Congruency effects of symbolic meaning in design and brand impressions:

Effects on product and brand evaluation

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Enschede

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Abstract

English

Consumers are facing an increasingly difficult task when they go out to buy a product in the supermarket as the competition among brands increases. Building on previous studies, this research has sought to investigate the influences of congruency of product and brand design with respect to symbolic meaning on product and brand evaluations, as well as the role of tolerance for ambiguity in moderating this relationship. The results from this study show that congruency effects in products design and brand impressions work differently than expected yet still confirm the influence of congruency among sources of product and brand information on judgments pertaining to the brand and the product. Finding no influence of tolerance for ambiguity, it is argued that risk and uncertainty avoidance may both be an important factor in consumer preferences for products and brands. In addition, it is argued that consumers may construe their brand impressions on a holistic basis, putting the importance of congruency among product and brand elements in a new perspective. Practical implications as well as recommendations for future research are discussed.

Keywords: Congruence, processing fluency, tolerance for ambiguity, symbolic meaning, product evaluations, brand evaluations.

Nederlands

Consumenten hebben het steeds moeilijker wanneer zij een product willen kopen in de supermarkt door de toestroom van met elkaar concurrende merken. Verder bouwend op vorig onderzoek, poogt dit onderoek de invloed van congruentie van symolische betekenissen in product en merk design op product en merk evaluaties, alsmede de modererende rol van tolerantie voor ambiguiteit, te bestuderen. De resultaten van dit onderzoek laten zien dat congruentie effecten van producten en merken anders werken dan verwacht, hoewel zij nog steeds de invloed van congruentie tussen bronnen van product en merk informatie op product en merk evalaties erkent. Hoewel de modererende invloed van tolerantie voor ambiguiteit niet gevonden wordt, is er aandacht voor risico en onzekerheids vermijding als verklaring voor de product en merk voorkeuren die gevonden zijn. Daarnaast wordt, als mogelijke verklaring voor de gevonden resultaten, gesteld dat consumenten wellicht hun merk impressies op een holistische manier samenstellen, waardoor het belang van congruentie tussen product en merk elementen in nieuw perspectief geplaatst wordt. Praktische implicaties en aanbevelingen voor toekomstig onderzoek worden besproken.

Steekwoorden: Congruentie, processing fluency, tolerantie voor ambiguiteit, symbolische betekenis, product evaluatie, merk evaluatie.

Introduction

Consumers are facing an increasingly difficult task when they go out to buy a product in the supermarket. Shelve space in stores is being used by ever more different brands. In every product category producers must compete for the consumer's favor with the limited means available in the supermarket. As technological gaps between companies are becoming smaller, judging products based on their differences with respect to features, cost or quality is becoming more and more difficult, thereby creating some opportunities with respect to product design and marketing (Veryzer, 1995). This has caused product producers and behavioral researchers to spend more attention to the influence other factors may have on the decision making process of consumers. Building on previous studies, this research investigates the influences of congruency of product and brand design with respect to symbolic meaning on product and brand evaluations, as well as the role of tolerance for ambiguity in moderating this relationship.

Product Design & Symbolic Meanings

The importance of product design has been addressed in research, arguing that product form has a major role in product approach and avoidance behavior in consumers (Bloch, 1995). Product design has also been understood to be part of marketing communication in which consumers can be persuaded to buy products through emotion eliciting product design (Seva et al, 2007). Furthermore, symbolic-aesthetic interaction which may lead to a myriad of different responses in consumers were recognized by Crilly et al (2004) who, in their study, recognize the role played by a product's physical elements in the determination of its symbolic meaning by the consumer stating that elements such as geometry, dimensions, textures and other aspects of a product, influence what symbolic meaning a consumer infers from its design. Design as a conveyer of symbolic meaning was further investigated by

Creusen & Schoormans (2005) who found that shape, color and size can influence a product's value mainly in terms of aesthetic judgments and symbolic meaning. A product, which features dark colors may for example, be preferred aesthetically by a consumer but may also elicit more negative responses based on the symbolic meanings the dark colors convey. Furthermore, research recognizes that the identity of a brand is also communicated to the consumer in its product designs (Schmitt & Simonson, 1997) and other visual elements such as typeface have been found to communicate semantic associations that influence the memory of a product (Childers & Jass, 2002). A finding that is further supported by research findings, which found that consumers attribute human characteristics to brands (Aaker, 1997; Batra & Homer, 2004) and products (Janlert & Stolterman, 1997; Karjalainen, 2007; Sirgy, 1982) which echoes arguments that brand impressions are influenced by holistic product impressions (Orth & Malkewitz, 2007).

The symbolic meaning of a product has been argued to be a key determinant in product selection by the consumer (Holbrook & Hirschman, 1982). Interestingly, Zhang et al's (2006) findings suggest that symbolic meaning can be embedded in a product's appearance as they found that *"rounded shapes are perceived as more harmonious and angular shapes as less"* (p.796). Combinations of symbolic meanings embedded within a brand or the shape of a product may be implicated in how a brand or product is perceived. This is especially important for fast moving consumer goods (FMCG's) since the opportunity, for this category of products, to communicate with the consumer is severely limited due to the nature in which they are sold (on the supermarket's shelves next to a myriad of competing products). The same principle holds true for brand information, which can be source of symbolic meanings, and can influence brand preferences, which naturally have a major role in product choice. This should be especially true for products that entail smaller (financial) sacrifices for people, such as the products encountered in the supermarket.

Using product design and additional brand information to sell products and familiarize people with a brand, this study is concerned with the congruency effects of symbolic meanings, embedded in the shapes of products as well as marketing communications, in consumer evaluations.

Congruency effects

Stimulus congruence concerns two or more stimuli (e.g. product packaging and brand image) that possess characteristics that either match or do not match. When the stimuli match on this particular characteristic (and can thus be said to be in a congruent state), processing fluency will be higher than when they do not. Perceptual fluency effects have been shown to influence judgments of truth (Reber & Schwarz, 1999; Unkelbach, 2007) in which statements which were high in processing fluency were judged to be truthful more often than statements which were low in processing fluency, and aesthetic pleasure (Reber et al, 2004) in which higher processing fluency influenced perceived beauty. Previous research has focused on the importance of stimulus congruence with respect to product design in which it was found that perceived unity had a significant positive effect on aesthetic responses (Veryzer & Hutchinson, 1998; Bloch, 1995). In addition, research focusing on congruency effects have also found positive effects for brand personality (Aaker, 1997), product personality (Govers & Schoormans, 2005), and transfer of brand image in which it was found that matching a sponsored event and a brand on an image or functional basis enhanced image transfer from one to the other (Gwinner & Eaton, 1999). Furthermore, Lee & Labroo (2004) show that contextual congruency, such as showing an advertisement for mayonnaise prior to an advertisement for ketchup, positively influence attitudes toward the ketchup, an effect described as a conceptual fluency. More recently, congruence effects among symbolic meanings of products have been studied in which congruence among symbolic meanings have

been found to positively influence brand and product evaluations (van Rompay et al, 2009). Van Rompay and colleagues (2009) found, for example, that when a bottle, with a shape that elicited natural impressions, was paired with a slogan that elicited natural impressions, it would be judged significantly more favorably than when its shape and slogan impressions were incongruent. These effects demonstrate the importance of perceived unity (Veryzer, 1993) and underline the importance of congruency among symbolic meanings embedded in products, brands and other means of communication toward the consumer.

