Anaphora ...	Antithesis Antimetabole ...	Hyperbole Ellipsis Metonymy ...	Metaphor Pun Irony Paradox

LESS COMPLEX → MORE COMPLEX

Figure 1. A taxonomy of rhetorical figures devised by McQuarrie and Mick (1996). The grid shows three-step categorization where division of rhetorical figures is based on the regularity or irregularity of the form.

He believed that this stylisation is the most important tool when it comes to analysing advertised message.

Influenced by the theory of semiotics, Bonsiepe (1965) and Eco (1976) made first analytical attempts of systematisation of the verbal rhetoric terminology in the visual domain of advertisements. Following their work, McQuarrie & Mick (1996) proposed a conceptual taxonomy of rhetorical figures in advertising language (Figure 1). The same text–interpretative approach was subsequently applied to pictorial rhetoric (McQuarrie & Mick, 1999). The authors divide all rhetorical figures on account of the regularity (schemes) or irregularity (tropes) of the expression/image, that is, on account of the level of deviation from the expected outcome. The main proposition of this approach is that schemes yield less cognitive processing effort because of their excess regularity (simplicity in form) whereas tropic figures increase cognitive effort due to their irregularity (complexity in form). Similarly, Groupe Mu (1992) proposes a categorization of rhetorical figures according to the increasing amount of cognitive effort. Furthermore, a correlating proposition can be seen in the handbook by Hanno and Lupton (1988) where typeface design is analytically categorised according to different levels of figuration (Figure 2). In addition to their analysis, semiotic theory indicates that letter forms can become signifiers (Leeuwen, 2006). They can bear connotation through e.g. analogy. Since metaphor is one of the semiotic principles, when applied to letter forms, this principle can exert a metaphorical potential to a typeface.

Schemes <i>alter the normal order of elements</i>	Tropes <i>alter the normal reference of elements</i>
ADVANCE <small>ANAPHORA</small>	ADVANCE <small>METAPHOR</small>
VDVANŒE <small>ANASTROPHE</small>	AD,VAN.ŒE <small>METONYMY</small>

Figure 2. Examples of rhetorical figures applied to typeface design (Hanno & Lupton, 1988). Anaphora (involves repetition of an element or series of elements at the beginning of a sequence) and anastrophe (inverts normal grammatical order) fall under schematic devices which have more regularity in their representation. Metaphor (an implied comparison between two unlike objects that have some structural similarity) and metonymy (represents one term with another which is close to it in time, space, or causation) fall under tropic devices which are more irregular.

Rhetoric and typeface effects

The use of rhetoric for increasing the effectiveness of e.g. print advertising has been highlighted in numerous studies (DeRosia, 2008; Mothersbaugh, Huhmann, & Franke, 2002). Most of this research addresses the effects of rhetorical figuration for the pictorial part (Childers, 1992; Delbaere, McQuarrie, & Phillips, 2011; Gkiouzepas & Hogg, 2011; McQuarrie & Mick, 1999) and verbal cue (McQuarrie & Mick, 2003; Toncar & Munch, 2001). The authors of these studies suggest application of rhetorical figures for strategically organising advertising elements with persuasive potential. Kjeldsen (2012) highlights the argumentative power of visual rhetorical figuration in advertising, addressing it not as a mere ornamentation but also as a kind of argument about the product and a brand. For example, expressions and forms that differ more from the expected (they are more complex) demand that viewer makes “conclusions” to understand their intended meaning. As a result, it leads to better likability and recognition.

Another group of studies addresses the effects of typeface characteristics (e.g. serifs) mainly on legibility (Franken, Podlessek, & Možina, 2014; Lewis & Walker,

1989; Nedeljković et al., 2013), personality (Brumberger, 2003; Mackiewicz & Moeller, 2004), feeling tone (Brinton, 1961; Davis & Smith, 1933; Nedeljković et al., 2014), and word recognition (Pušnik, Možina, & Podlesek, 2016; Pušnik, Podlesek, & Možina, 2016). Also, researchers test the perceived impression of the attributes such as the weight of letters (Rowe, 1982; White, 1988; Nedeljković, Novaković, Pinčjer forthcoming 2017), or cursive form (Tannenbaum, Jacobson, & Norris, 1964). From the findings of these studies, it is possible to conclude that typeface characteristics, or modifications of the form of letters, have an impact on viewer's response.

