行政院國家科學委員會專題研究計畫 成果報告

母品牌形象對產品線延伸的影響—同化與對比作用中的屬性相關性觀點(第 2 年)
研究成果報告(完整版)

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計畫參與人員：學士級-專任助理人員：王偉峰

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中 文 摘 要 ： 本研究探討在一個節目或一本雜誌中，前則廣告中相關的產品屬性訴求如何影響消費者對同類產品後則廣告的態度。研究結果指出，連續兩則廣告中，正相關的產品屬性會導致同化作用，促進消費者對後則廣告的評價；但若是負相關的產品屬性則會產生對比作用。此外，若後則廣告中的產品品牌是前則廣告的次品牌，也會產生對比作用，使用消費者對後則廣告的評價降低。

中文關鍵詞： 同化與對比效果、品牌策略、產品屬性相關性、產品知識、資訊深度

英 文 摘 要 ： This article investigates the effects of correlating product attributes in sequential ads on the attitudes of consumers regarding the succeeding advertised product. The research suggests that a positive correlation of attributes between a leading and succeeding ad will lead to an ’assimilation effect;’ also a negative correlation of attributes between two ads and/or an unambiguous sub-brand in the succeeding ad will yield a ’contrast effect.’ Finally, experts and novices do not reveal differences when the attribute correlation is based on surface cues; when the correlation involves deep cues, however, the effects are more pronounced in experts than in novices.

英文關鍵詞： Assimilation and Contrast Effect; Branding Strategy; Attribute Correlation; Product Knowledge; Information Depth

行政院國家科學委員會補助專題研究計畫■ 成果報告
□ 期中進度報告

母品牌形象對產品線延伸的影響

—同化與對比作用中的屬性相關性觀點

計畫類別：■ 個別型計畫　　□ 整合型計畫
計畫編號：NSC 98-2410-H-004-052-MY2
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中華民國一〇〇年十二月十八日

中文摘要

本研究探討在一個節目或一本雜誌中，前則廣告中相關的產品屬性訴求如何影響消費者對同類產品後則廣告的態度。研究結果指出，連續兩則廣告中，正相關的產品屬性會導致同化作用，促進消費者對後則廣告的評價；但若是負相關的產品屬性則會產生對比作用。此外，若後則廣告中的產品品牌是前則廣告的次品牌，也會產生對比作用，使用消費者對後則廣告的評價降低。

關鍵詞： 同化與對比效果、品牌策略、產品屬性相關性、產品知識、資訊深度

Abstract

This article investigates the effects of correlating product attributes in sequential ads on the attitudes of consumers regarding the succeeding advertised product. The research suggests that a positive correlation of attributes between a leading and succeeding ad will lead to an "assimilation effect;" also a negative correlation of attributes between two ads and/or an unambiguous sub-brand in the succeeding ad will yield a "contrast effect." Finally, experts and novices do not reveal differences when the attribute correlation is based on surface cues; when the correlation involves deep cues, however, the effects are more pronounced in experts than in novices.

Keywords: Assimilation and Contrast Effect; Branding Strategy; Attribute Correlation; Product Knowledge; Information Depth

Several popular products on the market have recently had to overcome reputation problems in the Asian market concerning the value and effectiveness of their products. P&G's Head & Shoulders, for instance, which is known for its dandruff protection, also had the reputation of cleaning the scalp too much and drying out the hair. In response to this, P&G launched a new version of Head & Shoulders which emphasized the dual function of "flake elimination" and "shining your hair."Dove also suffered a similar problem: its signature selling point was "one-quarter moisturizing cream," yet many felt it was not a totally pleasant product because it was too oily to use during the humid summer months in South-Eastern Asia. To overcome this weakness, Dove started to promote its new Aqua Moisture Dove which contained a light and refreshing formula in its new soap, shampoo, and face cleanser products to redress these concerns.

In the above examples, both Head & Shoulders and Dove had strong and clear positions and brand images based on their unique selling points. But unfortunately the unique selling point was associated with a weakness which may or may not have been true, but it certainly attracted the attention of marketers. Hence, they tried to add one extra element, which was unrelated or even opposite to the original position, to launch a new product line to solve the problem. This response by these two companies evokes an interesting research question, one which will be the central focus of this paper: How do the interaction of an original and a new selling point influence a consumer's evaluation of the new line extension?

Dove had several choices before it: it could launch an Aqua Moisture cleanser as a new product with a new name, it could extend its product line under an established brand, such as new Aqua Moisture Dove, or it could introduce a replacement product for the original line, such as New Dove. When a new product line is labeled under a well established brand like Dove,

the company implies that the new product has some improved attributes, but it also tacitly signals to the consumer to compare the new one with the original one. Therefore, the unique selling point of the prior product may affect the judgment of consumers regarding the new product line in the same or related product categories (Labroo & Lee, 2006; Lee & Labroo, 2004).

