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The influence of scientese on ad credibility and ad liking

A cross-cultural investigation of ads for beauty products

Keywords: scientese, scientific jargon, credibility, advertising, beauty products, cross-cultural research

Current advertising for beauty products makes abundant use of scientese – scientific jargon in statistical and/or verbal form. As of yet, no study has examined the impact of scientese in an advertising context. Therefore, an experiment was designed to investigate the credibility and liking of ads for different beauty products with and without scientese. The study assesses effects in a culture likely to be susceptible to scientese because of its large power distance and high uncertainty avoidance (Wallonia) and in a culture less likely to be susceptible to scientese (the Netherlands). Dutch ($n = 72$) and Walloon ($n = 60$) participants judged different ads for beauty products, with or without different forms of scientese. In both cultures, ads with scientese were found to be more credible but less liked than ads without scientese.

Current advertising for beauty products uses scientific jargon to support product claims. Figure 1 presents an excerpt from a prototypical print advertisement for beauty products.

Apart from a close-up of the celebrity endorser Claudia Schiffer (not shown in Figure 1), the ad shows a small tube, and a large amount of text. The text displays



Express eye intervention:
Brighten dark, hollow-looking circles
and fill wrinkle furrows.

NEW COLLAGEN FILLER EYE

ANTI-DARK HOLLOW CIRCLES* + ANTI-WRINKLE

- ✦ **SOFT REFLEX TEXTURE**
Developed to brighten dark, hollow-looking circles, with light reflecting micro-pearls.
- ✦ **COLLAGEN BIOSPHERES**
That inflate up to 9x their volume on contact with water to help fill wrinkle furrows.
- ✦ **RESULT**
Wrinkles appear reduced.
Dark, hollow-looking circles appear brighter.

BECAUSE YOU'RE WORTH IT.

@ Discover your ideal skincare programme at www.lorealparis.com

FROM AGE 30, TARGETED ANTI-WRINKLE* ACTION

DERMO-EXPERTISE, FROM RESEARCH TO BEAUTY.
We collaborate with dermatologists worldwide, developing products that undergo testing supported by scientists and are evaluated by consumers.

L'ORÉAL PARIS

*Collagen Filler Eye has been developed to reduce the appearance of wrinkles and brighten dark, hollow-looking circles. It has not been proven to permanently reduce or brighten them.

Figure 1. Excerpt from an advertisement for l'Oréal (MarieClaire, UK edition, April 2007).

references to scientific research (e.g., “testing supported by scientists”), scientific vocabulary (e.g., “collagen biospheres”, “micro-pearls”), the suggestion of scientific exactitude and statistical reliability (“After 7 days of use: skin smoother 98%”), and other characteristics of scientific discourse, such as the use of asterisks, bullets and the microscope view of the collagen biospheres.

Apparently, advertisers think that consumers are favorable to this abundance of what Haard, Slater and Long (2004, p. 412) call *scientese*: “the use of scientific jargon to create the impression of a sound foundation in science for claims, without substantive empirical evidence to support the jargon used.” Especially in the field of wellness, beauty, and hygiene products, the amount of scientese is overwhelming (Dresen & Van Mulken, 2006). How consumers respond to scientese is still unknown. The present study is the first investigation of the effects of scientese in ads for beauty products. In order to examine the robustness of the possible effects of scientese, the study compares participants from a culture that is likely to be sensitive to scientese (Wallonia) with participants from a culture that is less likely to be sensitive to scientese (the Netherlands).

Scientese and ad credibility

Advertisements overtly try to sell products, services, and ideas to people, organizations, and companies. Although ads present such products and services as attractive, convenient, or interesting to the receivers, they also typically serve the sender’s own interest. As a consequence, receivers do not always believe the claims that are put forward in ads (e.g., Alwitt & Prabhaker, 1992; Munch, Boller, & Swasy, 1993; Shavitt, Lowrey, & Haefner, 1998), or the motives of the advertiser (Obermiller & Spangenberg, 1998). Shavitt et al. (1998), for instance, show that 52% of their American respondents generally do not think ads are credible.