The effects of typeface characteristics have also been examined in advertising research (Childers & Jass, 2002; Doyle & Bottomley, 2006). Findings confirm that appropriateness of the style of the typeface (e.g. elegant, casual) and the type of product leads to font-product congruity which influences consumer choice and memory. McCarthy & Mothersbaugh (2002) propose the model of the role of typography listing the effects of typographic factors in advertising. Effects of these factors have the potential to influence consumer's motivation, opportunity, and ability to process brand information. One of these factors is the complexity of the form. Literature shows that novelty and originality (usually associated with complexity and irregularity) may enhance attention and motivate processing (Berlyne, 1971). Complexity may increase both processing motivation (Morrison & Dainoff, 2008) and liking (Anderson & Jolson, 1980). However, complexity and irregularity may have negative effects where a possible conflict between legibility and more detailed typeface design may arise. Nonetheless, when ad appearance is considered, one might expect complexity to enhance consumer's attention and attitude.

When it comes to testing methods of advertising effectiveness, the role of attitudes (attitude toward the ad; attitude toward the brand) and intentions (purchase intention) is indispensable (Morris et al., 2002). Research suggests that observations about the brand stimulated during the incidental exposure (low involvement) to an advertisement, can be considered a causal precondition for the formation of an attitude toward the brand (Mitchell & Olson, 1981; Wright, 1973). Attitude towards the ad, directly and indirectly, influences attitude toward the brand. By its affective dimensions (e.g., favourability), attitude toward the ad

is regarded as a mediating variable through which advertising influences brand attitudes and purchase intention (Mackenzie, Lutz, & Belch, 1986; Mitchell & Olson, 1981). On the basis of this discussion, the following main effect of typeface figuration on attitudes (ad and brand) and purchase intention is hypothesised:

- **H1:** Typeface figuration will have a positive influence on viewers' response. Particularly, the figuration that generates a more irregular form of the typeface (trope) will positively influence attitude toward an ad and a brand, as well as have the positive influence on purchase intention in low involvement conditions of viewing advertisements.

Attention and information processing

Capturing viewers' attention is a very important goal of print advertising. Numerous studies confirm the vital role of attention for effective communication process (Berger, Wagner, & Schwand, 2012; Lee & Ahn, 2012; Pieters, Wedel, & Batra, 2010). However, faced with the current demands of the visually literate viewers, communication models are successful if they manage to find new ways to attract attention. Previous findings show that, for example, larger, brighter and faster-moving objects are spotted more easily among uniform attention distracters (Treisman & Gormican, 1988). Still, it is necessary to consider bottom-up and top-down factors of human behaviour as they have distinct ways of guiding attention (Couronné et al., 2010). Bottom-up factors suggest that attention is automatically shifted towards salient visual elements, whereas top-down factors presume attention to be guided by our internal goals and intentions. Since top-down factors are closely related to the high-level cognitive processes (Desimone & Duncan, 1995), they are excluded from the control of advertisers. Hence, advertisers manipulate bottom-up factors to increase stimuli salience and help increase attention.

At the same time, if the advertiser's goal is to increase the persuasiveness of his argument, catching viewers' attention is not enough. Viewers need to process the information to act upon it (memorise it or develop an attitude toward it; see Figure 3) (Wedel & Pieters, 2000). Nonetheless, without catching viewers' attention there would be no further processing and, subsequently, there would be no effect on decision making. Therefore, increased attention

will lead to increased possibility of information processing and memory.

Visual complexity, usually associated with originality, was found to increase attention (Pieters et al., 2010) and attitude (Cox & Cox, 1988; Peracchio & Meyers-Levy, 1994). For example, Berlyne (1958, 1974) discovered that aesthetic qualities of visual complexity were engaging and that people looked longer at more complex abstract forms. Pieters, Wedel & Barta (2010), who test advertising effectiveness, made additional effort in distinguishing between two types of visual complexity: feature complexity and design complexity. Feature complexity (more detail and variation in the basic visual features) has been found to hurt ad performance, whereas design complexity (more detailed design regarding shapes, objects, and patterns) has been found to help ad performance. In other words, design complexity helps attention to the pictorial part of advertisements, and consequently, ad as a whole. This benefit of design complexity is specific to the key element of an advertisement in which it is mostly present. Therefore, if design complexity would reside in the typeface design, increasing typeface figuration, we could expect attentional benefits to an advertisement in likeable ways.

Attention and eye movements are closely connected. The analysis of eye movements has gained acceptance among research methodologies within the framework of market communication (Lee & Ahn, 2012; Pieters, Wedel & Batra, 2010; Wedel & Pieters, 2000). This acceptance was because such method provides information about patterns of visual attention in real time (Russo, 1978; Wedel & Pieters, 2008). Research on the characteristics of eye movements in print advertisements, where text and pictures are integrated, suggests that pictures are viewed longer than text (Rayner et al., 2001). Findings also indicate eye-catching qualities of originality and familiarity of

objects (Pieters, Warlop, & Wedel, 2002). It can be observed that longer passages of text in ad stimuli have been a common component in these studies. Due to such design solutions, alternation between text and picture is slower (Rayner et al., 2001; Rayner, Miller, & Rotello, 2008) which can have slightly negative effects in producing a mental model of the complete message. Shorter portions of text might overcome this effect. Additionally, shorter text in an advertisement enables application of more complex (i.e. irregular) typefaces which serve the new marketing demands – “saying” more with less. Therefore, typeface figuration can become an element that is capable of influencing the viewer’s attention.

