THE EFFECT OF PACKAGING TYPEFACE ON PRODUCT PERCEPTION AND EVALUATION

Undergraduate Honors Thesis

Presented in partial fulfillment of the requirements for the degree Bachelor of Science in Business Administration with research distinction in marketing in the Fisher College of Business of The Ohio State University

By

Alysha Fligner

Fisher College of Business

The Ohio State University

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Thesis Committee:

Xiaoyan Deng, Advisor

Pat West

Rebecca Naylor

ABSTRACT

In this research, we investigate whether packaging typeface can effectively promote food

products that are healthful. In three empirical studies, we show that first, consumers can

reliably identify semantic meanings (e.g., naturalness) associated with a particular style

of typeface and the connotations inferred from packaging typeface carry over to their

product perception and evaluation, leading to enhanced persuasion. Second, the effect of

typeface is moderated by whether or not the connotations engendered by the typeface are

in line with the information signaled by the product's intrinsic or extrinsic cue.

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VITA

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September 2010 – Present ……………B.S.B.A. The Ohio State University

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TABLE OF CONTENTS

INTRODUCTION

Packaging is integral to the marketing of products. Because of its presence at the crucial moment when the actual purchase decision is made, managers consider packaging as one of the most effective in-store marketing tools to turn a browser into a buyer. Therefore, understanding how various packaging design variables affect consumer perception, evaluation, and behavior is of theoretical and managerial importance. Previous research has studied the effects of package shape (e.g., Raghubir & Krishna 1999; Wansink & Van Ittersum 2003), size (Coelho do Vale, Pieters, & Zeelenberg 2008; Scott et al. 2008), and imagery (Deng & Kahn 2009; Madzharov & Block 2010). The current research examines the effect of typeface, a potentially critical element that has not been studied in the packaging literature.

Typeface is a set of one or more fonts that share common design features. Studies in information design and psychology have provided limited research on how typeface can affect audience responses. Two effects were discussed. First, the design features of the typeface can yield connotations (e.g., elegance, novelty, potency) above and beyond the denotative message contained in the text (Bartram 1982; Rowe 1982). A second way that typefaces can affect audience responses operates through the interaction between the connotative meaning of the typeface and the denotative meaning of the text—when the two are consistent with each other, the perception about the message is strengthened (Foltz, Poltrock, & Potts 1984; Lewis & Walker 1989).

The current research is the first to examine both of these two effects in the context of marketing in general and packaging in particular. Specifically, we are interested in whether packaging typeface can be used to effectively promote food products that are healthful. Our focus is fueled by the increasing interest in healthful food products among both consumers and marketers. In three studies, we show that packaging typeface styles affect consumers' perceived healthfulness of the contained product as well as their overall liking of the product (Study 1) and this effect can be moderated by the product's intrinsic cue (Study 2) and extrinsic cue (Study 3).

LITERATURE REVIEW

Typeface has been studied in the field of information design, psychology, and marketing. One line of research (e.g., Bartram 1982; Rowe 1982; Tantillo, Di Lorenzo-Aiss, and Mathisen 1995) focuses on whether typefaces can convey "connotative meaning" (Rowe 1982) or "semantic quality" (Bartram, 1982) beyond the text it clothes. In other words, whether people make consistent inferences based on the characteristics of the typeface itself. This research has produced some mixed findings. For example, both Rowe (1982) and Tantillo et al. (1995) presented study participants with a selection of popular type styles of the *Serif* and *Sans Serif* classifications and asked them to indicate the connotations of the type styles using multi-item scales. While Tantillo et al. (1995) found that the *Serif* typefaces significantly differed from the *Sans Serif* typefaces on 26 of the 28 affective dimensions examined in the study (e.g., happy/sad, young/old, powerful/powerless), Rowe (1982) found few differences between these two type-style groups on most dimensions. However, Rowe (1982) found that a script typeface was rated as more elegant than a non-scripted typeface.