Symbolic meanings may be perceived based on stimuli appearances (see Zhang et al, 2006) or some other aspects of the stimuli. When these symbolic meanings match, the stimuli can be said to be symbolically congruent which can have different effects. Symbolic congruence has for example, been shown to influence brand perceptions in which symbolically congruent stimuli caused differences in brand credibility and judgments of brand aesthetics (van Rompay & Pruyn, 2011), thus congruency effects can be a major influence on how consumers perceive a brand. Erdem & Swait (1998) underline the importance of clarity (described as the absence of brand information ambiguity) and consistency between and within elements of the marketing mix in reducing uncertainty and improving brand credibility. This notion is made even more salient by findings that improved brand credibility can also influence brand choice and consideration (Erdem & Swait, 2004). This consistency among and within marketing mix elements ultimately seems a major influence on the formation of brand credibility, an effect that corresponds with van Rompay & Pruyn's (2011) findings that congruence among symbolic meanings influence brand credibility. This construct, that has been shown to influence price sensitivity (Erdem et al, 2002) and produce more positive word-of-mouth as well as increase consumer loyalty (Sweeney & Swait, 2008), seems to be caused by congruence among marketing mix elements which provide consumers with consistent and

clear information about the brand. Therefore, it is expected that congruence among sources of brand information will positively influence brand evaluations. Similarly, congruence among sources of product information will positively influence product evaluations. Ludwig (2009) has studied the relationship between brand and product, focusing on the influence of impression congruence of a manipulated brand and product, which yielded enhanced evaluations for congruent situations. Though some research has been done to evaluate the effects of product-brand congruency, subjects have been argued to base their brand evaluations solely on product appearance since, lacking other sources of brand information, subjects can only derive information about the brand from the presented product (van Rompay et al, 2009). This study addresses the effects of brand-product congruence on a larger scale, providing subjects with an additional source of brand information before they are exposed to the product. The sources of brand information were assumed to be the brand's logo as well as the presented office type since both can be used in isolation to communicate toward the consumer about the brand. The sources of product information were, in turn, assumed to be the bottle shape and the brand's logo, since these are presented at the same time and are thought to be processed holistically. The logo, thus, can be identified as a somewhat ambiguous source of information by which, depending in which context it is shown, it can become a source of brand or product information.

> **H1:** Congruency among sources of brand information (office and logo type) will positively influence brand evaluations. Incongruency among sources of brand information will in turn, negatively influence brand evaluations.

H2: Congruency among sources of product information (bottle shape and logo type) will positively influence product evaluations. Incongruency among sources of product information will in turn, negatively influence product evaluations.

Furthermore, since improved brand credibility can influence brand choice and consideration (Erdem & Swait, 2004) and it was found that brand credibility is influenced by congruence among symbolic meanings (Becker et al, 2011), it is also expected that congruence among sources of brand information will positively influence brand reliability and purchase intentions.

H3: Congruency among sources of brand information (office and logo type) will positively influence perceived brand reliability. Incongruency among sources of brand information in turn, will negatively influence perceived brand reliability.

H4: Congruency among sources of brand information (office and logo type) will positively influence future purchase intentions. Incongruency among sources of brand information in turn, will negatively influence future purchase intentions.

Consumer Personality

Recently, van Rompay et al. (2009) discovered the discriminate (in)congruency effects of 'advertising slogan-product shape' in relation to tolerance for ambiguity (which is reflected in the personal need for structure; a construct that is described by Neuberg & Newsom (1993) as best describing a preference for an amount of cognitive activity. Neuberg & Newson (1993) describe personal need for structure as a relatively orthogonal construct with need for cognition (i.e. a person high in need for cognition prefers to invest a large amount of cognitive

activity whereas a person high in personal need for structure has a high preference for simple structure of cognitive capacity).Van Rompay and colleagues(2009) found negative effects in impression formation caused by incongruencies that were particularly strong for subjects low in tolerance to ambiguity. The incongruencies were said to be particularly distressing for this group of people. Therefore, it is expected that all the expected congruency effects are moderated by thetolerance for ambiguity of the subjects.

H5: All congruency effects are moderated by the subjects' tolerance for ambiguity in which incongruency among elements will result in lower evaluations by those low in tolerance for ambiguity.

Additional Research Questions

In addition to the main research questions, the influence of design on taste perceptions was also studied. Based on Becker et al (2011), effects of symbolic meaning in design are expected to influence taste perceptions. In this research, the symbolic meanings of the material is expected to influence subjective taste experiences. For example, materials that convey natural impressions based on their symbolic meaning are expected to influence subjective taste experiences in favor of more natural impressions. Alternatively, materials that convey artificial impressions based on their symbolic meaning are expected to influence subjective taste experiences in favor of more artificial impressions.

Methods and Procedure

This study uses a 2 (Brand information) x 2 (Product shape) x 2 (Brand logo) x 2 (Personal need for structure) design. Participants were asked to participate in a consumer research to test a new kind of soda drink. Participants were recruited at the University of Twente.

Pretests

Bottle Impressions

Bottle impressions were pre-tested by means of a questionnaire (See Appendix A) to gauge the extent to which the advertised product was perceived to look natural vs. artificial. Two items were used for analysis due to their high face validity: *"The design of this bottle gives me a natural impression"* and *"The design of this bottle gives me an artificial impression"*. Items were scored on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Analysis showed significant differences among natural impressions ($p < 0.01$) and artificial impressions ($p < 0.01$) when comparing the "artificial" bottle with the "natural" bottle, see Table 1 for the means and standard deviations.

	Natural impressions		**Artificial impressions**	
	Mean	SD	Mean	SD
Artificial bottle	1.17	0.22	3.97	0.82
Natural bottle	1.25	0.23	3.14	1.06

Table 1:*Means and standard deviations for two conditions (natural and artificial impressions bottle) in two bottles (artificial vs. natural).*

Logo Impressions

Logo impressions were pre-tested by means of a questionnaire (see Appendix A) to measure the impressions the logo elicits (natural vs. artificial). Two items were used for analysis due to their high face validity: *""I think this brand mainly produces natural products*" and *"I believe I will mostly see this brand on artificial products".* The items were scored on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Analysis showed significant differences among natural impressions ($p < 0.001$) and artificial impressions ($p < 0.001$) when comparing the "artificial" logo with the "natural" logo, see Table 2 for the means and standard deviations.

	Natural impressions		**Artificial impressions**	
	Mean	SD	Mean	SD
Artificial logo	1.64	0.78	3.57	1.35
Natural logo	3.79	0.69	2.00	0.72

Table 2: *Means and standard deviations for two conditions (natural and artificial impressions logo) in two logo's (artificial vs. natural).*

Office Impressions

Office impressions, which were meant as a source of brand information, were pre-tested by means of a questionnaire (see Appendix A). The items were scored on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree) and measured the impressions the office elicit (natural vs. artificial). Two items were used for analysis due to their high face validity:*"This building gives me an artificial impression"* and *"this building has a natural design"*. Analysis showed significant differences among natural impressions ($p < 0.01$) and

artificial impressions ($p < 0.001$) when comparing the "artificial" office with the "natural" office, see Table 3 for means and standard deviations.

	Natural impressions		**Artificial impressions**	
	Mean	SD	Mean	SD
Artificial office	2.36	1.22	4.07	0.86
Natural office	3.32	1.12	2.96	1.29

Table 3:*Means and standard deviations for two conditions (natural and artificial impressions office) in two office buildings (artificial vs. natural).*

Congruence

Perceived congruence among the material was pre-tested by means of a questionnaire (See Appendix A). A questionnaire consisting of three items with a Cronbach's alpha = 0.91 was used: *"To what extent do you feel the bottle form and logo belong together?", "To what extent do you feel the bottle and logo come together?"* and *"To what extent do you feel this logo is appropriate for this bottle?".*Answers were given on a 5-point Likert-scale ranging from 1 (not at all) to 5 (totally).

Analysis showed a significant difference among impressions of congruence for the artificial bottle when showed with a natural logo compared to when it was showed with an artificial logo ($p < 0.001$). A significant difference was also found for the natural bottle when showed with an artificial logo compared to when it was showed with a natural logo ($p < 0.001$). Thereby confirming that natural logos belong with natural bottles and artificial logos belong with artificial bottles, see Table 4 for the means and standard deviations.