Measures of attention that are most commonly reported in eye tracking studies, as indicators of attention, are fixation frequency (density measure) and total fixation duration (duration measure). The frequency of fixations is indicated by a number of fixations on the specific feature of the stimulus. Total fixation duration is indicated by the total amount of time viewers fixate on a stimulus or specific feature of the stimulus. In previous studies on eye movements, while viewing advertisements, greater fixation frequency could be found on the pictorial part (larger portion) in comparison to the textual part (smaller portion) of an advertisement (Pieters & Wedel, 2004). These findings imply that different features of the stimulus will have different fixation frequency. If perceptual objects were to occupy approximately the same portion of an advertisement, a significant difference in fixation frequency would not be expected. Concerning the duration of the fixations, more engaging elements, such as original pictures (Pieters et al., 2002) or more complex forms, cause longer viewing time (Lee & Ahn, 2012; Rayner et al., 2001) which reflects a cognitive and perceptual dedication to the stimulus. For the purposes of measuring attention in this study, a specific feature of the stimulus will be tested—typeface figuration

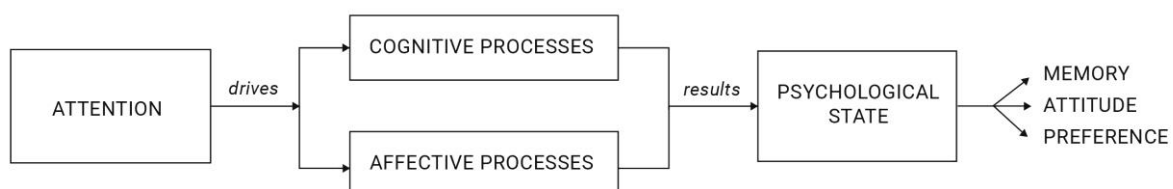


Figure 3. Process model of how attention influences cognitive dimensions and cognitive processes

on a slogan. Two conditions will be tested (figuration vs. no figuration of the typeface). Verbal cue and size of the letters will be the same in both conditions. Therefore, the following two-part hypothesis is proposed:

- **H2a:** Typeface figuration compared to no figuration of a typeface will have no significant impact on fixation frequency for typefaces that are approximately the same in size.

- **H2b:** Typeface figuration will have an impact on total fixation duration. Particularly, total fixation duration is expected to be greater for the figuration that generates a more irregular form of the typeface (trope).

Effects of the product type and spokesperson type

Research on marketing communication recognises the effect of situational variables on purchase behaviour (Russel, 1975). In similar fashion, contingency approach emerged which emphasised the effects of context on the performance of ad elements. The relevance of contingency approach has been indicated by studies that confirm dependency of ad characteristic and effectiveness on the type of product (Hanssens & Weitz, 1980; Holbrook & Lehmann, 1980; Holbrook & O'Shaughnessy, 1984). For example, the findings of Johar & Sirgy (1991) indicate that ad elements may perform differently across product types, more precisely, they refer to utilitarian versus hedonic product values. Such distinction on "rational" and "emotional" stems from FCB Strategy Planning Model (Vaughn, 1980), providing valuable guidelines for studies with a focus on the product benefit effect. Additionally, researchers have also found the connection between the type of the service and spokesperson type (Bush, Moncrief & Ziethaml, 1987; Stafford, Stafford, & Day, 2002). Stafford, Stafford, & Day (2002) suggest that hedonic services may benefit the most from the spokesperson effect. In their study on managing typeface impressions, Henderson, Giese & Cote (2004) refer to spokesperson research. They highlight the similarities between the measurement of responses to celebrity endorsers as the message advocates and responses that Osgood, Suci & Tannenbaum (1957), Mehrabian & Russel (1974), and Ohanian (1990) study about typeface perception. The similarities are noticeable in the evaluation, pleasantness, and

attractiveness dimensions. Accordingly, the following interaction is proposed:

- **H3:** Typeface figuration will be more beneficial when hedonic features as compared to utilitarian features of the product are highlighted.