The research questions about new product lines in this study were first motivated by the two real-life examples, Head & Shoulders and Dove. We were then inspired by Wänke, Bless, and Schwarz' (1998) work on context effects in product line extensions. Wänke and her colleagues suggested that prior product attributes of a brand might serve as a context of comparison for the new product line. An assimilation effect occurred when a continuous brand name was used for the new product line; whereas a contrast effect happened when a discontinuous brand name was employed (Wänke, et al., 1998). The present study therefore adopted the theory of assimilation and contrast effects to systematically investigate how the attributes of the existing product would influence the attitudes of consumers toward the target new product line.

In contrast to Wänke, et al.'s (1998) main focus, which explored how previous product lines influenced the new and different product line, this study focused on the new product line and the consequences of its being either similar or opposite to previous products. As the real world examples presented in the opening paragraph suggest, product managers often consider adding more attributes to the new product line to overcome the weakness associated with the original signature appeal. For example, the light and refreshing formula Aqua Moisture Dove can be viewed as an alternative, if not an outright challenge, to the previously problematic "one-quarter moisturizing cream." It is precisely the context effect arising from this relationship between product attributes that sparked this study.

A second concern this study wishes to redress is the tendency in prior research of

assimilation and contrast effects in the same dimension. For instance, in Della Bitta, Monroe, and McGinnis (1981), Herr (1989), and Wänke, et al. (1998), the context and target stimuli both carry a single attribute, such as price, and the judgment about the target's attribute is influenced by the context's very attribute. The current study would like to demonstrate that assimilation and contrast effects can occur in highly correlated attributes (but not necessarily the same attributes) in order to contribute to the field of academic knowledge on context effects.

Previous research has identified two general classes of variables which influence context effects. The first class of variables, called stimulus-related variables, refers to the variation in the target or context stimulus properties that affect the strength of context effects. For instance, the extremity of the context stimulus (Herr, Sherman, & Fazio, 1983) interacts with the ambiguity of the target stimulus (Herr, 1986, 1989; Lee & Suk, 2009) to produce different context effects. An ambiguous target stimulus coupled with a moderate context stimulus leads to assimilation, which means the respondent's judgment of the target is similar to the context stimulus; while when either target ambiguity or context extremity does not exist, a contrast effect occurs such that the respondent's judgment of the target is conditioned to be away from the context stimulus. Furthermore, more overlap in the attributes between the target and context stimulus leads to assimilation, while less overlap in the attributes triggers contrast (Meyer-Levy & Sternthal, 1993). Given these results, the ambiguity of target stimuli and overlapping attributes are the focus of our first study. Study one focused on what role a pair of correlated product attributes in successive order under different branding strategies might have on the consumer. The leading ad became the context of the succeeding ad when consumers evaluated the succeeding target ad.

The second type of variables, called individual-related variables, refers to individual

differences in the propensity of consumers to be influenced by judgmental contexts, such as the availability of cognitive resources and differences in knowledge about the target or context stimuli. Meyers-Levy and Sternthal (1993) synthesized the previous findings of the assimilation and contrast effects and concluded that the contrast effect would occur when there were fewer attributes between the target and context stimulus shared in common; they would also occur when the consumer expended more cognitive effort in processing stimulus information. When either of the two conditions is not satisfied, assimilation happens. Therefore, the knowledge of the target product consumers possess is also considered in study two. Study two replicated the variables and design of study one but with a different product and also investigated the effects of the depth of information conveyed to consumers who possessed different levels of product knowledge on the context effect in advertising.

STUDY ONE

As discussed above, when the target is ambiguous, more attributes overlap between the target and context stimuli induces assimilation; while less overlap induces contrast. However, if the target is unambiguous, it is easy to achieve the contrast effect (Herr, 1986; Herr et al., 1983; Lee & Suk, 2009; Levin & Levin, 2000; Meyers-Levy & Sternthal, 1993). The present research links the ambiguity of the target to the branding strategy of the succeeding advertisement; it develops around the notion of attribute overlap by manipulating the correlation of a product's attributes between the two serially presented advertisements. The conceptual framework of study one is presented in Figure 1.

Place Figure 1 about here

The Role of Branding Strategies

Two branding strategies were considered for a new product in the target ad: implementing a new brand and a sub-brand. A new brand is a newly developed brand name; a sub-brand is a new brand that bears the parent brand name as part of its own brand name. These two branding strategies both carry an ambiguous characteristic: namely, the new brand name. An unknown new brand is an ambiguous target, in the same way the unknown animal used in Herr's study (1986). In contrast, a sub-brand is less ambiguous than a new brand because it inherits the parent brand image by virtue of the familiarity consumers already have with the parent brand. It should be noted that a well-established existing brand was not considered in this study because a strong brand image may not be subject to the influence of a context effect in an experiment. It should be further noted that for the purpose of the present paper, the parent brand was always presented in the leading ad to serve as the context, while the sub-brand and the new brand were present in the succeeding ads as the target for forming an evaluation.