In addition to investigating the existence of typeface effects on semantic associations, more recent research focuses on how specific typeface characteristics might produce specific associations. Henderson, Giese and Cote (2004), for example, look into what typeface characteristics are most useful for describing typeface design, what are the strategically relevant impressions (e.g., brand/product impressions) created by typeface

design, and how specific typeface characteristics might affect specific impressions. Using factor analysis, they revealed three universal design characteristics (elaborateness, harmony, and naturalness) and three typeface-specific characteristics (flourish, weight, compressed) that underlie a variety of typeface styles. The three universal factors explained 69.7% of the variance. *Elaborateness* is made up of ornate, depth, distinctive, meaningful, unreadable, and special-purpose. *Harmony* is made up of balance, smoothness, symmetry, and uniformity. *Naturalness* is made up of active, curved, organic, slant, and handwritten. The three typeface-specific factors explained 60.4% of the variance. Flourish included serifs, ascenders, and descenders. Weight included heavy, fat, and repeated elements. Compressed included condensed and x-height.

Their analysis also uncovered four dimensions of strategically relevant impression created by typeface design: *pleasing/displeasing* (which comprised liked, warm, and attractive), *engaging/boring* (which comprised interesting and emotional), *reassuring/unsettling* (which comprised calm, formal, honest, familiar, and a negative loading for innovative), and *prominent/subtle* (which comprised strong and masculine). Importantly, how the typeface characteristics influence these impressions were studied and described (see Table 4 in their paper). Although Henderson et al.'s (2004) work provides guidelines for brand managers to select typefaces consistent with their strategic goal, these guidelines have not been empirically tested in the context of marketing communications (e.g., advertising, packaging).

We extend this stream of research in two ways. First, we examine whether typefaces in general can generate consistent meanings across respondents. In doing so we help shed light on the mixed findings discussed earlier. Second, in the context of product packaging, we empirically test whether specific typeface characteristics can reliably create specific managerially relevant impressions.

4

Because we are interested in the role of typeface design in promoting healthful food products, we focus specifically on fonts perceived as "natural" (Henderson et al. 2004) and assessing their capability of communicating health-related connotations to consumers. In their study, Henderson et al. found that the naturalness dimension had the largest effect in creating "pleasing" and "engaging" impressions. Since pleasure and engagement are both generally desirable characteristics for brands/products, we also test whether the health-related connotations engendered by natural fonts used on product packaging have a carryover effect on consumers' evaluation of the product contained. We hypothesize that:

H1:   Products packaged with a natural font will be perceived as more healthful than products packaged with an unnatural font.

H2:   Products packaged with a natural font will be evaluated more favorably than products packaged with an unnatural font.

H3:   Perceived product healthfulness mediates the effect of font type on product evaluation.

Another line of typeface research in the field of psychology focuses on the interaction between the connotative meaning of the typeface and the denotative meaning of the text it clothes, and the general finding there is that when the two elements are consistent with each other, the perception about the message is strengthened, leading to enhanced persuasion (Foltz, Poltrock, & Potts 1984; Lewis & Walker 1989; Walker, Smith & Livingston 1986).

For example, Walker et al. (1986) demonstrated that a typeface's appropriateness for a specific text is determined by participants by the extent to which it shares meanings with the context (e.g., a "sturdy" and "heavy" looking typeface was rated as more appropriate when used in presenting "sturdy" and "heavy" professions such as construction). Further, Foltz et al. (1984) found that the physical size of typeface (e.g., letter-word size) could affect conceptual size decisions such that in a speeded comparison task, interference and facilitation effects were observed when the size of a word was either inconsistent or consistent with the concept represented by the word. Similarly, Lewis & Walker (1989) observed that participants' reaction times were slower for words whose typefaces were inconsistent with their meanings, for instance, the word "fast" presented in a "slow" typeface. This suggests that an inconsistency between a typeface's connotation and a word's meaning can create reactions similar to a Stroop effect.

Taken together, these studies show that the visual peripheral features of verbal material influence information processing and that the consistency or lack thereof between a typeface's semantic quality and a word's meaning facilitates or hinders processing.

In addition to the influence of typeface on the ease of information processing, Juni and Gross (2008) also found that typeface can interact with the emotional qualities of text to influence persuasion. They showed that satirical readings presented in *Times New Roman* were viewed as funnier and angrier (i.e., more satirical) than those presented in *Arial*. The finding that persuasion is enhanced when a typeface is consistent with the content of the message suggests the usefulness of typeface as a graphic design element in creating persuasive marketing communications.