Method

Design and stimuli

With the intention to test the formulated hypothesis, a 2 (typeface rhetoric: figuration vs. no figuration) × 2 (type of product: utilitarian vs. hedonic) between subjects' design experiment was conducted. Before the main study, preliminary tests were carried out to evaluate certain characteristics that will be included in the design stimuli. In the pretest, 26 undergraduate students were asked to evaluate gradation of typeface figuration, type of the product and brand names. The perceived typeface figuration was tested on four dimensions: complexity, likability, passiveness, and attention-grabbing, corresponding to attribute scale and taxonomy of rhetorical figures developed in previous studies (Henderson, Giese & Cote, 2004; McQuarrie & Mick, 1996). For the product type evaluation, we considered a modified semantic differential scale developed by Voss, Spangenberg & Grohmann (2003). On the five-point scale on ten items, participants rated ice cream as a hedonic product, whereas toothpaste was a utilitarian product. According to literature, there is a strong relationship between figuration in the pictorial part and consumer response (Delbaere, McQuarrie & Phillips, 2011; Gkiouzepas & Hogg, 2011). If picture rhetorical figuration is not controlled in the experiment, it will provide the superior effect of the picture over other ad elements. For this reason, an additional pretest was conducted to evaluate the level of picture figuration using a seven-point semantic differential scale with two end points "artful, clever" "plain, matter of fact" (McQuarrie & Mick, 1996). Based on the assessment of these two scale items, the averaged value was used as an indication for picture realism (Cronbach's alpha $\alpha = .83$). The final pretest evaluated fictional brand name for neutrality on one-seven-point differential scale. The brand name "Batat" was found to be neutral for the utilitarian product ($M = 3.78$) and "Melian" was neutral for the hedonic product ($M = 4.02$).

The data acquired in the preliminary tests were used to construct two sets of target advertisements (Figure 4). Professional graphic designers were consulted for a design of the ad stimuli. The pictorial part of the targeted ads, the brand name and the copy (verbal cue) were the same in both treatment groups. Additional three advertisements, promoting different product types (a fabric softener, coffee, museum) were also designed based on the guidelines for target ads. These advertisements had a role of filler advertisement where typefaces for slogans had different levels of figuration. The aim was to produce a variety of letter shapes so that an unequal amount of attention would not be directed at the two target ads.

Independent variables

Following prior research (Gkiouzepas & Hogg, 2011; Henderson, Giese & Cote, 2004) the typeface of the ad headline was manipulated. The typeface manipulation used nonfigurative (no stylization) and figurative (stylisation in the form of a trope) characteristics acquired in the pretesting study. Independent trained judge in visual rhetoric categorised each of the typefaces in the pretest according to Mcquarrie & Mick (1996) taxonomy of rhetorical figures to match the perceived complexity to rhetorical operations. Typefaces that were rated most complex by participants corresponded to the most irregular rhetorical operations from the taxonomy. This procedure yielded metonymy as the most irregular form in the sample. Each of the target ads, for a specific condition (hedonic vs. utilitarian), was created in two versions. One version was where the rhetorical figure was present in a typeface design (“treatment”), and one version where that figure was

removed (“control”) (see Table 1). Participants viewed one version of each of the target ads (one treatment and one control ad for each product type). The two ads from the treatment condition contained a trope (metonymy), and two ads without the treatment contained a typeface without figuration. The product type conditions were distributed among groups of participants respectively.

Measures

Eye tracking methodology. Eye movements are indicators of visual attention (Deubel & Schneider, 1996; Wedel & Pieters, 2000). Visual attention is measured through fixations which are states where eyes fixate on the observed object or area. When the interest is to find out the eye gaze intensity on the particular location (e.g., key elements of advertisements), then individual fixations are accumulated to provide density and duration measures. In this regard, most commonly used measures are fixation frequency and total fixation duration (Wedel & Pieters, 2008). Fixation frequency represents the spatial distribution of fixations (Duchowski, 2007). They are an indicator of the number of fixations on a specific feature of the stimulus (region of interest–ROI). Measurement of the frequency of fixations that fall in the region of interest enables to determine the coverage of the respective part. These measures are then correlated with the subjective measure on the informativeness of the stimulus. Total fixation duration is a parameter that is defined as the total duration of all the fixations on the stimulus or ROI. This measure provides information about the extent of the cognitive and perceptual dedication to that stimulus (Rayner, 1998, 2009).



Figure 4. Example stimuli. Ice cream ad copy “For your pleasure”; toothpaste ad copy “Non-stop protection”.

Table 1. Target ads and manipulations

Product type	Type of figure	Figuration	Description of rhetorical figure
Hedonic	Trope	Metonymy	<i>Visual metonymy</i> : patterns of letter forms are altered so it presents chocolate drips.
	No figure	None	Patterns of letter forms have no alternation.
Utilitarian	Trope	Metonymy	<i>Visual metonymy</i> : patterns of letter forms are altered to depict a mark made by a stamp of approval.
	No figure	None	Patterns of letter forms have no alternation.