Different studies have addressed the issue of how the use of endorsers can enhance the credibility of advertisements, such as celebrities (Kamins & Gupta, 1994), attractive people (Kamins, 1990), typical consumers (Freiden, 1984), and experts (Maddux & Rogers, 1980). Of these endorsers, experts are particularly well-positioned to enhance the credibility of an ad. A large, empirical body of research has demonstrated that the expertise of the source that advocates a position can influence readers (e.g., Cialdini, 2001; Homer & Kahle, 1990; Maddux & Rogers, 1980; Petty, Cacioppo, & Goldman, 1981), especially if these readers are not motivated and/or not able to process the persuasive message carefully (Petty & Cacioppo, 1986). In Petty et al. (1981), for instance, the message advocated by a high-expert source (a commission chaired by a university professor) was more persuasive than the same message advocated by a low-expert source (a local high school class) for participants for whom the message was less relevant. This finding is representative of the research literature: the meta-analysis of Wilson and Sherrell (1993) demonstrates that high-credibility sources are generally more persuasive than low-credibility sources. Pornpitakpan (2004) reaches the same conclusion in a more recent (narrative) review of research on source credibility. The use of an expert source, however, is not a guarantee for successful consumer responses to a persuasive message. In some circumstances, a low-credibility source is more persuasive. Factors such as the likeability of the expert (Ziegler, Diehl, & Ruther, 2002) and the quality of arguments put forward (Bohner, Ruder, & Erb, 2002; Tormala, Briñol, & Petty, 2006) have proven to affect the impact of expert endorsers.

The use of expert endorsers – characteristic of mid-twentieth-century advertising (Pracejus, Olsen, & O’Guinn, 2006) – appears to have changed in the course of the last few decades. In fact, a content analysis of advertisements shows that current advertising has moved

beyond expert endorsers and uses a more varied range of features to enhance credibility. In a sample of 844 advertisements for wellness, beauty, and hygiene products in Dutch family magazines from 1925 until 2005, the quantity of references that hint at scientific credibility has been found to have increased dramatically (Dresen & Van Mulken, 2006). Dresen and Van Mulken report an increase in the number of phrases such as “established in our laboratories”, “research has shown”, jargon (“lanoline-extract”, “amino-acids”), statistical references, and a style that refers to scientific reports, such as notes, asterisks, and bullets. The same increase occurs for the visual domain, such as the clinical atmosphere (the sterile layout), the depiction of scientific objects (microscopes and microscopic enlargements), formulas, plots, and quality control labels. The average number of such references per ad in this product category increased significantly from 0.17 in the 1990s to 0.28 at the beginning of the 21st century (Dresen & Van Mulken, 2006).

This paper refers to the textual references as “scientese” (cf., Haard et al., 2004), and distinguishes between statistical scientese (observed in 31% of the ads in the 2005 sample) and verbal scientese (observed in 51% of the ads in the 2005 sample). Dresen and Van Mulken (2006) reported a substantial increase in the use of both statistical and verbal scientese in the last decade of the 20th century. A possible explanation for this increased use of scientese is the belief that such jargon is effective in persuading the audience of the credibility of the product claims put forward. Haard et al. (2004) demonstrate that scientese may indeed affect the effectiveness of texts. In their study, participants read four texts that promoted a different medical treatment. For three of the four promotional texts, the versions with verbal scientese were found to be more effective than the ones without such scientese. As of yet, no study has reported on the effectiveness of scientese in advertising. In line with the general credibility effect found for expert endorsements,

this study expects that the use of scientese enhances ad credibility.

H1: Ads with scientese are more credible than ads without scientese.