The sub-brand in the succeeding ad is not equivalent to a well-established existing brand with a strong image. The new sub-brand product does not have a concrete brand image; meanwhile, it can be easily compared with the parent brand in the leading ad due to the shared name of the parent brand. The sub-brand is relatively unambiguous, compared with a completely new brand. According to the conditions proposed by Herr (1986), the parent brand in the leading ad should prime viewers for a contrast effect on their evaluation of the sub-brand in the succeeding target ad. In other words, after viewing a leading ad, consumers tend to infer the succeeding unambiguous sub-brand to be worse than the leading brand with respect to the leading focal attribute as opposed to when the leading ad is not provided:

H1: When two ads are presented in a sequence, a parent brand in the leading ad will lead to

a contrast effect on the evaluation of the sub-brand in the succeeding ad.

The above hypothesis was developed by treating the sub-brand as an unambiguous target stimulus, and a contrast effect was predicted in parallel with Herr (1986) in such a case. In contrast, when the succeeding ad carries an ambiguous new brand, the effect of assimilation or contrast from the leading ad depends on the overlap of the two attributes (Levin & Levin, 2000). Therefore, one more factor should be considered when the succeeding ad is a new brand, which will be discussed further.

The Role of Product Attribute Correlations in Advertisements

The degree of product attribute correlation can be viewed as the level of attribute overlap for context effects (Levin & Levin, 2000). When ads are viewed in sequences, such as TV commercials and magazine ads, ads that appear early in the sequence may serve as the context for evaluating the subsequent ads. In such cases, positively or negatively related attributes between the leading and the succeeding ads may induce context effects. Positive attribute correlation implies high attribute overlap and leads to the assimilation effect, whereas negative or low attribute correlation in the ads implies low attribute overlap and leads to the contrast effect.

For example, two automobile ads appear in a car magazine in a sequence. Suppose the leading ad focuses on the "safety" of the car, while the succeeding ad appeals to "deftness." A contrast effect on the deft car is then expected to occur: it may be perceived as "unsafe" because deftness and safety are usually perceived as two negatively related attributes. Consumers tend to assume that the deftness of a car is usually achieved by reducing weight and can therefore easily tip-over. In other words, the negatively related product attributes (namely, the attributes of safety and deftness) share a low attribute overlap. When two ads with negatively related attributes are presented in a sequence, consumers tend to infer the succeeding ambiguous new

brand to be worse with respect to the focal attribute in the leading ad than when there is no leading ad. This contrast effect resulting from the negative product attribute correlation is described in hypothesis 2a:

H2a: When two ads are presented in a sequence, negatively related attributes in the leading and succeeding ads will lead to a contrast effect on the evaluation of the succeeding new brand.

On the other hand, a strong positive correlation between product attributes in the ads implies a high attribute overlap, leading to the assimilation effect. Assume, for example, the first ad emphasizes the "safety" of the car, while the succeeding ad appeals to the "luxury" of the car. To consumers, the two product attributes appealed to in the ads are correlated and share a high attribute overlap because consumers usually assume luxury cars will have more safety features installed in the vehicle. Thus, the appeal to safety in the leading ad may activate any or all related consumer expectations of luxury. In other words, the succeeding luxury car is also perceived to be a safe car: an assimilation effect occurs. This study thus proposes that consumers tend to infer the succeeding ambiguous new brand to be good with respect to the focal attribute in the leading ad when two ads with positively related attributes are presented in a sequence. This would not arise if the ad were delivered by itself.

H2b: When two ads are presented in a sequence, positively related attributes in the leading and succeeding ads will lead to an assimilation effect on the evaluation of the succeeding new brand.

Method

Pretests. The purpose of the pretests was to select appropriate product attributes in the chosen product categories. To manipulate the correlation of attributes, two target attributes in the

product of the succeeding ad were needed: one was positively related and the other was negatively related to the priming attribute of the product in the leading ad. Then, the selected product attributes were transformed into regular ad appeals.

A facial cleanser was chosen as the experimental product based on the results of the first pretest. After a series of other pretests were conducted, the attribute "good moisturizing effect" was selected as the context attribute. For the positive attribute correlation, the attribute "no dryness after washing your face" was selected. Respondents to the pretests perceived these two attributes as positively correlated. The attribute "super cleansing power" was selected as the negatively related attribute. Since a good moisturizing effect in facial cleansers usually implies less cleansing power, respondents believed that these two attributes were negatively correlated.

The brand Dove was used for the facial cleanser category based on the result of a pretest. Next, we had to decide on a fictional product with a suggestive name in order to provide a basis of correlation for the experiment. Respondents preferred "Aroma" and "Scent" equally in a pretest. The fictitious facial cleanser brand Aroma was employed for the new brand condition. For the sub-brand strategy condition, Dove-Scent was employed as the sub-brand name.