For this research, target advertisements were divided into regions of interest (ROI) according to the key element of advertisement (text, picture and logo). Using measures of fixation frequency [count per selected region] and total fixation duration [sec] we gathered detailed information about which regions most effectively captured attention. For collecting data on eye movements, we used Tobii X120 with the accompanying Tobii Studio 3.1.3 software. This device uses infrared light to illuminate the eyes of the viewer. Infrared sensor on the device's display collects the resulting reflections and delivers them to the software to estimate eye positions (Djamasbi, Siegel, & Tullis, 2010; Tobii White Paper). Eye movements are assembled with 120Hz frequency and then processed for calculation of eye fixation frequency and duration.

Attitude scales. The attitude toward the ad was measured as the overall reaction to the advertisement using a five-point Likert scale (Mackenzie, Lutz, & Belch, 1986) with three items: likeable, favourable and interesting (Cronbach's alpha $\alpha = .71$). Attitude toward the brand was measured with a five-point Likert scale with two items: favourable and good (Cronbach's alpha $\alpha = .80$). Finally, purchase intention, as a probability to purchase the advertised item when it becomes available in stores, was measured using a five-point Likert scale with two items: probable and possible (Cronbach's alpha $\alpha = .93$).

Participants and procedure

In this study 65 undergraduate students from University of Ljubljana voluntarily took part. All the participants had a normal or corrected vision and normal colour vision. The experimental procedure took place in an isolated room with matt grey walls according to ISO 3664 (2015). Upon entering the room, participants were assigned to one of the treatment groups. The control group viewed advertisements without typeface figuration; the experimental group viewed the advertisements where a typeface was manipulated with a rhetorical figure. Both treatment groups viewed advertisements for utilitarian and hedonic products. Before the start of the experiment, each participant was allowed to adjust to the light conditions in the room, followed by 9-point calibration on the screen. From there on, introduction pages appeared on the screen after which came a test advertisement. Clicking a mouse button they would proceed to attitude and intention rating scales. Once the participants confirmed they understood the procedure, five advertisements were shown to them, stylistically designed as the majority of advertisements printed in magazines. Participants were instructed to flip through the advertisements at their pace. Among these advertisements were the two target ads, one for each target product type. The presentation of ad stimuli was randomised across participants. At the end of the experiment, the authors thanked each participant for their involvement.

Results

Effects of typeface figuration on attitude

Considering the type of the date in the case of a Likert scale, Mann-Whitney U test was used for the analysis. The nontreatment group rated ads lower on the likability scale ($Mdn = 4$; $Mean\ rank = 26.77$) than participants in the treatment group ($Mdn = 4.5$; $Mean\ rank = 39.42$). Mann-Whitney U value was found to be statistically significant $U = 322$ $z = -2.909$, $p = 0.004$ and the difference between the treatment and nontreatment group was medium ($r = 0.36$). The attitude toward the brand for the likability dimension also showed statistically significant result: nontreatment group ($Mdn = 4$; $Mean\ rank = 25.21$); treatment

group ($Mdn = 4$; $Mean\ rank = 41.03$), $U = 271$, $z = -3.583$, $p < 0.001$, $r = 0.45$. When evaluating how good the advertised product is, participants in the treatment group provided better ratings ($Mdn = 4$; $Mean\ rank = 38.19$) than the nontreatment group ($Mdn = 4$; $Mean\ rank = 27.97$) where the statistical significance was obtained $U = 362$, $z = -2.362$, $p = 0.02$, $r = 0.28$. Additionally, the purchase intention for the probability dimension was found to be statistically significant where the participants rated ads better when the rhetorical figures were applied to the typeface ($Mdn = 4$; $Mean\ rank = 38.36$; $Mdn = 3$; $Mean\ rank = 27.80$), $U = 356$, $z = -2.321$, $p = 0.02$, $r = 0.28$. Main effects for other dimensions are not interpretable and will not be discussed further.