Scientese and ad liking

If ad credibility is likely to increase with the use of scientese, ad liking (attitude towards the ad) is likely to decrease for two reasons. In the first place, advertising has become increasingly visual (e.g., Phillips & McQuarrie, 2002; Scott, 1994; Van Mulken, 2006), containing fewer words than before. In a corpus of Dutch magazine advertisements, for instance, Van Gisbergen, Ketelaar and Beentjes (2004) show that in 75% of the ads the size of verbal copy is less than a quarter of the total surface of the ad. Ads with scientese contain a large amount of textual references that readers may not appreciate. In the second place, a specific characteristic of scientese is that it is hard to understand, whether it consists of jargon or statistical facts (cf. Haard et al., 2004). For these two reasons, consumers are likely to prefer ads without scientese to ads with scientese:

H2: Ads with scientese are less well-liked than ads without scientese.

Scientese and culture

A growing number of studies addresses the relationship between culture and advertising (see overviews of Soares, Farhangmehr & Shoham, 2007; Gelbrich & Roschk, 2008). Cross-cultural studies suggest that the expected effects of scientese may differ from culture to culture. In fact, a number of scholars have argued that culture affects the impact of expertise and credibility on judgments and persuasion (Jung & Kellaris, 2006; Morimoto & La Ferle, 2008; Pornpitakpan, 2004;

Pornpitakpan & Francis, 2001). Although little research has investigated the impact of culture in this domain (Pornpitakpan, 2004), some studies demonstrate that experts have more impact in large as opposed to small power distance cultures (Hornikx & Hoeken, 2007; Pornpitakpan & Francis, 2001). Hofstede (2001, p. 98) defines power distance as “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally.” People in large power distance cultures accept more easily than people in small power distance cultures that expert sources possess more knowledge than they do themselves. The use of scientese suggests that the source of the message is knowledgeable (Haard et al., 2004). Therefore, people in large power distance cultures may appreciate scientese because, by referring to scientific evidence provided by laboratories and universities, it appeals to authority and expertise. Scientese could also be relatively more effective for people from a culture that is characterized by high uncertainty avoidance, defined as the “extent to which the members of a culture feel threatened by uncertain and unknown situations” (Hofstede, 2001, p. 161). People from high uncertainty avoidance cultures are known to rely more on experts than people from low uncertainty avoidance cultures, because experts can serve to reduce uncertainty (Hofstede, 2001).

The present study investigates the credibility and liking of scientese in two cultures, the Walloon culture and the Dutch culture. Wallonia is the French-speaking part of Belgium, a nation that has a relatively large power distance, and high uncertainty avoidance (Hofstede, 2001). The Netherlands has a relatively small power distance, and low uncertainty avoidance (Hofstede, 2001). The use of scientese is likely to have more impact on ad credibility in the culture with larger power distance and higher uncertainty avoidance:

H3: The effect of scientese on ad credibility is larger in the Walloon culture than in the Dutch culture.

As using scientese probably has a negative effect on ad liking (H2), this negative effect should be smaller in the Walloon culture than in the Dutch culture:

H4: The negative effect of scientese on ad liking is smaller in the Walloon culture than in the Dutch culture.

Method¹

Material

The ads in the experiment were taken from an initial pool of ten black-and-white ads for different beauty products such as make up, creams, and lotions. The visual representations of these products were adapted from ads that had appeared in French or Dutch women's magazines. Two of the ten advertisements did not pass an authenticity pretest with 13 participants. Each of the remaining eight ads received an invented brand name (Chy, Aptu, Naya, Isle, Vox, Opal, Renira, and Phty), and was manipulated into four versions. The four versions of each ad were identical in terms of the brand name, the product displayed, the brand slogan, layout, and font. They differed only in the scientese that was present: no scientese, verbal scientese, statistical scientese, or a combination of both types of scientese. The interest was not so much in one particular variation of scientese, but rather in generalizing across variations of scientese that were identified by Dresen and Van Mulken (2006). Verbal and statistical scientese had two different instantiations that were based on texts taken verbatim from real beauty ads. For the two verbal scientese instantiations, the texts contained references to research centers, laboratories and scientific institutions, and displayed Latinized terms and jargon (see Table 1).

Table 1. The two instantiations of verbal scientese, and of statistical scientese.