To our best knowledge, the paper by Childers and Jass (2002) is the only research thus far in the field of marketing that examines the interaction between typeface style and message style. The researchers showed that brand perceptions as well as the memorability of advertised benefit claims were enhanced as the degree of consistency among the typeface semantic cues, advertisement visual cues, and advertisement copy claims increased.

Our work extends their research in two ways. First, we study the effect of typeface on persuasion in the context of packaging—another important marketing communication channel. The difference is nontrivial. Because the amount of verbal information available on product packaging generally is much lesser than that in advertisements (at least those used in Childers and Jass 2002), it is possible that the typeface effect will be rendered less significant. Second, while Childers and Jass (2002), as well as the previous research, look at the interaction between typeface meaning and word meaning, we take a step further examining how packaging typeface interacts with the meaning of the contained product's intrinsic or extrinsic cue. The effect we look at is more subtle because the meaning of a word is fairly explicit, whereas the meaning of intrinsic/extrinsic cue as related to a product is inferred by consumers.

Prior research shows that consumers rely on various cues in the marketplace to provide information that aids in decision-making (Kirmani & Rao, 2000). An intrinsic cue is an essential component of the actual product, such as nutritional information, and altering it would change the composition of the product; while an extrinsic cue is something that can be changed without altering the product itself or affecting its performance, such as price, brand name, and store name (Rao & Monroe, 1989). Intrinsic

cues are more essential to product evaluations, but in the absence of intrinsic cues

consumers will use a variety of extrinsic cues to draw inferences about the product

(Olson & Jacoby, 1972). When multiple cues are present, their effects will not be

additive, but interactive, meaning that a cue may be more or less effective depending on

the circumstances of the other cues (Olson & Jacoby, 1972). A meta-analysis by Rao and

Monroe (1989) found that when multiple cues are consistent, a reinforcing effect occurs.

Although it has been extensively studied how cues affect information processing

and decision making, not much work has been conducted on product intrinsic and

extrinsic cues displayed on product packaging. It is important for marketers to understand

what messages consumers gain from this information given packaging's vital role in in-

store purchase decisions. Moreover, the current research adds to the cue literature by

studying the interplay between product-related cues and typeface as a graphic packaging

cue.

Building upon the prior research in psychology on typeface-message interaction,

we predict that:

H4: The effect of typeface on product perception will be moderated by the product's
(a) intrinsic as well as (b) extrinsic cue, such that the consistency between font
style and cue meaning will strengthen the perception.

H5: The effect of typeface on product evaluation will be moderated by the product's
(a) intrinsic as well as (b) extrinsic cue, cue, such that the consistency between
font style and cue meaning will enhance the evaluation.

We conducted three experiments to test the predicted typeface effects in the context of product packaging. Study 1 is to test the main effects of typeface on product perception (H1) and evaluation (H2) and that the perception engendered by packaging typeface mediates consumers' evaluation toward the product (H3). Studies 2-3 are to test the proposed interaction effect between typeface and intrinsic/extrinsic cue on product perception (H4) and evaluation (H5). Because of our interest in promoting healthful food products, we focus on cues that signal the product's health benefits. Specifically we use the product's nutritional information as the intrinsic cue in Study 2. In Study 3 we use the name of the store wherein the product is sold as the extrinsic cue. Before discussing these studies in detail, we will first report a pretest through which we selected natural vs. unnatural typefaces to be used in later studies.

PRETEST: SELECTING NATURAL AND UNNATURAL TYPEFACES

Henderson, Giese, and Cote (2004) identify six factors that underlie typeface design characteristics. Three of these factors, elaborateness, harmony, and naturalness, are universal to all areas of graphic design. Based upon their research, our empirical work began with a pretest to identify fonts that are high or low in the "naturalness" dimension. The assumption is that when used on product packaging, high vs. low font-naturalness will result in differences in the respondents' perception and evaluation of the contained product.