Table 2. Mediating effect of typeface figuration on attitude and intention dimensions across product types (hedonic vs. utilitarian)

Attitude toward ad						
	Hedonic			Utilitarian		
Variable	Model Fitting Sig.	R-Square Nagelkerke	Parameter Estimates Location Sig.	Model Fitting Sig.	R-Square Nagelkerke	Parameter Estimates Location Sig.
<i>Likeable</i>	.003	.144	.004	.650	.003	.651
<i>Favourable</i>	.060	.058	.063	.484	.008	.485
<i>Interesting</i>	.790	.001	.790	.537	.006	.536
Attitude toward brand						
	Hedonic			Utilitarian		
Variable	Model Fitting Sig.	R-Square Nagelkerke	Parameter Estimates Location Sig.	Model Fitting Sig.	R-Square Nagelkerke	Parameter Estimates Location Sig.
<i>Likeable</i>	.000	.213	.000	.339	.015	.339
<i>Good</i>	.018	.091	.020	.860	.001	.860
Purchase intention						
	Hedonic			Utilitarian		
Variable	Model Fitting Sig.	R-Square Nagelkerke	Parameter Estimates Location Sig.	Model Fitting Sig.	R-Square Nagelkerke	Parameter Estimates Location Sig.
<i>Likeable</i>	.017	.088	.018	.776	.001	.776
<i>Good</i>	.258	.021	.259	.687	.003	.687

To determine whether the figurative typography mediated the attitude, we conducted an additional ordinal regression analysis using the type of the product and gradation of figuration as independent variables with attitude dimensions as dependent variables. Table 2 shows the results of the regression analysis. The results show that perceived difference between groups, according to regression coefficient, is statistically significant (direct influence of the figuration = -1.464 , $p = 0.004$, $R^2 = 0.144$) indicating the moderating effect of typeface rhetoric. Similar trend was revealed for the attitude toward the brand (direct influence of the figuration = -1.829 , $p = 0.000$, $R^2 = 0.213$), whereas the purchase intention had lower effect (direct influence of the figuration = -1.087 , $p = 0.018$, $R^2 = 0.088$). Thus, hypothesis 1 was supported.

Effects of typeface figuration on attention

In the second hypothesis, we expect a positive effect of the typeface figuration on attention. To test this assumption, we used a series of one-way ANOVA (analysis of variance) with fixation frequency and total fixation duration as independent variables. The main effect of figuration on fixation frequency was found to be not significant ($F < 1$) as was expected. On the other hand, participants in the treatment group paid significantly more attention to

figurative typeface than the ones in the control group (Table 3). Hence, the effect on the total fixation duration $F(1,45) = 8.481$, $p = 0.006$, $\eta p^2 = 0.15$, supporting the hypothesis 2.

One additional analysis was made to examine whether typeface figuration of the verbal cue had any influence on brand ROI (logo) viewing time. Analysis of variance (ANOVA) was used to determine if there was a significant difference in viewing time between the two treatment groups (Table 4). The difference was not found to be significant ($F < 1$) indicating that attention paid to the appearance of the verbal cue did not influence the viewing of the brand logo.

Interaction between figuration and product type

A two-way ANOVA (analysis of variance) between groups was performed for testing the interaction of typeface figuration and type of the product and the effect this interaction might have on the attitude components. First we will discuss the results of the effect on attitude toward the ad. Analysis revealed that the interaction between the typeface figuration and type of the product was statistically significant $F(1,126) = 4.642$, $p = 0.03$, $\eta p^2 = 0.03$. This reports that participants rated more positively an ad for a

Table 3. Means (M) and Standard Deviation (SD) of Attention Measures for Ad Copy Typeface ROI: Fixation frequency (Number of Fixations) and Total Fixation Duration (Total Looking Time in Seconds)

Treatment	Fixation frequency		Total fixation duration	
	M	SD	M	SD
Figuration	13.36	8.83	3.21	2.19
No figuration	13.2	6.96	2.32	1.13

Table 4. Means (M) and Standard Deviation (SD) of Attention Measures for Brand Logo ROI: Fixation frequency (Number of Fixations) and Total Fixation Duration (Total Looking Time in Seconds)

Treatment	Fixation frequency		Total fixation duration	
	M	SD	M	SD
Figuration	6.24	3.29	1.64	0.98
No figuration	6.93	4.56	1.55	1.08

hedonic product when the typeface figuration was used ($M = 4.38$) than when there was no figuration ($M = 3.82$). This effect was found to be insignificant in the evaluation of an ad for a utilitarian product, where the average values in both groups were approximately the same ($M = 2.72$; $M = 2.79$). Interaction was revealed for the attitude toward the brand $F(1,126) = 4.304$, $p = 0.04$, $\eta p^2 = 0.03$. The likeability of the brand was rated better by the participants in the treatment group for both types of products (hedonic: $M = 4.34$; $M = 3.61$; utilitarian: $M = 2.81$; $M = 2.67$). The results of the IVs interaction affecting purchase intention did not show statistically significant result $F(1,126) = 2.954$, $p = 0.08$, $\eta p^2 = 0.23$. Only the main effect of the product type was significant $F(1,126) = 51.133$, $p < 0.001$, $\eta p^2 = 0.23$. Overall, participants showed significant tendency to rate more positively their attitude when the hedonic product was advertised using a typeface figuration for the ad copy, supporting the hypothesis 3 (Figure 5).