Verbal scientese 1	Phyto-flavone and hypoallergenic extract. Dermatologically tested, contains no comedogen. Efficacy tested by dermatologists in eight hospitals in Europe.
Verbal scientese 2	[Brand] has been created by the Laboratories of Fundamental Research in Isle. Optimal protection is guaranteed by Tinosorb M, as a result of the latest dermo-cosmetical findings. [Brand] proves to be one of the best dermo-reparatory products. [Brand] is enriched with exclusive oligo-elements, which are active in the heart of the cellular matrix to stimulate the natural production of collagen, elastin and glycan. A mix of toning activators work for the well-being of the skin: the leaf of the neem tree, anti-free radical and regenerating magnalys leaves.
Statistical scientese 1	Immediate hydration: 93%*. Hydration during the day: 92%**. *concentred in one treatment and brought to concentration with EPPT. **tested on 100 women, during three weeks. % of women agreeing.
Statistical scientese 2	Results: Efficacy of replenished skin 80%*. Effectiveness of calmed skin 73%**. After 7 days of use: skin smoother 98%, shinier 75%, tenser 71%***. *Test of self-evaluation within 5 days, with 40 women. ** Clinical. test n.1030002 with 30 women – Pharmascan *** Tests in vitro

CREME

- Efficacité peau assainie 80%*

- Efficacité peau apaisée 73%**

Après 7 jours d'utilisation :

Peau plus lisse 98%,

lumineuse 75%,

grain de peau resserré 71% ***

CHY

CHY

Peau Sèche / Peau Normale et Mixte

*Test d'auto-évaluation à 5 jours auprès de 40 femmes.

**Test clinique n. 1030002 réalisé sur 30 femmes – Pharmascan

*** Tests in vitro

VOTRE PEAU A BESOIN DE CHY

The two instantiations of the statistical scientese contained numbers, percentages, and asterisks that referred to statistical information presented in a note in a smaller font at the bottom of the advertisement (see Table 1, and Figure 2).

Finally, the two instantiations of the combination of both types of scientese consisted of a combination of one of the two verbal scientese instantiations with one of the two statistical scientese instantiations. Back translation ensured equivalence between the original Dutch texts and their French translations.

Figure 2. Ad with Statistical Scientese (Walloon Version).

Participants

A total of 132 people, 72 Dutch and 60 Walloon, participated in the study. Only female participants took part in the experiment. For the Walloon participants, the average age was 24.83 ($SD = 10.7$; range: 15–58), whereas Dutch participants were on average 25.54 years old ($SD = 9.36$; range: 16–58); this age difference was not significant ($t(128) = 0.41, p = .69$). Of the Dutch participants, 72.2% had an academic degree or were pursuing one; for the Walloon participants, the percentage was 66.7% (these percentages were not different: $\chi^2(1) = 1.66, p = .68$).

Instrumentation

The introduction to the questionnaire explained that participants would engage in a research project of a Dutch university, investigating their attitude towards advertisements. The introductory text invited participants to read the advertisements as they would normally do. As the number of ads was relatively large, the two main dependent variables, ad credibility and ad liking, were measured with only two items each on 7-point scales. A pretest with multiple items for both variables was conducted to investigate what items to select. In this pretest, 18 Dutch participants judged the 16 ads on four elements that measured ad credibility (“I think this ad is credible”, “I think this ad is trustworthy”, “I think this ad is honest”, and “I think this ad is truthful”) and on five elements that measured ad liking (“This ad appeals to me”, “I think this ad is attractive”, “I think this ad is good”, “I think this ad is interesting”, and “My judgment about this ad is positive”). Both constructs presented good internal consistency: $\alpha = .85$ for ad credibility (range: .82 – .95) and $\alpha = .91$ for ad liking (range: .71 – .97). The actual experiment used “I think this ad is credible” and “I think this ad is trustworthy” for ad credibility

($\alpha = .89$; range: .87 – .92), and “This ad appeals to me” and “I think this ad is attractive” for ad liking ($\alpha = .86$; range: .78 – .91).