The pretest used a pangram (a sentence using every letter of the alphabet at least once) "*The quick brown fox jumps over the lazy dog*" displayed in 16 different fonts visually comparable to fonts used by Henderson et al. (2004). Participants were 129 students at a large Midwestern university who participated in exchange for extra credit in an introductory marketing course. The 16 sentences were presented to participants, one at a time following a random order, on a computer screen. Participants were asked to rate the fonts on overall liking, legibility, and naturalness. According to Henderson et al. (2004), the naturalness dimension is composed of five design characteristics, which we used to construct five 7-point Likert scales: "This font looks organic--geometric / handwritten--typed / active--passive / slanted--straight / curved--angular" to measure font naturalness. These five scales were combined to form a naturalness index (α = .83). Based on the results, we selected a natural font (*SketchFlow Print*, M = 3.45) and an unnatural font (*Impact*, M = 2.51) that were rated as equally likable (M $_{SketchFlow}$ = 4.45

vs. M $_{Impact}$ = 4.46) and legible (M $_{SketchFlow}$ = 4.24 vs. M $_{Impact}$ = 4.10), to be used in the

following studies.

STUDY 1: MAIN EFFECTS OF PACKAGING TYPEFACE

Method

The stimuli were two cookie packages for a fictional brand that differed only in fonts used (i.e., natural vs. unnatural). The typeface manipulation affected all of the verbal information on the package (i.e. brand name, product name, weight label). Participants were 100 respondents recruited from the online survey website Mechanical Turk and were compensated through the site for their participation. Participants were randomly assigned to view one cookie package and asked to indicate their overall product evaluation and perceived product healthfulness. Healthfulness perception was measured through four 7-point scales (1 = disagree; 7 = agree): "This product is healthy/natural/wholesome/organic." These scales were combined to form a healthfulness perception index (α = .90). Product Evaluation was measured on a 7-point scale (1 = disagree; 7 = agree): "I like this product a lot." As a manipulation check, the participants were then presented with the pangram displayed in the same font as used on the cookie package and were asked to rate their perceived naturalness of the font on the same scales as in the pretest.

Results

We analyzed the data using a one-way (font: natural vs. unnatural) between-subjects ANOVA. First, the analysis conducted on the naturalness index (α = .82) indicated that participants perceived the natural font (M = 4.08) to be more natural than

the unnatural font (M = 2.24; F(1, 98) = 61.1, p < .0001), suggesting that our manipulation of font naturalness was successful. Second, the analysis conducted on the healthfulness perception index showed that participants perceived the product packaged with the natural font to be more healthful (M = 4.89) than the product packaged with the unnatural font (M = 4.22; F(1,98) = 5.3, p = .023), supporting H1. Third, consistent with H2, participants also evaluated the product more favorably if it was packaged with a natural font (M = 4.30) than if it was packaged with an unnatural font (M = 3.74; F(1,98) = 4.7, p = .033). These findings indicated that font naturalness enhances both product healthfulness perceptions and overall product evaluations.

Following the recommendations by Zhao, Lynch, and Chen (2010), analysis conducted through Preacher and Hayes's (2004) SAS macro with bootstrapped samples (5,000) provides support for the proposed mediation mechanism. Specifically, the indirect effect of typeface (IV) on product evaluation (DV) through the hypothesized mediator (perceived product healthfulness) was significant (b = -.24, SE = .12; 95% confidence interval [CI] = -.51 to -.03). Thus, H3 was also supported.

Discussion

These results lend support to the idea that typefaces create semantic associations that can then be transferred to the perceptions and evaluations of a product. The naturalness of the typeface used in product packaging creates an association within the consumer's mind that leads them to believe that the contained product is more healthful and to like the product more. This finding is significant because it shows the effectiveness of packaging typeface in shaping consumers' perceptions and attitudes.

13

STUDY 2: INTRINSIC CUE AS A MODERATOR OF THE TYPEFACE EFFECT

The next two studies were designed to test whether the typeface effects on product perception and evaluation are moderated by the product's intrinsic and extrinsic cues. Study 2 examines intrinsic cues, things that are inherent to the product itself, such as nutritional information. Study 2 also aims to increase the generalizability of the findings by showing that the typeface naturalness effect holds true for a different product category.