Discussion

Implications and conclusions

The goal of this study was to examine the effectiveness of rhetorical figuration applied to a typeface in print advertisements that promote different product types. These effects were evaluated based on eye movements, attitudes and intentions of the viewers under incidental exposure to an advertisement (Figure 6). As credited by Wedel & Pieters (2008), attention has emerged as a major parameter in processing visual stimuli and should, therefore, be attended accordingly. Our attempt to measure and analyse attention to print advertisements in relation to typeface figuration, has been met with several inferences. Firstly, our findings indicate that consumers pay more attention to advertisements when the typeface used for a short verbal cue is depicted through a rhetorical figuration. Drawing from the literature, we argue that this preference is directed by the fact that individuals pay more attention to salient elements of advertisements which is in agreement with the bottom-up factors (Berger, Wagner & Schwand, 2012), especially in the low-involvement situations. Typefaces with extensive figuration can be descriptively placed in a complex letter group. These typefaces are distinguished by their persuasive character more than e.g. geometrical letterforms (Henderson et al., 2004). Moreover, Pieters,

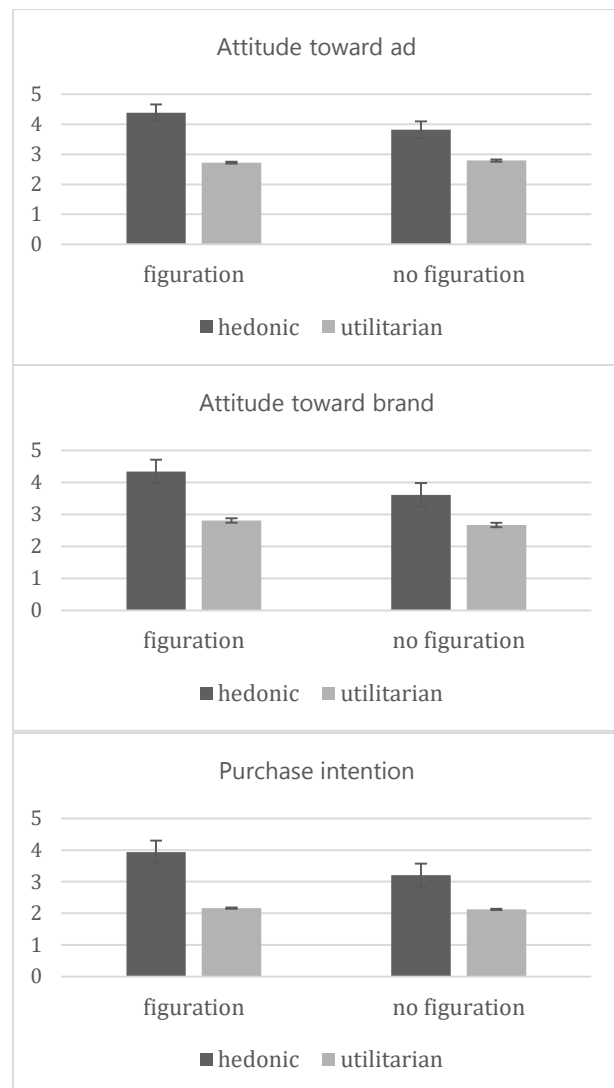


Figure 5. Attitude (Scale measure) as the function of typeface figuration and product type (condition: hedonic vs. utilitarian).

Wedel & Batra (2010) confirm a positive effect of design complexity on attention. Even though, a sample of advertisements in their study do not depict gradations of typeface figuration in the form of tropes (more complex forms), an application of their ad design principles has a universal character, and thus the complexity of a design can be seen as a structural variance within certain shapes and objects. Accordingly, rhetorical figures i.e. artful deviation (Corbett, 1990) applied to letter forms of a certain



Figure 6. Heat maps comparing the eye movements of the experimental and control group. From left to right: An ad promoting a hedonic product with slogan visually amplified with rhetorical figuration. An ad promoting a hedonic product with slogan visually without rhetorical figuration. An ad promoting a utilitarian product with slogan visually amplified with rhetorical figuration. An ad promoting a utilitarian product with slogan visually without rhetorical figuration.

typeface contribute to the design complexity and, consequently, to ad liking. We base our implications on Higgins, Leininger & Rayner's (2014) insights who explain that shorter ad headline, ornamented with figuration, leads viewers to perceive it as a stand-alone advertising element and not as a textual element. While watching the advertisement consumers might not adopt a reading but a "sampling" approach to the verbal cue. However, extensive complexity in letter forms may hinder letter recognition (Pelli et al., 2006) and may reduce motivation for pro-

cessing (Lowrey, 1998). Therefore, researchers and practitioners interested in the relationship between typeface figuration and attention need to consider readability of typeface manipulation as a control factor.