	Impressions of congruence natural bottle		**Impressions of congruence artificial bottle**	
	Mean	SD	Mean	SD
Artificial logo	7.09	2.80	11.65	3.23
Natural logo	11.83	2.57	7.91	2.68

Table 4: *Means and standard deviations for two conditions (natural and artificial impressions office) in two office buildings (artificial vs. natural).*

Stimulus Materials

Two different brands were constructed to be perceived as having either a *natural* or *artificial* impression. These impressions were induced by showing the participants a picture of the brand's headquarters (see Figure 1) accompanied with a short story (Appendix B) as well as a bottle with a logo.

Brand logos have been designed based on the study by Zhang, Feick and Price (2006) with rounded edges to appear more harmonious (natural) and angular as less (artificial)(see Appendix C). The bottle designs in this study have been designed by the same principles as the brand logos (see Figure 1)

Figure 1: *Bottle designs with brand logos (from left to right: artificial and natural bottle design with artificial logos in the top row and natural logos in the bottom respectively) and office buildings (artificial office in the top row and natural office in the bottom respectively).*

Measures

Bottle Aesthetic Questions

Bottle shape impressions were measured by means of a questionnaire (See Appendix D) consisting of eight items that measured the bottle design attitude(e.g. *"I think the bottle looks good"*;alpha = 0.87*)*, elicited interest by bottle design (e.g. *"this bottle makes me curious";* alpha = 0.77) and perceived boldness of the design (e.g. *"I think this bottle looks exciting";*alpha = 0.74). Answers were given on a 6-point Likert-scale ranging from 1 (totally disagree) to 6 (totally agree).

Brand Impressions

Brand impressions were measured by means of a questionnaire (see Appendix D) consisting of eleven items. Items were scored on a 6-point Likert scale ranging from 1 (totally disagree)

to 5 (totally agree). Items were used to measure the brand attitude (e.g. *"I think YSE Drinks is a fun brand";* alpha = 0.81*)* , perceived boldness (e.g. *"YSE Drinks comes across as an adventurous brand;* alpha = 0.71*)*, reliability (e.g. "*YSE Drinks comes across as a reliable brand";* alpha = 0.61*)* and future purchase intentions (e.g. *"I would like to learn more about the products from YSE Drinks";* alpha = 0.84*)*.

Product (Taste) attitude

Product (taste) attitude was measured by means of a questionnaire (see Appendix D) consisting of five items. Items were scored on a 6-point Likert scale ranging from 1 (totally disagree) to 6 (totally agree). Items that were used to measure to what extend the beverage is perceived as natural vs. artificial (e.g. *"The beverage had a very natural taste to it";* alpha = 0.69 for natural and alpha = 0.70 for artificial*)*, one item was used due to its high face validity to measure taste attitude (i.e. *"this drink tastes good")*. An additional open-ended item measured the amount of money subjects are willing to pay: *"For a 1,5L bottle of this beverage I would pay ___ Euros"*.

Personal Need for Structure

The Personal Need for Structure (PNS) scale by Neuberg & Newsom (1993) was used to measure the tolerance for ambiguity in subjects. This scale counts eleven items that are scored on a Likert scale from 1 (Strongly disagree) to 6 (Strongly agree). Items measure the dispositional construct of desire for simple structure: "*I enjoy having a clear and structured mode of life"* and *"I become uncomfortable when the rules in a situation are not clear"*.

Results

The results of this study were analyzed using a 2x2x2 design. Tolerance for ambiguity was not shown to significantly influence effects and will thus not be reported throughout the rest of this section.

Bottle measures

Bottle Attitude

Firstly, a main effect of office type was found for bottle attitude (F (1, 192) = 6.02, p= 0.02) with higher judged bottle attitude for subjects who were shown the artificial office (M = 3.27, SD = 1.13) when compared with the natural office (M = 2.90, SD = 1.14). Secondly, a main effect of bottle design was found for bottle attitude (F (1, 192) = 7.17, p< .01) with higher judged bottle attitude for subjects who were shown the natural bottle (M = 3.31, SD = 1.15) when compared with the artificial bottle (M = 2.87, SD = 1.11). Finally, a significant interaction effect between office type and bottle design was found (F (1, 192) = 7.08, p < 0.01) see Figure 2. Pair-wise comparison showed when an artificial office was shown with a natural bottle, bottle attitude was higher (M = 3.71, SD = 0.99) in comparison than when the artificial office was shown in combination with an artificial bottle (M = 2.86, SD = 1.11) (F (1, 184) = 17.29, p < 0.01). Interestingly, this difference was found for the natural office type in which a combination with a natural bottle (M = 2.90, SD = 1.17) or an artificial bottle (M = 2.89, SD = 1.13) did not influence bottle attitudes (F (1, 184) = 1.21, p = 0.99).

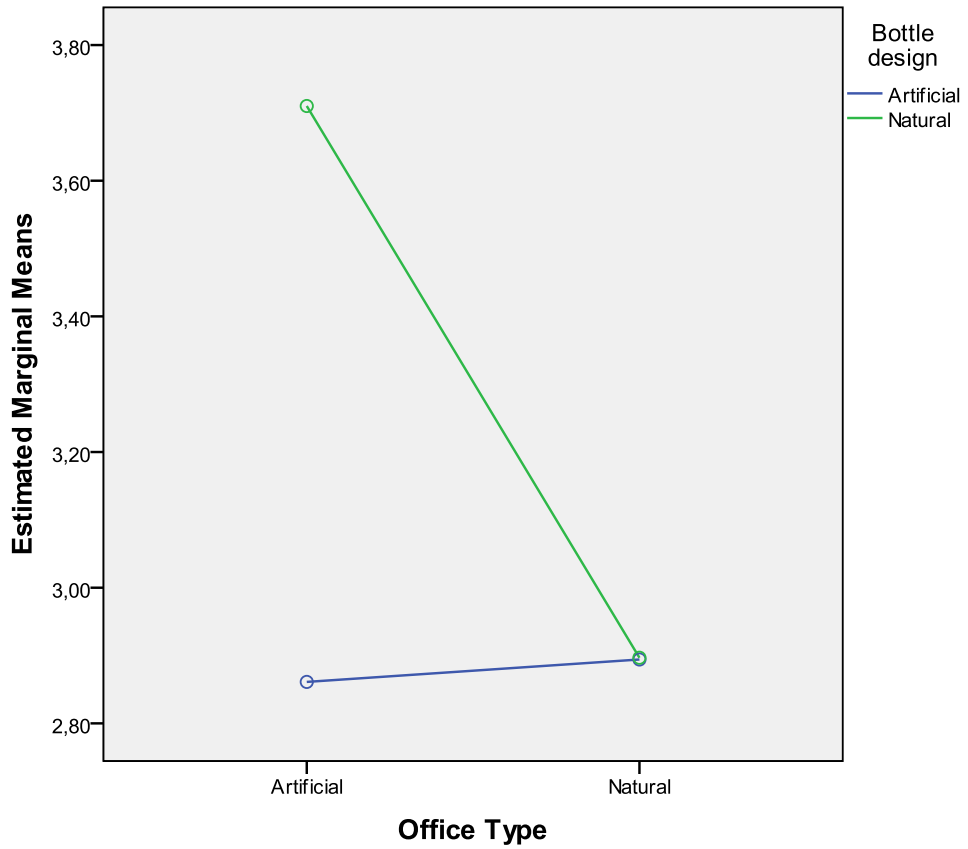

Figure 2: *Interaction effect between office type and bottle design on brand attitude*

Other Bottle Measures

A main effect of office type on elicited bottle interest was found (F (1, 191) = 4.49, p = 0.04) with higher elicited interest when the artificial type office was shown (M = 3.66, SD = 1.03) compared to the natural office (M = 3.33, SD = 1.12). No significant effects were found for perceived boldness of the bottle design (all effects F < 1).