Design and Material. Study one was a 2 (parent brand in the leading ad: with vs. without) × 2 (branding strategies of the succeeding ad: new brand vs. sub-brand) × 2 (attribute correlation: positive vs. negative) between-subject factorial design. The group with a parent brand in the leading ad was the experimental group; the branding strategy and attribute correlation were also the independent variables causing the assimilation effect toward or the contrast effect away from the perception of the parent brand. The group without the parent brand in the leading ad was the control group, which provided the baseline to reveal the assimilation or contrast effect. The dependent measure was respondents' evaluation of the target product in the succeeding ad on the

focal attribute in the leading ad.

The real brand Dove was used in the leading ad with "good moisturizing effect" as its main appeal. The succeeding ad was either the fictitious new brand Aroma or the sub-brand Dove-Scent, with "no dryness after washing your face" or "super cleansing power" as the main appeal. The positive product correlations between two ads implied high feature overlap, which were "good moisturizing effect" and "no dryness after washing your face," while the negative relationship implied low feature overlap, which were "good moisturizing effect" and "super cleansing power." "The moisturizing effect" of Aroma and Dove-Scent was measured to reveal the results of the context effect. The brands and the product attributes were directly presented in the respective ads by using the same picture of the products, identical copy sizes, and a similar layout.

Procedures and Measurements. The experimental booklet consisted of two print ads (i.e., the leading and the succeeding ad), dependent variable measurement questions, manipulation check questions, and confounding check questions. Respondents were asked to proceed page by page at their own pace, without going back to revise their answers. The booklet started with the instructions for the experiment and described the general purpose of the study. The next page presented the leading ad with the parent brand cleanser (i.e., the experimental group) or an irrelevant digital camera (i.e., the control group), and then the confounding check questions to see if respondents under different conditions would maintain similar preferences toward the ads and the brands in the ads. There were nine attitude and cognitive questions in a Likert-type five-point scale, such as "I think Dove cleanser can perform professionally," "I believe Dove cleanser is of high quality," "I feel Dove cleanser functions well," and so on. The scales were labeled as "strongly disagree," "disagree," "neither disagree nor agree," "agree," and "strongly

agree."

The third page contained the succeeding ad with either the new brand or sub-brand, and the focal attribute that was either positively correlated or negatively correlated with the focal attribute in the leading ad. The same set of confounding check questions were listed underneath.

The next page contained the dependent measurements to assess the context effects. Each respondent rated five attributes: "good moisturizing effect," "easy to wash off," "no dryness after washing your face," "super cleansing power," and "suitable for both men and women" in a five-point scale for four brands of facial cleanser. The four brands in sequence were the brand in the succeeding ad, the brand in the leading ad, and two filler brands. Respondents answered how much they agreed that the brand had the respective targeted attribute on a five-point scale. Only the evaluation of the main focal attribute in the leading ad, namely, "good moisturizing effect," was used for the dependent measure.

The questionnaire ended with attribute correlation questions scaled from -3 (extremely negatively related) to 3 (extremely positively related) as a manipulation check to ensure the perceived attribute correlations were not different from those found in the pretests. Respondents were also given brand awareness questions and brand preference questions. The brand list contained brands used in the experiment as well as other facial cleanser brands in the market. When respondents finished answering all the questions, they were debriefed and given a small giveaway for their participation.

Results

The respondents were 274 undergraduate students from a major university in Taiwan. Eighty-eight of them were males and 186 were females. They were invited to fill out the

questionnaire one by one in exchange for a small giveaway.

Manipulation Check and Confounding Check. Two manipulation checks were performed to ensure the validity of the experimental manipulations. First, the mean correlation score of the focal attributes "good moisturizing effect" and "no dryness after washing your face" was 1.72 (SD = 1.28), significantly higher than the mid-point 0 ($t(272) = 24.20$, $p < 0.01$). The mean correlation score of the attribute "good moisturizing effect" and the attribute "super cleansing power" was -1.23 (SD = 1.45), significantly lower than the mid-point 0 ($t(272) = -13.97$, $p < 0.01$). Thus, the manipulation check revealed that the perceived attribute correlation was as expected.

The second manipulation check attempted to verify whether the appeal in the leading ad was accepted by respondents, which was the first step to priming a context effect. The mean value of Dove's "moisturizing" in the leading ad was measured against the mid-point of the five-point scale. The result ($M = 3.79$, SD = 0.83) was significantly higher than the mid-point three ($t(118) = 10.46$, $p < 0.01$).

The confounding check was to make sure that the designs of the ads in different conditions were similar and did not cause any confounding bias. No difference was found in the attitude measures toward the design of the ads across any of the experimental conditions.