After the ad evaluations, participants expressed the degree to which they generally value information given by experts. Four of the six items of the Preference for Expert Information (PEI) scale (Hornikx & Hoeken, 2007) relate to people’s susceptibility to expertise: “If an expert says it is right, then it is right”, “Judgments of experts are very important to me”, “I prefer to base my decisions on the opinion of an expert”, and “The judgment of an expert needs to be believed”. This PEI scale proved to be reliable both for the Walloon participants ($\alpha = .86$) and the Dutch participants ($\alpha = .83$).

Design

The study had a 2 (nationality: Belgian, Dutch) by 4 (scientese: no scientese, verbal scientese, statistical scientese, and combined scientese) design, with nationality as a between-subjects factor, and scientese type as a within-subjects factor. Each participant judged eight manipulated ads, with two ads for each of the three scientese types and two for the no-scientese type. In addition to these eight ads, eight filler ads for other beauty products were inserted between the manipulated ads so as to conceal the purpose of the study. Four different versions of the booklet each contained eight manipulated ads and eight authentic filler ads in randomized order. In the four versions, the order of the eight manipulated ads was identical, but the specific type of scientese that they contained differed across the four versions. A Latin square design ensured the distribution of the four pairs of different scientese types over the eight ads and the four versions. For instance, each participant first viewed the ad for the Chy brand, but in each of the four versions another type of scientese was included in the ad.

Procedure and statistical tests

Five research assistants approached potential participants individually in and around one train station in Wallonia and in and around two train stations in the Netherlands. Filling in the questionnaire took the participants about 10 to 15 minutes.

Univariate analyses of variance with repeated measures assessed the effects of scientese and culture on ad credibility and ad liking.

Results

Preliminary analyses

Before conducting the analyses that were relevant to the hypotheses, it was first ascertained whether standardizing the scores was necessary (Baumgartner & Steenkamp, 2001; Johnson, Kulesa, Cho, & Shavitt, 2005). The Walloon participants ($M = 12.87$, $SD = 7.30$) did not use the endpoints (1, 2, 6, 7) of the scales more frequently than the Dutch participants ($M = 10.99$, $SD = 7.19$); $F(1, 130) = 2.21$, $p = .14$. Therefore, no standardization of the scores was necessary. Next, the Walloon participants did not differ from the Dutch on Preference for Expert Information (PEI): the Walloon scores ($M = 4.43$, $SD = 1.33$) were not significantly different from the Dutch scores ($M = 4.51$, $SD = 1.23$); $F(1, 127) < 1$. A final test investigated whether the three scientese types differed in credibility and liking. Ads with the three types did not differ in credibility (Walloon: $F(2, 58) = 2.19$, $p = .12$; Dutch: $F(2, 70) = 1.59$, $p = .21$) or in liking (Walloon: $F(2, 58) < 1$; Dutch: $F(2, 70) = 1.81$, $p = .17$). Therefore, the three scientese types were collapsed in order to compare the ads with scientese to ads without scientese. Table 2 provides the descriptive statistics for the scientese types in the two cultures.

Table 2. Ad evaluations in function of scientese type and culture (higher means indicate higher ad credibility or higher ad liking).

	Dutch ($n = 72$)		Walloon ($n = 60$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Credibility				
Ad without scientese	3.70	1.01	3.98	1.20
Ad with scientese	3.93	1.10	4.54	1.03
Verbal	3.96	1.25	4.56	1.26
Statistical	3.81	1.15	4.39	1.12
Combination	4.03	1.35	4.66	1.18
Ad Liking				
Ad without scientese	3.69	1.17	4.14	1.21
Ad with scientese	3.56	1.01	3.97	1.13
Verbal	3.50	1.12	4.04	1.23
Statistical	3.67	1.05	3.98	1.22
Combination	3.52	1.28	3.89	1.34

Ad credibility

There was a main effect for scientese type on ad credibility ($F(1, 130) = 19.14$, $p < .001$, $\eta^2 = .13$): participants perceived ads with scientese ($M = 4.21$, $SD = 1.11$) as more credible than ads without scientese ($M = 3.83$, $SD = 1.11$). Therefore, the data supported H1. A main effect of culture also occurred ($F(1, 130) = 7.00$, $p < .01$, $\eta^2 = .05$): the Walloons perceived the ads as more credible ($M = 4.40$, $SD = 0.98$) than the Dutch ($M = 3.88$, $SD = 0.98$). For H3, the interaction effect between scientese type and culture should have been significant (i.e., the difference between scientese and no scientese was expected to be larger for the Walloons than for the Dutch), but it was not ($F(1, 130) = 3.10$, $p = .08$).