Brand Attitude

A significant interaction effect between bottle design and logo was found on brand attitude (F (1, 192) = 5.75, p< 0.03) in which an artificial bottle combined with an artificial logo (M = 3.24, SD = 0.84) resulted in higher brand attitudes than when the artificial bottle was combined with a natural logo (M = 2.83, SD = 0.72) (F (1,184) = 6.13, p< 0.02). Similar

differences were not found for the natural bottle combined with a natural logo (M = 3.01, SD = 0.90), compared to a natural bottle combined with an artificial logo (M = 2,59, SD = 0.82), yielding a difference that was not significant (F (1, 184) = .87, p = 0.35).

Additionally, an interaction effect approaching significance between bottle design and office type on brand attitude was found (F (1, 192) = 2.66, p = 0.11) (see Figure 3) in which pair-wise comparison revealed that brand attitude was higher when a natural office was combined with an artificial bottle (M = 3,05, SD = 0.76) compared to when a natural office was combined with a natural bottle (M = 2,75, SD = 0.83) (F (1, 184) = 3.14, p< 0.08). This difference was not found between combinations of an artificial office with an artificial bottle (M = 3.03, SD = 0.86) or an artificial office with a natural bottle (M = 3.12, SD = 0.87) (F (1, 184) = 0.29, p< 0.59).

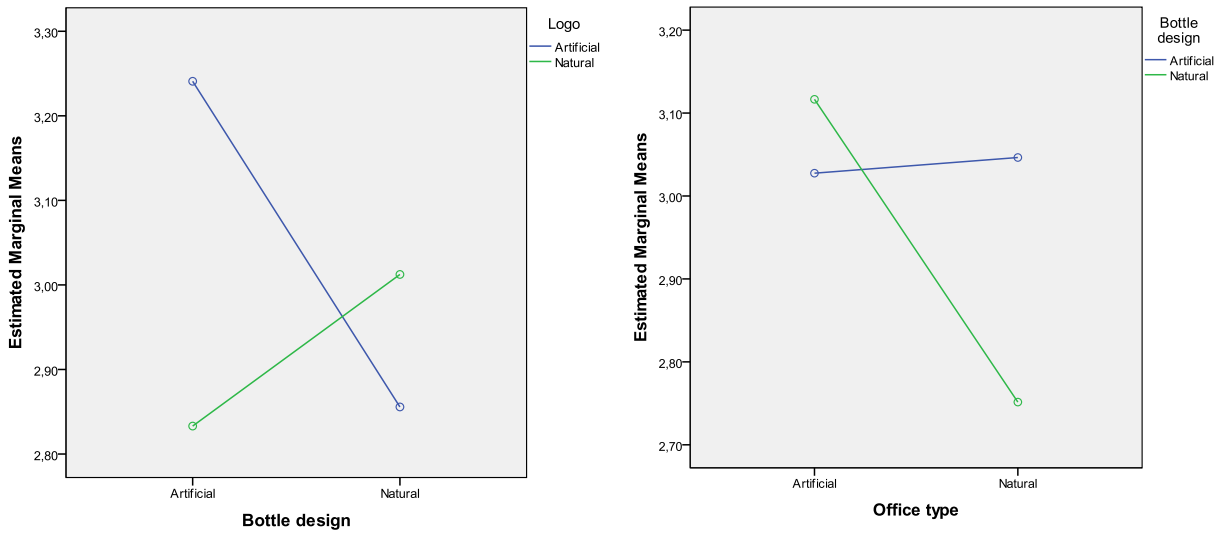

Figure 3: *Interaction effects on brand attitude (left: a significant effect between bottle design and logo; right: an effect approaching significance between bottle design and office type).*

Other Brand Measures

A main effect of office type on purchase intentions was found (F (1, 192) = 4.07,p = 0.05) with higher purchase intentions when the artificial type office was shown (M = 3.01, SD =

0.91) compared to the natural office (M = 2.75, SD = 0.86). A significant interaction effect between bottle design and logo was found on brand boldness (F (1, 192) = 8.75, $p< 0.01$), see Figure 4. Pair-wise comparison showed that perceived brand boldness was higher for an artificial bottle combined with an artificial logo (M = 3.45, SD = 1.00) compared to an artificial bottle combined with a natural logo (M = 2.99, SD = 0.86) (F (1, 184) = 5.98, $p< 0.02$). Similarly, perceived brand boldness was higher for a natural bottle combined with a natural logo (M = 3.23, SD = 0.94) compared to a natural bottle combined with an artificial logo (M = 2.90, SD = 0.93) (F (1, 184) = 3.05, $p = 0.08$). Furthermore, an interaction effect between bottle design and office type on brand boldness approached significance (F (1, 192) = 2.83, $p = 0.09$) in which the brand boldness was higher for a natural bottle combined with an artificial office (M = 3.22, SD = 0.89) compared to a natural bottle combined with a natural office (M = 2.92, SD = 0.98)(F (1, 184) = 2.51, $p = 0.12$). A similar difference was not found between combinations of an artificial bottle with an artificial office (M = 3.15, SD = 1.07) compared to an artificial bottle with a natural office (M = 3.30, SD = 0.83) (F (1, 184) = 0.62, $p = 0.43$).

Lastly, a significant interaction effect of office type and logo was found on brand reliability with (F (1, 192) = 5.23, $p = 0.02$), see Figure 4. Pair-wise comparison revealed that the office elicited increased feelings of brand reliability when an artificial office was combined with an artificial logo (M= 3.51, SD = 0.95) than when it was combined with a natural logo (M = 3.19, SD = 0.81) (F (1, 184) = 3.13, $p = 0.80$). Similar results were found for the natural office with the natural logo (M = 3.33, SD = 0.92) compared to when it was combined with the artificial logo (M = 3.07, SD = 0.84)but this difference was not significant (F (1, 184) = 2.08, $p = 0.15$).

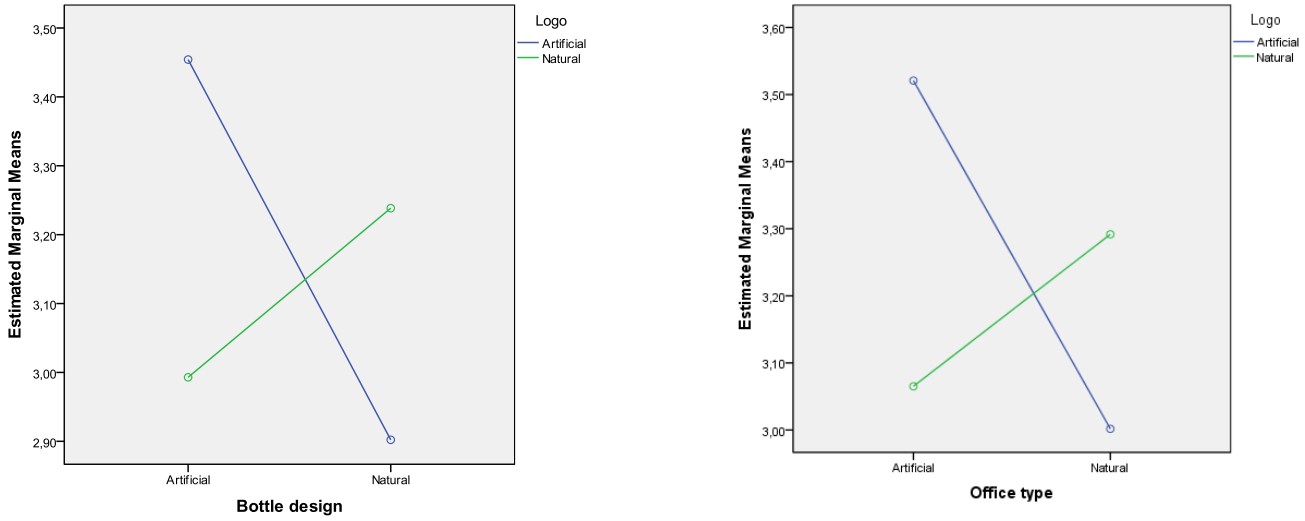

Figure 4: *Left: interaction effect between bottle design and logo on brand boldness; right: interaction effect between office type and logo on brand reliability.*

Additional Research Results

Influences of design through symbolic meaning on the taste experience of the tested drink were investigated. A main effect of office type on natural taste perception was found ($F(1, 192) = 6.24$, $p < 0.01$), with higher reported natural taste perceptions for the artificial office ($M = 2.94$, $SD = 0.98$) in comparison with the natural office ($M = 2.59$, $SD = 1.01$). Another main effect was found of bottle design on natural taste perception of the drink ($F(1, 192) = 9.30$, $p < 0.01$), with higher reported natural taste perceptions for the natural bottle ($M = 2.98$, $SD = 0.91$) when compared to the artificial bottle ($M = 2.56$, $SD = 1.06$).