Hypothesis Testing. The control group, which comprised the group where there was no parent brand in the leading ad, was the baseline to reveal the net context effects. The results of a 2 (parent brand in the leading ad: with vs. without) × 2 (branding strategies of the succeeding ad: new brand vs. sub-brand) × 2 (attribute correlation: positive vs. negative) ANOVA showed that the model was significant (F=13.27, p<0.01; R^2=0.26; see Table 1).

Place Table 1 about here

The brand strategy variable was that the branding strategy was significant ($F(1,273) = 13.36$, $p < .01$). The average rating of respondents on "moisture" for the succeeding sub-brand group ($M = 3.35$, SD = .86) was higher than the new brand group ($M = 2.97$, SD = .82). This result was expected because the sub-brand carried the image of the parent brand; thus, the "moisture" image of the parent brand could be transferred to the sub-brand easily. Amore interesting finding was the significant interaction effect of the leading ad and brand strategy ($F(1,273) = 19.25$, $p < .01$). The sub-brand Dove-Scent immediately evoked in respondents the "moisture" perception of Dove and had a relatively high score on "moisture" when the leading ad was irrelevant to the cleanser ($M = 3.58$, SD = .75). However, the perception of "moisture" was weaker when the leading ad presented the parent brand ($M = 3.07$, SD = .90; see Figure 2). The contrast effect was revealed when the new product used the sub-brand strategy ($F(1,135) = 13.06$, $p < .01$). Hypothesis 1 was supported.

On the other hand, if the new product in the succeeding ad employed a new brand strategy (i.e., Aroma), an assimilation effect was observed ($F(1,137) = 4.27$, $p = .04$). The baseline, that the leading ad was irrelevant, indicated that the average perception of the moisture attribute of the new brand was 2.85 (SD = 0.74). If the leading ad presented Dove, the new brand could create a better moisture image ($M = 3.13$, SD = .89; see Figure 2). However, this assimilation effect was actually complicated by the further interaction with the attribute appealed to in the ad (i.e., positive or negative attribute correlation).

Place Figure 2 about here

The attribute correlation variable had a significant main effect ($F(1,273) = 33.78$, $p < .01$). There was no surprise that for the negative attribute correlation condition (namely, “super cleansing power”) ($M = 2.97$, SD = .82), the average rating of respondents on “moisture” for the succeeding brand was lower than that of the positive attribute correlation group (“no dryness after washing your face”) ($M = 3.35$, SD = .86).

The context effects proposed in hypotheses 2a and 2b—that when the brand of the succeeding ad is a new brand, negatively correlated attributes lead to contrast effects, whereas positively correlated attributes lead to assimilation effects—are preliminarily supported by the significant three-way interaction effect ($F(1,273 = 70.8$, $p < .01$) (see Table 1). Figure 3 clearly illustrates a different pattern for the new brand group from the sub-brand group. For the sub-brand product in the succeeding ad, no matter if the attribute enhanced in the ad was positively or negatively related to the appeal in the leading ad, a contrast effect happened as proposed in hypothesis 1. However, positively versus negatively related attributes provoked the opposite effects when the product was under a new brand in the succeeding ad. The negatively related attributes in the leading and succeeding ads stimulated a slight contrast effect (from $M = 2.69$, $SD = .61$ to $M = 2.47$, $SD = .63$) on the evaluation of the succeeding new brand, as stated in hypothesis 2a; however, the F-test result indicated the right direction but was not significant ($F(1,68) = 2.24$, $p = .14$). On the other hand, hypothesis 2b, that positively related attributes in the leading and succeeding ads would lead to an assimilation effect on the evaluation of the succeeding new brand, was fully supported ($F(1,68) = 20.89$, $p < .01$). When the leading ad was irrelevant, respondents evaluated the moisture level of the new brand in the succeeding ad at 3.00 (SD = 0.83). However, when the leading ad was the parent brand Dove, respondents acknowledged the moisture level of the following new brand, showing an assimilating rating of

3.80 (SD = 0.55).

Place Figure 3 about here

Discussions

Study one investigated the roles of branding strategy and attribute correlation in inducing context effects in sequential presentations of advertisements on two brands in the same product category. It was found that a positive attribute correlation induces assimilation when a new brand is presented in the succeeding ad. Consumers tend to assume the succeeding brand holds similar product attributes as the leading brand. In contrast, when the product attributes of the sequentially presented ads do not overlap enough, or when the target brand in the succeeding ad is the sub-brand product of the parent brand in the leading ad, a contrast effect occurs. Consumers may start to compare these two brands and infer the succeeding brand is inferior to the leading brand with respect to the advertised attribute of the leading ad.