Additionally, the link between the complexity and ad comprehensibility should be reviewed. To comprehend an advertisement, consumers must first identify the brand being advertised. The results we obtained from duration fixations on brand logo ROI confirm that typeface figura-

tion did not have an impact on brand identification, suggesting that typeface rhetoric is not likely to hurt attention to a brand logo.

The second implication of this study refers to the main effect of the typeface figuration on viewers' attitudes where a positive effect was confirmed. Our findings align with those of Gkiouzepas & Hogg (2011) who investigated the outcomes of the visual rhetoric placed in the pictorial part of advertisements. Likewise to studies which imply that more complex design (Palmer, 1999) and original forms (McQuarrie & Mick, 2003) may visually engage the viewer and are liked more. Arguably, the importance of the relationship between a typeface, as a key element, and the predictive character of attitude dimensions resonates in the pretesting methodologies, such as diagnostic commercial pretesting (Mackenzie, Lutz, & Belch 1986). Thus our results contribute to the general literature of typeface impressions management.

Finally, we can discuss the interaction of the product type and the typeface rhetoric which was found to be significant. The interaction results showed that viewers have more positive reaction toward the ad for a hedonic product that chooses to "dress up" its verbal cue in a more complex typeface figuration. Although the interaction effect was insignificant for the conative attitude component (purchase intention), the main effect found for the product type to the probability of the purchase was significant for the hedonic product, which aligns with the previous findings of Roy & NG (2012). The results show that attractive and rhetorically charged typeface takes on the role of a spokesperson, levelling with a celebrity type (Stafford, Stafford, & Day 2002) and performing a significant effect on the reception of a hedonic product.

On the managerial front, our study can also provide some insights to advertisers. In time, viewers develop an attitude and preference toward visual content they are exposed to. Therefore, advertisers should consider how general design characteristics play an important role in decision-making process. To this end, the findings of this study indicate the significance of the typeface figuration when displaying the verbal cue of an advertisement. Notice to advertisers is that rhetorical figures applied to a typeface draw and retained attention. Based on the attitude component analysis, advertisers can expect to have more

positive ad and brand liking, as well as the probability of purchase intention. These inferences should be taken with caution. Products that promote hedonic characteristics interact better with rhetorically enhanced typefaces when the pictorial part is closer to picture realism, that is when picture figuration is not present. When promoting a utilitarian product, advertisers need not reject the possibility of typeface figuration, but the expected outcome might be less likeable. The same principle can be applied when the pictorial part is closer to picture realism than creative expression.

In conclusion, the findings of this study offer clear support to the prior theory of the positive impact of rhetorical figures, as well as to the effects of typeface characteristics. The results also reflect the impact and effect of enhanced typeface stylistic dimensions on attention when promoting products with hedonic benefits which, to our knowledge, has not yet been discussed in prior studies. Therefore, the contribution of our findings lies in bridging the gap in the literature between analytical studies about the semantic quality of typefaces and empirical findings. Further analysis of the semiotics of typography may benefit from these results, especially in the social and commercial communication context where typeface connotative dimensions are treated as a key element for meaning production.

Limitations and future research

Even though the results of this study contribute to advertising literature, there are still several limitations to apprehend. First, we did not measure over an extended array of figures but used only one gradation of rhetorical figures (metonymy). One reason to apply this particular figuration lies in its confirmed positive effect on consumer response (Eco, 1973; Gkiouzepas & Hogg, 2011). Although we used only one type of the stylisation of the typeface, we presume no effect on this part since the figuration used is the focus of attention. The aesthetic quality of the metonymy concept is familiar to viewers which should contribute to the generalizability of our findings to a certain extent. Future research might thus consider testing other figuration gradations that might provide superior results, or reveal an instance when the effect of such manipulation is nullified.

Another limitation is given in using a single visual figuration–realistic symbiosis (Gkiouzepas & Hogg 2011). The positive effect of visual rhetoric in advertisements has been well documented. Nonetheless, it would be interesting to measure attention and persuasiveness of advertisement elements when both pictorial part and appearance of the verbal cue are rhetorically enhanced. These future hypotheses would also align with empirical findings of homogeneity and ad congruence (Childers & Jass, 2002). However, when we consider different advertising contexts (situational variables), eye tracking research can be extended by testing visual figuration combining multiple levels of advertisement layout and exposure (involvement). Furthermore, participants in this study were exposed to an ad stimulus only once. Repeated exposures might alter results regarding the aesthetic experience of the verbal cue. Potentially significant future investigations should consider persuasiveness of advertisements that “dress up” their verbal cue within the visually oversaturated environment.

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