Additionally, an interaction effect was found approaching significance between bottle design and logo type on natural taste perception ($F(1, 192) = 3.26$, $p = 0.07$). Pair-wise comparison revealed lower reported natural taste perception when an artificial bottle was shown in combination with a natural logo ($M = 2.34$, $SD = 1.00$) compared to when an artificial bottle was shown in combination with an artificial logo ($M = 2.78$, $SD = 1.09$) ($F(1, 184) = 5.07$, $p = 0.03$). Similar results were found for the natural bottle combined with an artificial logo ($M = 2.96$, $SD = 0.91$) and a natural bottle with a natural logo ($M = 3.02$, $SD = 0.91$) though this difference was not significant ($F(1, 184) = 0.10$, $p = 0.75$).

In addition, a main effect was found of bottle design on artificial taste perceptions ($F(1, 192) = 9.62$, $p < 0.01$) with higher reported artificial taste perceptions for the artificial bottle design ($M = 4.56$, $SD = 1.10$) when compared to the natural bottle design ($M = 3.97$, $SD = 1.09$). Lastly, a main effect of logo type on artificial taste perceptions was found approaching significance ($F(1, 192) = 3.68$, $p = 0.06$) with higher reported artificial taste perceptions for the natural logo ($M = 4.37$, $SD = 1.10$) when compared to the artificial logo ($M = 4.07$, $SD = 1.13$).

Discussion

This study has sought to investigate congruency effects of symbolic meaning in design and brand impressions on product and brand evaluations. Five hypotheses were proposed and tested based on existing knowledge from a comprehensive body of literature. The results from this study show that congruency effects in products design and brand impressions work differently than expected, yet still confirms the influence of congruency among sources of product and brand information on judgments pertaining to the brand and the product. Furthermore, this study shows the positive effect of congruency among sources of brand information on brand reliability and the role that brand information plays in developing product preferences. This study contributes to the existing comprehension of this subject by using a unique research design in which multiple sources of brand information were taken into account to study congruency effects in a manifold situation, closer to a consumer's reality. In addition, it adds to the existing body of research by showing that the congruency relations among different sources of information are more complex than previously assumed.

Evidence was found in support of hypothesis 3, finding that congruence among sources of brand information influence perceived brand reliability, supporting the importance of congruency among sources of brand information (Kamins & Gupta, 2006; Misra & Beatty, 2002). Interestingly, this congruency effect was only significant for the artificial office, showing that congruency among brand information did not influence perceived brand reliability when a natural office was shown. Furthermore, data that did not support hypothesis 2 (in which an effect of congruency among sources of product information on product evaluations was expected), showed participants had a high preference toward the combination of an artificial office with a natural bottle instead of showing preference toward congruent combinations. Surprisingly, these preferences resulted in higher product evaluations for the

artificial office – natural bottle combination in addition to showing higher product attitudes, interest and purchase intentions when just showing the artificial office.

This strong preference for the artificial office may be explained by uncertainty avoidance behavior in the consumers. As shown by Money & Crotts (2003), people who were shopping for a vacation and were characterized by higher levels of uncertainty avoidance, tended to use 'channel' sources (such as a travel agent) for information instead of product information. These channel sources are assumed to run parallel to information provided from brand sources. In turn, the artificial office may communicate conservatism and safety as opposed to the natural office. Consumers may feel that they know what they can expect from the conservative brand and thus a preference for the artificial office becomes apparent. Alternatively, consumers may feel more familiar with the artificial building due to its angular design. Perhaps angular buildings are something consumers come across more often in their regular lives, thereby breeding feelings of familiarity, which in turn could lead to the apparent preference. This would also explain the positive effect of the natural bottle on product attitude, since it looks more similar to the bottles one could come across in the supermarket. In addition, gender differences may have occured in which preferences for different shapes would have skewed the results. In addition to this office effect, is has been argued that people may have an innate preference for organic and natural forms when it comes to product design (Bloch, 1995). In line with argumentation for the brand evaluations effects above, it is suspected that consumers form their product evaluations in a similar holistic manner and that therefore the conservative brand and the natural bottle shape elicit the most positive product evaluations. These results underline the notion that consistency among different sources of communication and information is important in order to maintain credibility and reliability as a brand in addition to showing the strong effects of providing a framework in which consumers can judge the product. These results also show that innate preferences and other

factors that can influence consumer´s preferences for different designs can have a profound effect, going beyond the mere congruence and thereby adding to the existing body of literature

The results from this study showed no congruency effects of brand information on brand evaluations (and thus not support hypothesis 1). Rather, a significant congruency effect of product information (bottle and logo type – only showing congruence effects for the artificial bottle) as well as a weak congruency effect of office type – bottle type (only showing congruence effects for the natural office) on brand evaluations was found. These results suggest that consumers derive their brand evaluations mainly from sources of product information, a result in line with findings by Schmitt & Simonson (1997) who found that brand identity is communicated to the consumer through product design. Interestingly, in line with this reasoning, a congruency effect of product information was found for perceived brand boldness. The congruency effect on brand evaluations however, was only found for the artificial bottle – logo combination. As stated earlier, it does not seem unreasonable to believe that consumers already see bottles similar to the natural bottle in their day-to-day lives. This would mean that the information offered by a natural bottle would not be salient enough to use for new judgments about the brand.

In addition, the weak effects of office type – bottle type congruency suggests that consumers combine product and brand information to form brand evaluations holistically, an assertion supported by findings from Orth & Malkewitz (2007). The effect found for product information congruence, in this respect, suggests that the process of brand evaluation formation can also exclusively involve product information however. Perhaps consumers feel that brands are chiefly what they show they are with their products instead of what they appear to be based on merely brand information. Alternatively, brand information may provide consumers with some initial information about its products and product information

may be used to judge a brand; in this case it seems that consistency along a natural theme (for both products and brand) may have affirmed confidence within the consumers and thus yielded better brand evaluations. When brand information is lacking, consumers may be expected to judge a brand by its products. With the artificial bottle being a source of salient information, congruency yields better brand evaluations.

The expected moderating effect of tolerance for ambiguity (as mentioned in hypothesis 5) was not found, in contrast with results from earlier research (van Rompay et al, 2009). A possible explanation is that instead of perceiving incongruence among product and brand elements as ambiguous, consumers construe their own brand impressions through the different combinations among the elements that were shown. Because the consumers are offered multiple sources of product and brand information, incongruence is not shown as contradictory but rather as a salient expression of the character conveyed by the product or brand.

Additionally, it is speculated that a different intra-personal process may explain that, in contrast to hypothesis 4, only the artificial office building boosted future purchase intentions and preferences along a broader spectrum. Risk avoidance may be the underlying explanation for this effect, since consumers that have higher risk perceptions of a purchase have been shown to need more repurchase deliberation (Sneth &Venkatesan, 1968). As stated earlier, it is suggested that the artificial office building may communicate conservatism and safety in contrast to the natural office building or the familiarity of the consumers with the distinct shape of the buildings may influence their preferences. These processes would mean artificial office buildings would communicate less risk than a natural office building, explaining why consumers prefer them more.