Given the negative attribute correlation in the new brand condition, the assumed contrast effect was not fully supported by the experimental data. It seems that consumers might not necessarily associate the attribute “super cleansing power” as the negative correlative of “good moisturizing effect” when the two appeals were used by two irrelevant brands. If consumers don’t intuitively compare the two attributes, the contrast effect will not occur. However, the directional support in this study suggests that some respondents were still able to build the linkage between the two attributes even though they were used in different brands. This fact implies an individual difference.

The further question raised by study one concerns the individual difference in perceiving the similarity or opposition between the two focal attributes in the ads. Some attributes are easy to

detect if they are related, but others may need a certain level of knowledge to discover the relationship. However, the nature of the attribute similarity and the level of individual knowledge were not controlled in our study one. Herr (1989) found that respondents holding more product knowledge displayed a stronger priming effect than novices, because only the expert group knew the price ranges of the cars in the given context, which was in turn influenced strongly by the priming product. The novices who did not have enough knowledge about cars or the price ranges were less likely to be influenced to form different judgments about the expensiveness of the target car. Consequently, study two further investigates the moderating role of product knowledge and information depth on the context effects in sequential ads.

STUDY TWO

The Role of Information Depth and Product Knowledge

The existing knowledge of consumers determines the amount of their elaboration when facing judgment-relevant information or numerical anchors, then further influences the result of communication (cf., Wegener, Petty, Blankenship, Detweiler-Bedell, 2009). Past research also found that the context effect depends on the level of knowledge consumers have about the product. In investigating the context effect on the perception of prices for automobiles, Herr (1989) noticed that male consumers who were more knowledgeable about cars showed the assimilation and contrast effects as expected. Female consumers, on the other hand, who had less knowledge about the automobile domain, only revealed the assimilation effect. Along with the results from other studies, Herr (1989) concluded that experts were more vulnerable to the context effect than novice consumers.

On the other hand, in studying the effects of naming continuity on brand extension evaluations, Wänke, Bless, and Schwarz (1998) found that experts who had more knowledge about the target brand were not influenced by context information of naming continuity, while novices who were less familiar with the brand were more likely to be influenced by naming continuity. They concluded that novices were more vulnerable to context influences than experts. Note that this conclusion is at odds with that of Herr's (1989) study reviewed above. The conflicting results imply that some other variables should be considered.

A seemingly unrelated study may help resolve the discrepancy. Psychological research in analogical reasoning has distinguished between superficial and structural similarities and studied their differential effects on analogical transfer (Reeves & Weisberg, 1994; Holyoak, 1985; Holyoak & Koh; Holyoak & Thagard, 1989). A superficial similarity is more likely to be attribute-based, where the base domain and the transferring target domains carry similar attributes and lead to an analogical transfer at the surface level. A structural similarity is usually relation-based, where similarities in the relations among attributes serve as the deep basis of analogical transfer.

A similar notion has been applied in marketing research of brand extensions. Muthukrishnan and Weitz (1991) studied the effects of surface versus deep cues on brand extension evaluations. A surface similarity in this context refers to a feature overlap in the product's appearance or functionality. For instance, a tennis racquet and a pair of tennis shoes may be perceived as similar products because they are both used for the same kind of sport; this is a surface commonality. In comparison, a deep similarity would require more knowledge about the domain, such as knowing there were similar manufacturing techniques or materials used in each product. Thus the similarity between the tennis racquet and golf club could be

based on a “deep” cue. By distinguishing the surface versus deep cues, Muthukrishnan and Weitz (1991) found that both experts and novices could accept brand extensions from tennis shoes to tennis racquets. Nonetheless, experts were better at utilizing deep cues and, as in this instance, demonstrated a greater appreciation for the golf club makers extending their brand to produce tennis racquets. In sum, surface similarities were understood by both experts and novice consumers, while deep similarities were comprehended and utilized mostly only by experts.

Comparing the perspective of the information types in Herr (1989) and Wänke, et al. (1998), one can assume that the different conclusions drawn by the two studies are due to the differences in the information depth offered in the experiments. The automobile price in Herr (1989) was a relatively deep cue which required a certain level of expertise to evaluate the information. The naming continuity in Wänke, et al. (1998), on the other hand, counted mostly on surface similarities. As a result, knowledgeable consumers in Herr’s study (1989) and less knowledgeable consumers in the studies of Wänke, et al. (1998) both revealed strong context effects.

The Effects of Surface Cues on Assimilation and Contrast Effects

As supported in study one, positive attribute correlations between sequential ads should lead to an assimilation effect on the evaluation of the succeeding ad, while negative attribute correlations should lead to a contrast effect. Further taking into account the results of both Herr (1989) and Muthukrishnan and Weitz (1991), the assimilation and contrast effects proposed above should be obvious when the product attribute information is of a surface nature. Once again, “surface” implies that the relationship between the product attributes in the two ads is relatively transparent to the viewer. Study two, in correspondence with the proposed

hypotheses in study one, further proposes hypotheses 3, 4a, and 4b for surface information conditions. Hypothesis 3 suggests a contrast effect that, after viewing a leading ad where the product attribute is easily related to the attribute featured in the succeeding ad, consumers tend to infer that the succeeding unambiguous sub-brand is worse on the particular attribute than if there is no leading ad.