Ad liking

There was a main effect of scientese type on ad liking ($F(1, 130) = 5.17$, $p < .05$, $\eta^2 = .04$): ad liking for the ads

with scientese ($M = 3.75$, $SD = 1.08$) was lower than for the ads without scientese ($M = 3.94$, $SD = 1.21$). Therefore, the findings supported H2. There was also a main effect of culture on ad liking ($F(1, 130) = 7.28$, $p < .01$, $\eta^2 = .05$): the Walloons ($M = 4.03$, $SD = 1.05$) liked the ads more than the Dutch ($M = 3.60$, $SD = 0.97$), but no interaction effect between scientese type and culture qualified this main effect ($F(1, 130) < 1$). Therefore, the findings do not support H4: the difference between scientese and no scientese was not smaller for the Walloons than for the Dutch.

Conclusion and discussion

Dresen and Van Mulken (2006) reported that the use of scientific jargon – scientese – is a popular strategy in current advertising for beauty products. The increased use of scientese suggests that it could be effective, but empirical evidence is lacking in this domain. The only study having examined scientese is Haard et al. (2004), a study in the domain of health communication that reported positive effects for the inclusion of scientese. As it is unknown how consumers respond to scientese in advertising, this study is the first investigation of the effect of scientese on ad credibility and ad liking.

Participants judged a number of ads for different beauty products that did not contain scientese or that did contain one of three types of scientese: statistical, verbal, and combined scientese. Since scientese provides support for claims about the beauty product, it was expected to enhance the credibility of the ad. Indeed, participants judged ads with scientese as more credible than ads without scientese (H1). Using scientese containing scientific jargon that consumers are unlikely to understand and that reduces the visual part of the ad was expected to have a negative impact on ad liking (H2). This hypothesis also found support in the study: participants liked ads with scientese less than ads without scientese. The data

suggest that the *nature* of the scientese (difficult jargon) rather than the *amount* of scientese contributes to this effect: ads that contained a larger amount of scientese (i.e., a combination of verbal and statistical scientese) were not significantly more disliked than ads with the shortest manipulation of (statistical) scientese.

The investigation adopted a cross-cultural perspective. Addressing the call for more research on culture and credibility (Pornpitakpan, 2004), the study examined scientese in a culture where it is more likely to be effective (Wallonia) and in a culture where it is less likely to be effective (the Netherlands). This study expected the effect of scientese on ad credibility to be larger (H3) and the negative effect of scientese on ad liking to be smaller (H4) in the Walloon culture than in the Dutch culture. The data did not provide support for either hypothesis. Whereas, for example, Pornpitakpan and Francis (2001) and Hornikx and Hoeken (2007) report cultural differences for expert endorsements, the present study on scientese could not corroborate such differences. The present finding may be interpreted as a sign of robustness of the effects: even in a culture that does not typically value expert endorsements (the Netherlands), providing scientese in ads for beauty products enhances ad credibility.

Limitations and future research

The study investigated the effects for beauty products only, because scientese is increasingly popular in ads for this kind of products (Dresen & Van Mulken, 2006). The results found in this study allow for a generalization to a number of products within this product category since participants judged several product ads, but replications would be welcomed that extend this research to other product categories that are known to rely on scientese, such as luxury products (e.g., cars and watches) and wellness and hygiene products (e.g., toothpaste, baby milk, and clothes).