Some effects of product and brand information were also expected on taste perceptions. Interestingly it was found that the bottle type influenced natural and artificial taste

impressions, showing the importance of bottle design when its contents are meant for consumption.

Additionally, a congruent effect of artificial bottle – logo was found having a positive effect on natural taste impressions. This may again be due to earlier exposure to congruent natural bottle – logo offerings that consumers come across in the supermarket. Earlier experiences a consumer might have had could perhaps contradict the claims of the presented product information, thereby nullifying their effects. In line with this reasoning, it can be speculated that a congruent presentation has a strong impact on taste impressions when the product information is markedly different than is presented by the competition.

Interestingly, when it came to other sources of information, it was shown that the effects were not necessarily congruent with the stimulus type (i.e. an artificial office caused more natural taste impressions and a natural logo caused more artificial taste impressions). Again, these impressions may be due to the 'safety' of a conservative brand whose offerings will be more known to the consumer and earlier experiences in the supermarket, with brands recognizing that natural is of special interest to the consumer and subsequently trying to profit from it (Zegler, 2011).

The results of this study have some implications for companies offering fast moving consumer goods (FMCG). This study emphasizes the importance and effects of brand and product information. It is important for companies to realize the effects their design and marketing decisions have on product and brand evaluations, perceived reliability, purchase intentions and even taste experiences. Conscious design of product and marketing will enable companies to gain the consumers' favor. Careful thought will have to be put in what claims the consumers will infer from the interplay of information the company provides them with and how this may be interpreted in context with the competition's products and marketing efforts. Companies will have to think about their priorities, gaining and maintaining favorable

brand evaluations (perhaps a wise strategy when different products are sold under one brand name) or gaining favorable product evaluations (which seems more appropriate when a brand is linked to just one product).

With regard to the limitations, this study has sought to measure different evaluative constructs with limited self-report questionnaires. Although the questionnaires were taken in a standardized manner, pre-test attitudes and other factors such as hunger and thirst were not controlled. In addition, because of the nature of the measurement device (i.e. the questionnaire), measurements depend on accuracy of the self-reported data. Future research should include more objective measurement devices as well as attempt to control subjects' pre-test conditions.

In addition to these procedural problems, the argued effect that subjects attempt in risk reducing behavior in order to reduce uncertainty based on the inferred nature of a brand poses some problems for the nature of the congruency effects. Whereas an artificial office may be perceived as a conservative source of brand information, a natural bottle may mean the same with respect to product information. This inference and behavior further complicates congruency effects, as it is no longer based on processing fluency alone. Future research should include comprehensive scales in order to standardize inferred characteristics from sources of brand and product information. Furthermore, demographical information such as gender was not taken into account in this study; future research should include these measures in order to check for their influences on design and congruency effects.

Furthermore, future research should include additional sources of product as well as brand information in a renewed attempt to find congruency effects as well as test the assertion by Orth & Malkewitz (2007) who found that consumers holistically process product information in order to form brand evaluations. In addition, more insight is needed with respect to the influence of innate influences such as the risk avoidance characteristics on the impact of

congruency effects. Finally, additional aspects of product design (such as color or material texture) should be introduced in future research, in an effort to find more holistically informed results which will also have better external validity for application in the real world.

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Appendix A

Pre-tests questionnaires Bottle, Logo, office, and congruence (in original Dutch)

Tekst:

Geef aan op een schaal van 1 tot 5 in hoeverre je het eens bent met de stelling.

1 = Helemaal oneens, 2 = een beetje oneens, 3 = neutraal, 4 = een beetje mee eens, 5 = Helemaal eens

Bottle

1. Het ontwerp van deze fles geeft mij een natuurlijke indruk[1]
2. Het ontwerp van deze fles voelt voor mij mannelijk aan *[2]
3. Het ontwerp van deze fles maakt een stoere indruk op mij *[2]
4. Het ontwerp van deze fles geeft mij een kunstmatige indruk[2]
5. Het ontwerp van deze fles maakt een zachtaardige indruk mij *[1]
6. Het ontwerp van deze fles voelt voor mij vrouwelijk aan *[1]

Logo

1. Ik denk dat dit merk vooral natuurlijke producten maakt[1]
2. Ik denk dat ik dit merk vooral tegenkom op kunstmatige producten[2]
3. Dit logo zal waarschijnlijk gebruikt worden voor producten met enkel natuurlijke ingrediënten *[1]
4. Dit logo maakt een stoere indruk op mij *[2]
5. Dit logo maakt een zachtaardige indruk mij *[1]
6. Dit logo voelt voor mij vrouwelijk aan *[1]

*** Items marked with an asterisk were not used in analysis**

[1] Items measuring natural impressions

[2] Items measuring artificial impressions

7. Dit logo voelt voor mij mannelijk aan *[2]

Office

1. Dit gebouw maakt een kunstmatige indruk op mij[3]
2. Dit gebouw maakt een stoere indruk op mij *[3]
3. Dit gebouw voelt voor mij vrouwelijk aan *[4]
4. Dit gebouw heeft een natuurlijk ontwerp[4]
5. Dit gebouw maakt een zachtaardige indruk mij *[3]
6. Dit gebouw voelt voor mij mannelijk aan *[4]

Congruence

Geef aan op een schaal van 1 tot 5 in hoeverre je het eens bent met de stelling.

1 = Helemaal niet, 2 = een beetje niet, 3 = neutraal, 4 = een beetje wel, 5 = Helemaal wel

1. In hoeverre vindt u het logo en de flesvorm bij elkaar passen?
2. In hoeverre vindt u dit logo geschikt voor deze fles?
3. In hoeverre vindt u het logo en de fles een geheel vormen?

*** Items marked with an asterisk were not used in analysis**

[3] Items measuring artificial impressions

[4] Items measuring natural impressions

Appendix B

Instruction in original Dutch:

Nieuwe frisdrank van YSE Drinks

Van producent YSE Drinks komt een nieuwefrisdrank in een nieuwe fles. Deze frisdrank is met alle zorg die men gewend is van YSE Drinks samengesteld en zal in een opvallende fles in de supermarkten verschijnen.Met de huidige planning zal het productieproces binnenkort beginnen, consumenten kunnen het nieuwe product in het tweede kwartaal van 2012 in de schappen verwachten.

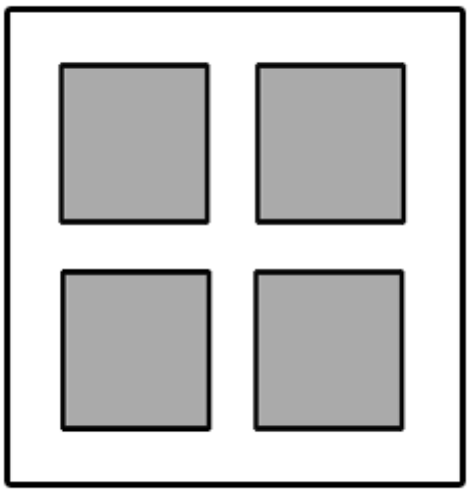
Office picture for ‘artificial brand’ condition

Office picture for ‘natural brand’ condition

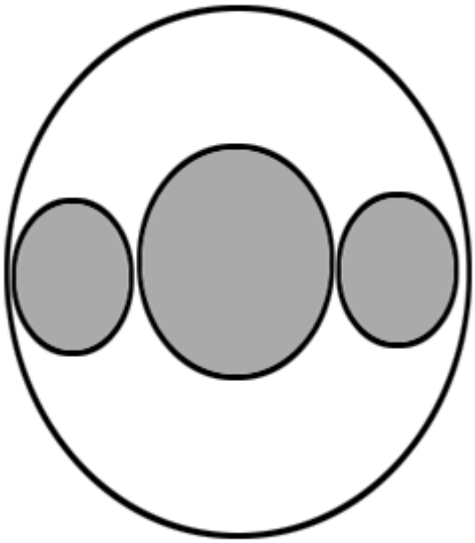
Appendix C

Logos presented to the subjects (in original Dutch)

Brand logo for ‘artificial brand’ condition



Brand logo for ‘natural brand’ condition



Appendix D

Measurement questionnaires for Bottle, brand and product taste (in original Dutch)

Tekst:

Geef aan op een schaal van 1 tot 6 in hoeverre je het eens bent met de stelling.