H3: Both experts and novices tend to infer that the succeeding unambiguous sub-brand with both a positively and negatively correlated surface attribute is worse on the attribute in the leading ad than when the leading ad is not related.

Hypotheses 4a and 4b focus on the situation in which the succeeding ad presents a new brand. To consumers, the new brand is ambiguous and carries no prior image. The evaluations of consumers of the succeeding brand then tend to be influenced by the focal attribute in the leading ad if the relationship between the two attributes is easily detectable. In other words, after viewing a leading ad, consumers tend to infer that the succeeding new brand with a negatively correlated surface attribute is worse on that attribute than without the leading ad (H4a); conversely, consumers may feel that the succeeding new brand with a positively correlated surface attribute is better on that attribute (H4b).

H4a: When two ads are presented in a sequence to both experts and novices, negatively correlated surface attributes in the leading and succeeding ads would lead to a contrast effect on the evaluation of the succeeding new brand.

H4b: When two ads are presented in a sequence to both experts and novices, positively correlated surface attributes in the leading and succeeding ads would lead to an assimilation effect on the evaluation of the succeeding new brand.

The Effects of Deep Cue and Product Knowledge on the Assimilation and Contrast Effect

When attribute information is deep, the situation should be more complicated. Novice consumers can catch low surface correlations but not deep ones. Thus, when the attribute information is deep, novices have difficulty understanding and utilizing the information relation and in turn will not be influenced by the leading ad to judge the succeeding ad. Only experts can fully understand the deep relation between the product attribute in the leading and succeeding ads. Hence the contrast effect is expected to occur on experts but not novices with respect to negatively deep attribute correlations. Therefore, the proposed contrast effect is more obvious on experts than on novices when the attribute correlation is deep. In other words, after viewing a leading ad:

H5: Experts tend to infer that the succeeding brand, both sub-brand and new brand, with negatively correlated deep attribute is worse on the attribute emphasized in the leading ad than when the leading ad is not related; this does not hold for novices.

However, experts' reactions toward the positively correlated deep attribute of a sub-brand should be different from the contrast effect proposed in hypothesis 1 or the positive surface correlation attribute proposed in hypothesis 3. The unambiguous sub-brand leads consumers to associate it with the parent brand. In study one where surface cues were involved, respondents compared the "no dryness after washing your face" of Dove-Scent to the "good moisturizing effect" of Dove, and formed an evaluation of Dove-Scent as less moisturizing than Dove. However, when the relation between the two appeals are not easy to understand (i.e., deep cues), even experts have to first process the deep correlated attributes to decide if the attributes are positively or negatively associated. Thus, they may not be able to employ the extra cognitive effort to compare the target to the reference, but directly apply the positive association to the target. Thus, an assimilation effect occurs. The whole cognitive process won't occur with

novices because they can hardly catch the relation between the two deep appeals.

H6: Experts tend to infer that the succeeding unambiguous sub-brand with positively correlated deep attributes is better on the attribute emphasized in the leading ad than when the leading ad is not related; this does not hold for novices.

A similar rationale also applies to the case of a new brand with positive attribute correlations, which would lead to an assimilation effect as proposed in study one. Compared to novices, experts' product knowledge makes it easier for them to relate the deep cue in the leading ad to the deep cue in the succeeding ad. Expert consumers and not novice consumers, then, are more likely to detect a positive correlation between deep cues in two ads and, in turn, reveal an assimilation effect on their evaluation of the new brand.

H7: Experts tend to infer that the succeeding ambiguous new brand with positively correlated deep attributes is better on the attribute emphasized in the leading ad than when the leading ad is not related; this does not hold for novices.

Table 2 presents the conditions of assimilation and contrast effects proposed in study two. The complete conceptual framework of study two is presented in Figure 1.

Place Table 2 about here

Method

Pretests. A series of pretests were conducted to select an appropriate product category, brands and product attributes for the second experiment in similar fashion to study one. Note that in addition to the requirements similar to study one, the selected attributes were required to contain both deep and surface information, where surface information could be understood by both novice and expert consumers but deep information could be understood only by experts.

After several pretests, a digital camera was selected as the experimental product. The context attribute in the leading ad was "camera for professional use." Four attributes with different levels of correlation and information depth were identified and used in the succeeding ad: a high quality lens (deep positive correlation), multiple automatic default modes (deep negative correlation), a high number of pixels (surface positive correlation), and a low price (surface negative correlation).

The Sony (model F-828) was chosen as the context brand for the digital camera in the leading ad. After testing for brand associations, the fictitious brand DigiXpert K-9 and Sony-Master K-9 were used as the new brand and sub-brand, respectively.