In their study on scientese in a medical context, Haard et al. (2004) suggest that scientese may function as a heuristic cue, similar to consensus and the number of arguments. When ads are processed following the peripheral route, heuristic cues that are present in the ad are more likely to affect the outcome of the persuasion process (Petty & Cacioppo, 1986). In order to investigate whether scientese may indeed function as a heuristic cue – “scientific jargon is provided, so the message must be true” – future research may compare the effectiveness of scientese under conditions of central processing (e.g., conditions of high issue involvement) with conditions of peripheral processing (e.g., conditions of low issue involvement).

From a practitioner’s point of view, the mixed effects that this study finds – scientese makes ads more credible but less liked – encourage future research that may provide an answer to the question as to whether or not the use of scientese affects attitude toward the brand and purchase intention. The present study did not include these dependent measures, as a task requiring participants to respond to both measures for 16 ads was expected to be too demanding. Future research examining the relationships between ad credibility, ad liking, attitude toward the brand, and purchase intentions (cf., Choi & Rifon, 2002) is welcomed to enhance knowledge about the effects of scientese in advertising. Moreover, since the majority of the respondents were relatively highly educated, and since only female respondents were invited to participate, it is recommended that future research consider less-educated audiences and also male audiences.

Finally, another avenue for future research may be the study of the effects of *visual* scientese, such as the depiction of scientific objects (e.g., microscopes), formulas, and quality control labels. The use of visual scientese may enhance ad credibility as did the verbal and statistical scientese in the present study. In the case of visual scientese, the scientific objects and elements play a

rhetoical role: they convey a symbolic interpretation of science. The interplay of visual rhetoric and functionality has received much scholarly attention since the work of Bonsiepe ([1965]1996) who was the first to show the link between semiotics and visual design. Also, the visuals – probably less difficult to understand and more pleasant to look at – may positively affect ad liking, thereby maximizing the effects of scientese.

Note

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References

- Alwitt, L., & Prabhaker, P. (1992). Functional and belief dimensions of attitudes to television advertising. *Journal of Advertising Research*, 32, 30–42.
- Baumgartner, H., & Steenkamp J.-B. (2001). Response styles in marketing research: A cross-national investigation. *Journal of Marketing Research*, 38, 143–156.
- Bohner, G., Ruder, M., & Erb, H.-P. (2002). When expertise backfires: Contrast and assimilation effects in persuasion. *British Journal of Social Psychology*, 41, 495–519.
- Bonsiepe, G. ([1965]1996). *Interface: Design neu begreifen*. Mannheim: Bollmann.
- Choi, S. M., & Rifon, N. J. (2002). Antecedents and consequences of Web advertising credibility: A study of consumer response to banner ads. *Journal of Interactive Advertising*, 3. Retrieved April 1, 2011 from <http://www.jiad.org/article26>
- Cialdini, R. (2001). *Influence: Science and practice* (4th ed.). Boston, MA: Allyn and Bacon.
- Dresen, L., & Van Mulken, M. (2006). De witte jas in de reclame: Reclameboodschappen als bron voor veranderende beelden van experts en expertise in de hedendaagse samenleving. In B. Broekhans, A. Dijkstra, P. Groenewegen, & C. Koolstra (Eds.), *Verbeelding van kennis* (pp. 189–210). Amsterdam: Aksant.