1 = Helemaal mee oneens – 6 = Helemaal oneens

Bottle

1. Ik vind de fles er mooi uit zien[5]
2. Ik wil meer te weten te komen over dit product[6]
3. Ik vind deze fles er avontuurlijk uitzien[7]
4. Ik vind deze fles leuk[7]
5. Ik heb een goed gevoel bij deze fles[7]
6. Ik vind deze fles er interessant uit zien[8]
7. Deze fles maakt mij nieuwsgierig[8]
8. Ik vind deze fles er spannend uit zien[9]
9. Ik vind deze fles gewaagd *[9]
10. Deze fles spreekt mij aan *[7]

Brand

1. Ik vind YSE Drinks een leuk merk[8]
2. Ik heb een goed gevoel bij YSE Drinks[8]
3. Ik zou vaker producten van YSE Drinks kopen[9]

*** Items marked with an asterisk were not used in analysis**
[5] Items measuring bottle design attitude
[6] Items measuring interest elicited by bottle design
[7] Items measuring perceived boldness of bottle design
[8] Items measuring brand attitude
[9] Items measuring future purchase intentions

4. YSE Drinks vind ik een avontuurlijk merk[10]
5. YSE Drinks spreekt mij aan als merk[8]
6. YSE Drinks komt betrouwbaar op mij over[11]
7. YSE Drinks komt over als een spannend merk[10]
8. Producten van YSE Drinks verdienen mijn aandacht[9]
9. Ik denk dat de producten van YSE Drinks van hoge kwaliteit zijn[11]
10. YSE Drinks lijkt mij een rebels merk *[10]
11. Ik vind YSE Drinks een cool merk[10]
12. Ik zou meer willen weten over de producten van YSE Drinks[9]

Product taste

1. Ik vind de frisdrank lekker smaken[12]
2. De frisdrank had een natuurlijke smaak[13]
3. Ik denk dat er veel kunstmatige smaakstoffen in deze frisdrank zitten[14]
4. De smaak van de frisdrank vind ik weinig interessant *[12]
5. Ik vind dat de frisdrank een natuurlijke frisheid heeft[13]
6. Ik vind dat de frisdrank te kunstmatig smaakt[14]
7. Ik vind dat de frisdrank te zoet smaakt*[12]

Vul in:

Voor een anderhalve liter (1,5L) fles van deze frisdrank zou ik __,__ euro betalen[15]

*** Items marked with an asterisk were not used in analysis**
[8] Items measuring brand attitude
[9] Items measuring future purchase intentions
[10] Items measuring perceived boldness of brand
[11] Items measuring perceived brand reliability
[12] Items measuring product taste attitude
[13] Items measuring product naturalness in product taste
[14] Items measuring product artificiality in product taste
[15] Item measuring amount subjects would pay for product

Appendix E

Figures and Tables used throughout this paper

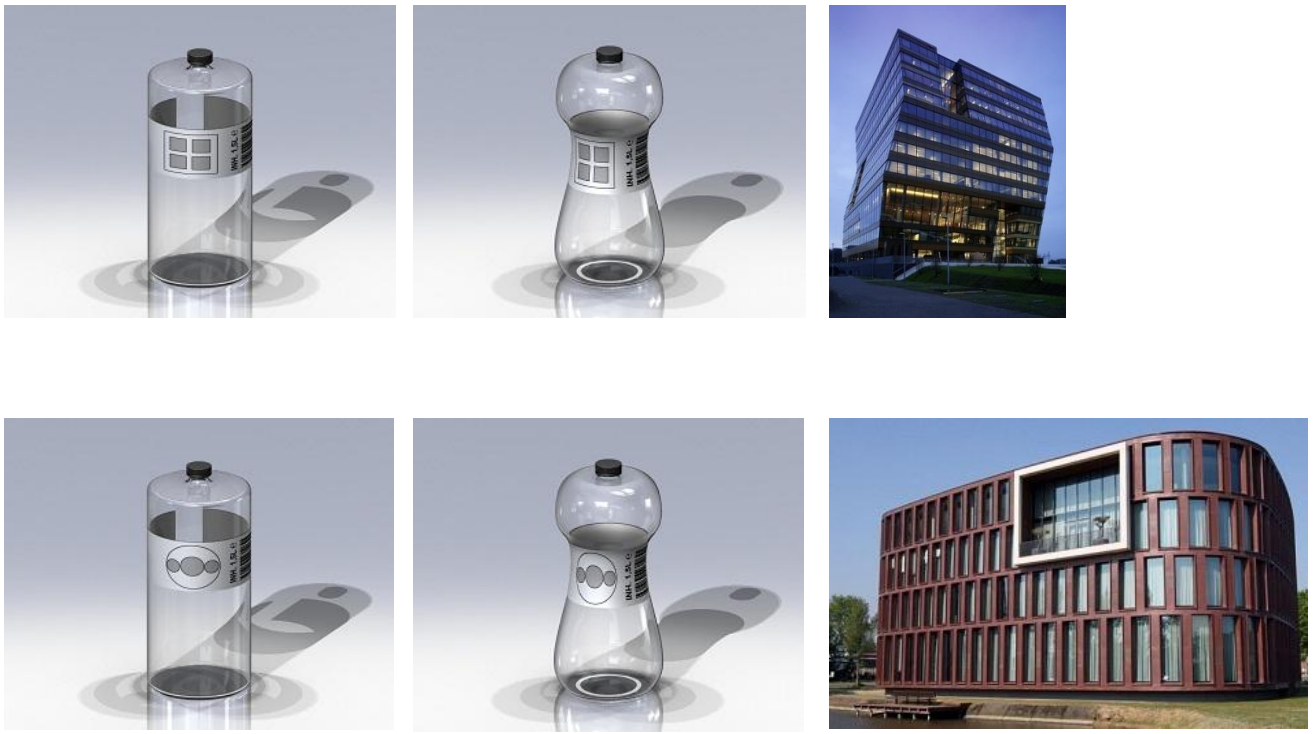


Figure 1: *Bottle designs with brand logos (from left to right: artificial and natural bottle design with artificial logos in the top row and natural logos in the bottom respectively) and office buildings (artificial office in the top row and natural office in the bottom respectively).*