Method

Study 2 used a 2 (fat-free vs. regular yogurt) x 2 (natural vs. unnatural font) between-subjects design. Participants were 153 students at a large Midwestern university who participated in exchange for extra credit in an introductory marketing course. The stimuli used in this study were four yogurt packages for a fictional brand. Two packages featured a "fat-free blended yogurt" and the other two featured a "blended yogurt." Within each yogurt condition, one package used the natural font while the other used the unnatural font. The typeface manipulation affected all of the verbal information on the package. As in Study 1, participants were asked to report their perception of the product's healthfulness and their overall product liking. Afterwards, the same manipulation check was conducted as in Study 1.

Results

14

We analyzed the data using a 2 x 2 ANOVA. The analysis conducted on the naturalness index ($\alpha = .82$) revealed only a significant main effect of font, confirming that the natural font was perceived as more natural (M = 4.35) than the unnatural font (M = 2.54; $F(1,149) = 115.6$, $p < .0001$), which is consistent with the Study 1 finding.

The analysis conducted on the healthfulness perception index ($\alpha = .91$) revealed only a significant interaction effect of font type and yogurt type ($F(1, 149) = 5.9$, $p = .02$). Planned comparisons showed that, in the fat-free yogurt condition, the product was perceived as more healthful when packaged with the natural font (M = 5.20) than when packaged with the unnatural font (M = 4.32; $t(149) = 2.7$, $p = .008$); however, this effect was not present in the regular yogurt condition (M = 4.61 vs. M = 4.82; $t(149) = -.7$, NS). These findings support H4a that the effect of typeface on product perception is moderated by the product's intrinsic cue. Specifically, when the typeface's semantic meaning (i.e., naturalness) was consistent with the health-related benefits signaled by the nutritional information, the perception about the product's health benefit was strengthened.

Finally, the analysis conducted on the overall product evaluation generated a significant main effect of font type ($F(1, 149) = 9.7$, $p = .002$) and a significant interaction effect of font type and yogurt type ($F(1, 149) = 4.2$, $p = .04$). The main effect of font type indicated that the product packaged with the natural font was evaluated more favorably (M = 4.37) than the product packaged with the unnatural font (M = 3.48). The interaction showed that this difference in product evaluation caused by the font type used on the package was significant in the fat-free yogurt condition (M = 4.65 vs. vs. M = 3.18; $t(149) = 3.5$, $p = .001$) but not significant in the regular yogurt condition (M = 4.09 vs. M = 3.79; $t(149) = .8$, NS). These findings support H5a. When the typeface's

semantic meaning (i.e., naturalness) was consistent with the health-related benefits signaled by the nutritional information as an intrinsic cue, product evaluation was enhanced.

Discussion

Study 2 demonstrates that product intrinsic cues can moderator the typeface effects found in Study 1. When the intrinsic cue and the typeface both signal healthfulness, the product healthfulness perception is strengthened and product evaluation is enhanced. The effects dissipate if the typeface's semantic quality is not supported by what the intrinsic cue signifies. This suggests that for products that have intrinsic health benefits, marketers can strategically use natural typefaces in product packaging to strengthen communications and persuasion.

STUDY 3: EXTRINSIC CUE AS A MODERATOR OF THE TYPEFACE EFFECT

Study 3 intends to show that extrinsic cues also moderate the typeface effect on product perception and evaluation. The study utilizes store name as an extrinsic cue. For our purchase we chose to use the names of Whole Foods Market, a retailer that has a reputation for selling healthy foods, and Meijer, a regional retailer that does not have such a reputation.

Method

Study 3 used a 2 (Whole Foods Market vs. Meijer) x 2 (natural vs. unnatural font) between-subjects design. Participants were 154 students at a large Midwestern university who participated in exchange for extra credit in an introductory marketing course. The stimuli used in this study were four cookie packages similar to those used in Study 1. Two packages displayed the store name "Whole Foods Market" and the other two displayed the name "Meijer." Within each store condition, one package used the natural font while the other used the unnatural font. The typeface manipulation affected all of the verbal information on the package. As in Studies 1-2, participants were asked to report their perception of the product's healthfulness and their overall product liking. Afterwards, the same manipulation check was conducted as in Studies 1-2. We also checked each store's reputation in terms of offering natural, healthful food products among participants. Finally we asked participants to report how frequently they shop at each store for foods.