- Freiden, J. (1984). Advertising spokesperson effects: An examination of endorser type and gender on two audiences. *Journal of Advertising Research*, 24, 33-41.
- Gelbrich, K., & Roschk, H. (2008). Cross-cultural advertising. In W. Donsbach (Ed.), *International encyclopedia of communication* (pp. 50-56). Malden, MA: Wiley-Blackwell.
- Haard, J., Slater, M., & Long, M. (2004). Scientese and ambiguous citations in the selling of unproven medical treatments. *Health Communication*, 16, 411-426.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.
- Homer, P. M., & Kahle, L. R. (1990). Source expertise, time of source identification, and involvement in persuasion: An elaborative processing perspective. *Journal of Advertising*, 9, 30-39.
- Hornikx, J., & Hoeken, H. (2007). Cultural differences in the persuasiveness of evidence types and evidence quality. *Communication Monographs*, 74, 443-463.
- Johnson, T., Kulesa, P., Cho, Y., & Shavitt, S. (2005). The relation between culture and response styles: Evidence from 19 countries. *Journal of Cross-Cultural Psychology*, 36, 264-277.
- Jung, J., & Kellaris, J. (2006). Responsiveness to authority appeals among young French and American consumers. *Journal of Business Research*, 59, 735-744.
- Kamins, M. (1990). An investigation into the "match-up" hypothesis in celebrity advertising: When beauty may be only skin deep. *Journal of Advertising*, 19, 4-13.
- Kamins, M., & Gupta, K. (1994). Congruence between spokesperson and product type: A matchup hypothesis perspective. *Psychology and Marketing*, 11, 569-586.
- Maddux, J., & Rogers, R. (1980). Effects of source expertness, physical attractiveness, and supporting arguments on persuasion: A case of brains over beauty. *Journal of Personality and Social Psychology*, 39, 235-244.
- Morimoto, M., & La Ferle, C. (2008). Examining the influence of culture on perceived source credibility of Asian Americans and the mediating role of similarity. *Journal of Current Issues and Research in Advertising*, 30, 49-60.
- Munch, J., Boller, G., & Swasy, J. (1993). The effects of argument structure and affective tagging on product attitude formation. *Journal of Consumer Research*, 20, 294-302.
- Obermiller, C., & Spangenberg, E. R. (1998). Development of a scale to measure consumer skepticism toward advertising. *Journal of Consumer Psychology*, 7, 159-186.
- Petty, R., & Cacioppo, J. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer.
- Petty, R., Cacioppo, J., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology*, 41, 847-855.
- Phillips, B., & McQuarrie, E. (2002). The development, change, and transformation of rhetorical style in magazine advertisements 1954-1999. *Journal of Advertising*, 31, 1-13.
- Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Social Psychology*, 34, 243-281.
- Pornpitakpan, C., & Francis, J. (2001). The effect of cultural differences, source expertise, and argument strength on persuasion: An experiment with Canadians and Thais. *Journal of International Consumer Marketing*, 13, 77-101.
- Pracejus, J., Olsen, G., & O'Guinn, T. (2006). How nothing became something: White space, rhetoric, history, and meaning. *Journal of Consumer Research*, 33, 82-90.
- Scott, L. (1994). Images in advertising: The need for a theory of visual rhetoric. *Journal of Consumer Research*, 21, 252-273.
- Shavitt, S., Lowrey, P., & Haefner, J. (1998). Public attitudes toward advertising: More favorable than you might think. *Journal of Advertising Research*, 38, 7-22.
- Soares, A. M., Farhangmehr, M., & Shoham, A. (2007). Hofstede's dimensions of culture in international marketing studies. *Journal of Business Research*, 60, 277-284.
- Tormala, Z., Briñol, P., & Petty, R. (2006). When credibility attacks: The reverse impact of source credibility on persuasion. *Journal of Experimental Social Psychology*, 42, 684-691.
- Van Gisbergen, M., Ketelaar, P., & Beentjes, J. (2004). Changes in advertising language? A content analysis of magazine advertisements in 1980 and 2000. In P. Neijens, C. Hess, S. Van den Putte, & E. Smit (Eds.), *Content and media factors in advertising* (pp. 22-37). Amsterdam: Spinhuis.
- Van Mulken, M. (2006). Towards a new typology for visual and textual rhetoric in print advertisements. In K. M. Ekstrom, & H. Brembeck (Eds.), *European advances in consumer research* 7 (pp. 59-65). Göteborg: Association for Consumer Research.
- Wilson, E., & Sherrell, D. (1993). Source effects in communication and persuasion research: A meta-analysis of effect size. *Journal of the Academy of Marketing Science*, 21, 101-112.

Ziegler, R., Diehl, M., & Ruther, A. (2002). Multiple source characteristics and persuasion: Source inconsistency as a determinant of message scrutiny. *Personality and Social Psychology Bulletin*, 28, 496–508.

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