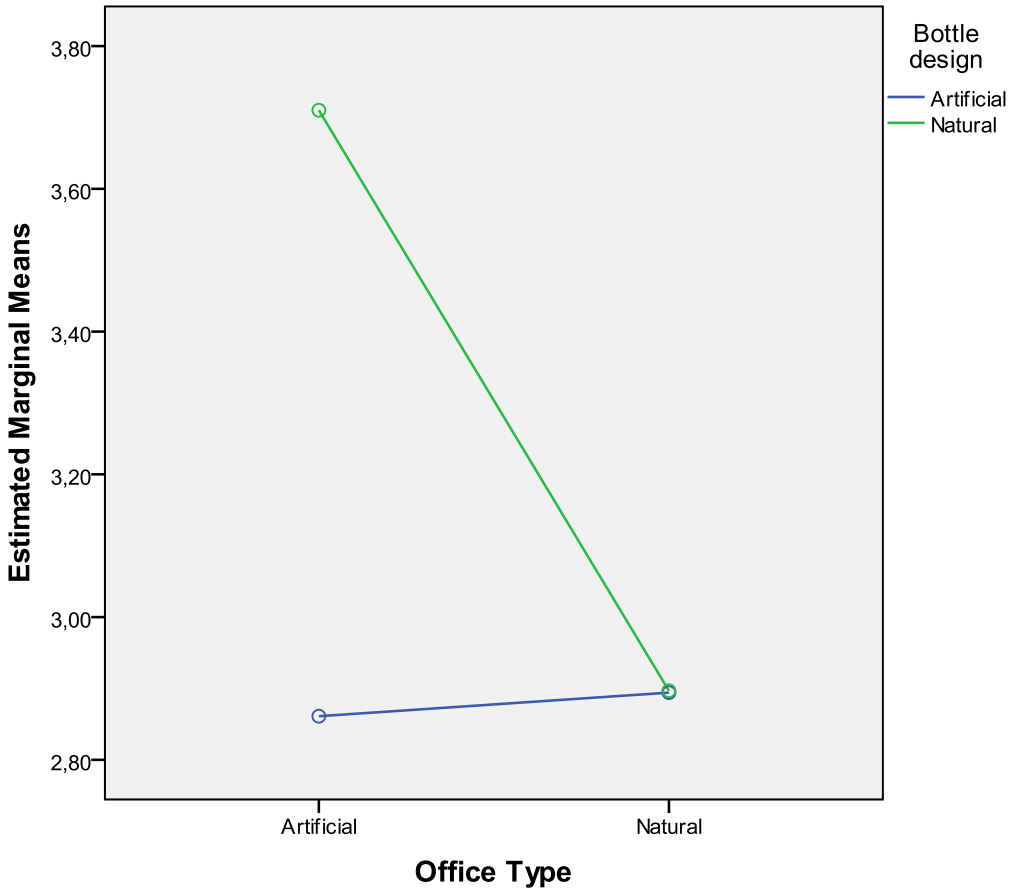


Figure 2: *Interaction effect between office and bottle design.*

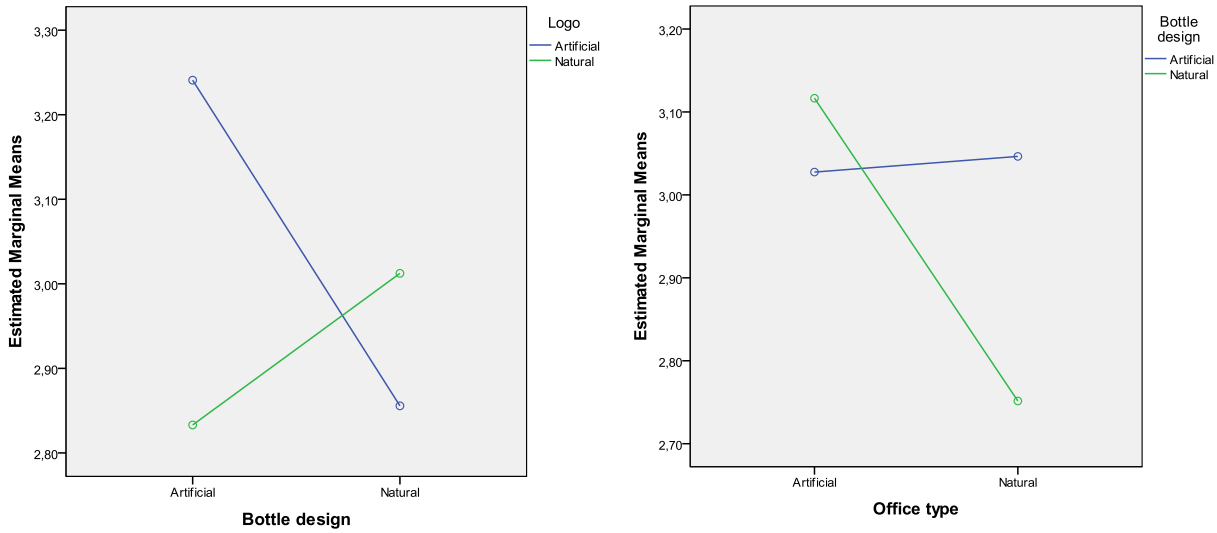


Figure 3: *Interaction effects on brand attitude (left: a significant effect between bottle design and logo; right: an effect approaching significance between bottle design and office type).*

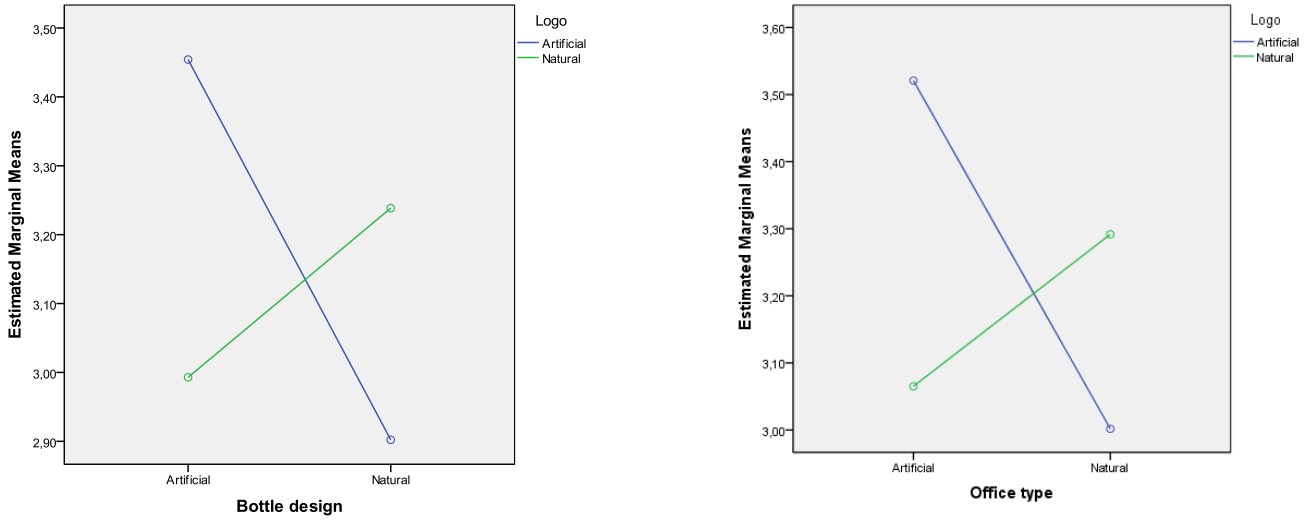


Figure 4: *Left: interaction effect between bottle design and logo on brand boldness; right: interaction effect between office type and logo on brand reliability.*

	Natural impressions		**Artificial impressions**	
	Mean	SD	Mean	SD
Artificial bottle	1.17	0.22	3.97	0.82
Natural bottle	1.25	0.23	3.14	1.06

Table 1:*Means and standard deviations for two conditions (natural and artificial impressions bottle) in two bottles (artificial vs. natural).*

	Natural impressions		**Artificial impressions**	
	Mean	SD	Mean	SD
Artificial logo	1.64	0.78	3.57	1.35
Natural logo	3.79	0.69	2.00	0.72

Table 2: *Means and standard deviations for two conditions (natural and artificial impressions logo) in two logo's (artificial vs. natural).*

	Natural impressions		**Artificial impressions**	
	Mean	SD	Mean	SD
Artificial office	2.36	1.22	4.07	0.86
Natural office	3.32	1.12	2.96	1.29

Table 3: *Means and standard deviations for two conditions (natural and artificial impressions office) in two office buildings (artificial vs. natural).*

	Impressions of congruence natural bottle		**Impressions of congruence artificial bottle**	
	Mean	SD	Mean	SD
Artificial logo	7.09	2.80	11.65	3.23
Natural logo	11.83	2.57	7.91	2.68

Table 4: *Means and standard deviations for two conditions (natural and artificial impressions office) in two office buildings (artificial vs. natural).*