Results

We analyzed the data using a 2 x 2 ANOVA. The analysis conducted on the naturalness index ($\alpha = .84$) revealed only a significant main effect of font, confirming that the natural font was perceived as more natural (M = 4.35) than the unnatural font (M = 2.29; $F(1,150) = 166.9$, $p < .0001$), which is consistent with the Studies 1-2 finding.

The analysis conducted on the healthfulness perception index ($\alpha = .88$) revealed a significant main effect of store ($F(1, 150) = 36.2$, $p < .0001$) and a marginally significant interaction effect of font type and store type ($F(1, 150) = 3.1$, $p = .08$). The main effect of store indicated that the product sold in Whole Foods Market was perceived as more healthful (M = 4.67) than the product sold in Meijer (M = 3.51). The interaction effect showed that, in the Whole Foods Market condition, the product was perceived as more healthful when packaged with the natural font (M = 4.97) than when packaged with the unnatural font (M = 4.38; $t(150) = 2.1$, $p = .04$); however, this effect was not present in the Meijer condition (M = 3.46 vs. M = 3.56; $t(150) = -.4$, NS). These findings support H4b that the effect of typeface on product perception is moderated by the product's extrinsic cue. Specifically, when the typeface's semantic meaning (i.e., naturalness) was consistent with the health-related benefits signaled by the store name, the healthfulness perception about the product was strengthened.

Finally, the analysis conducted on the overall product evaluation with how frequency participants shop at each store as the covariate generated a significant main effect of store ($F(1, 148) = 9.1$, $p = .0003$) and a significant interaction effect of font type and store type ($F(1, 148) = 6.1$, $p = .01$). The main effect of store indicated that the

product sold in Whole Foods Market was evaluated more favorably (M = 3.99) than the product sold in Meijer (M = 3.12). The interaction showed that in the Whole Foods Market condition, the product was evaluated more favorably when packaged with the natural font (M = 4.35) than when packaged with the unnatural font (M = 3.64; $t(148)$ = 1.7, p = .09); however, the pattern was reversed in the Meijer condition (M = 2.74 vs. M = 3.49; $t(148)$ = -1.9, p = .07). These findings support H5b. When the typeface's semantic meaning (i.e., naturalness) was consistent with the health-related benefits signaled by the store name, an enhanced product evaluation was observed. However, when the typeface's semantic meaning (i.e., naturalness) was inconsistent with the inferences consumers draw from the store name as an extrinsic cue, a reduced product evaluation was observed instead.

Discussion

Study 3 shows that extrinsic cues also moderate the typeface effect on product perception and evaluation. When the extrinsic cue and the typeface both signal healthfulness, the product healthfulness perception is strengthened and product evaluation is enhanced. If the typeface's semantic quality is inconsistent with inferences drawn from the extrinsic cue, a negative effect on persuasion is observed.

Taken together, the results from Studies 2-3 suggest to marketers that when they are making packaging decisions, they should carefully consider the product's features as well as the retailer's characteristics. A consistent message across product, place, and package will be most effective in persuading consumers.

GENERAL DISCUSSION

Summary of Findings

In four studies we first showed that consumers are able to consistently identify semantic qualities (e.g. naturalness) associated with a particular style of typeface and that the connotations inferred from packaging typefaces carry over to consumers' product perception and evaluation. Second, the effect of typeface is moderated by whether or not the connotations inferred from the typeface are in line with the information signaled by the product's intrinsic and extrinsic cues. These findings suggest to marketers that packaging typefaces should be carefully chosen so that the meaning of the typeface and the message to be communicated are aligned.

Contributions to Literature

Our work expands upon existing typeface literature by providing further evidence of the ability of typeface to create semantic associations. This research also bridges a gap between typeface literature and packaging literature. Previous research has provided guidelines for managing strategically relevant impressions through typeface (Henderson et al., 2004); our research is the first to empirically test these guidelines in the context of packaging as an important marketing channel. We also expand on the idea that persuasion is enhanced when a typeface's semantic associations echo with the message being communicated, by looking at product intrinsic or extrinsic cues as a source of message because consumers tend to draw inferences from these cues. In doing so, we

20

contribute to the literature on cues as our studies help shed light on the ways in which typeface interacts with different cues.

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