Design and Materials. The experiment was a 2 (parent brand in the leading ad: with vs. without) × 2 (branding strategies of the succeeding ad: new brand vs. sub-brand) × 2 (attribute correlation: positive vs. negative) × 2 (information depth: surface vs. deep) × 2 (product knowledge: expert vs. novice) between-subject factorial design. The presentation of the parent brand, branding strategies, and attribute correlations were manipulated in the same way as study one. Information depth was a moderator and was manipulated through the attributes selected by a pretest as reported above.

For the purposes of this study, objective knowledge was more appropriate than subjective knowledge (Brucks, 1985; Herr, 1989; Maheswaran & Sternthal, 1990; Muthukrishnan & Weitz, 1991; Yi, 1993) since respondents had to be able to understand the correlation between the appeals in the two ads. This study employed Brucks' (1985) dimensions for objective knowledge to measure the product knowledge of respondents: terminology, available attributes, criteria for evaluating attributes, attribute co-variation, and usage situations. Around 28 items were created according to these five dimensions and tested in pretests. Finally, 14 items were

selected based on the reliability and validity of pretest results to measure the objective knowledge of respondents, which was consequently another moderator in the main study.

Participants and Procedure. The experimental procedure was similar to that in study one. Respondents were first given the leading ad and the associated confounding check questions, and then repeated the same process for the succeeding ad. The dependent measure was the evaluation of the professional usage of the succeeding brand in a five-point Likert-type scale, with five as "strongly agree." This question was embedded in six filling items of other attribute evaluation; so respondents would not pay special attention on the focal attribute. Next, they answered the 14-item objective knowledge questions. The experiment ended with manipulation check, brand awareness, and brand preference questions as in study one.

Results

A total of 743 undergraduate students were recruited as the respondents for the experiment and randomly assigned to different experimental conditions. Sixty-three percent of them were females.

Product Knowledge Measurement and Categorization. One correct answer on the 14-item product knowledge measurement scored one point. The range of respondents' scores was from 0 to 14, with a mean of 6.32 and standard deviation of 3.06. The overall Cronbach's α value for the knowledge measurement was .78. The distribution was close to a bipolar one with two peaks at 4 and 10, which made the categorization easy. In order to clear cut the knowledge group, 75 respondents with a score of 6 were deleted. Respondents with a knowledge score of 7 or higher were grouped into the expert category (n=329, M=9.26, SD = 1.66) whereas the rest, those with a knowledge score of 5 or less, were grouped in the novice

category (n=339, M =3.54, SD = 1.31).

Manipulation Check and Confounding check. The attribute correlation questions were analyzed with respect to the knowledge levels of consumers. The perceived correlations of each target attribute and context attribute in high versus low knowledge consumers are presented in table 3. Experts could easily recognize the correlation between the context and target attributes. However, novices only realized the correlation when the relationship was a surface one. There were significant differences in both positive and negative attribute correlations between experts and novices with respect to deep information ($t_{positive}$=13.37 and $t_{negative}$=6.42), but not surface information ($t_{positive}$=0.71 and $t_{negative}$=0.94). In sum, the manipulation check revealed that the attribute correlation in relation to the product knowledge of consumers satisfied the experimental requirement.

Place Table 3 about here

The second manipulation check verified whether the appeals in the leading ads were successfully accepted by respondents. Respondents' evaluations of the Sony digital camera in the leading ads on the professional quality of the camera were analyzed. The mean evaluation (M = 3.93, SD = .73) is significantly higher than the mid-point 3 (t(465) = 27.60, p < .01). Therefore, the appeal of the professional camera in the Sony leading ad was successfully delivered to respondents.

The third manipulation check concerned the brand awareness for the two branding strategies. The brand awareness of the sub-brand (i.e., Sony-Master; n=349, M = 4.20, SD = .93) was significantly higher than the brand awareness of the new brand (i.e., DigiXpert; n=319, M = 2.35, SD = .89; t(666) = 26.25, p < .01). These provide evidence to support the contention that

respondents felt more familiar with the sub-brand than the new brand, so the sub-brand should be relatively unambiguous.

As in study one, the confounding check was to make sure that the designs of the ads in all conditions did not cause any confounding bias. No difference was found in the attitudes of respondents toward the ad design across all experimental conditions.

Hypothesis Testing. The results of a five-way ANOVA presented in table 4 showed that the model was significant ($F = 18.35$, $p < .01$; $R^2 = .46$). The means of all conditions are listed in table 5.

Place Table 4 about here

Place Table 5 about here

The first set of analyses tested hypotheses one and two in study one again to see if the data of study two could replicate the findings of study one. The interaction effect of the leading ad and branding strategy was again significant ($F(1,667) = 4.48$, $p = .03$). Hypothesis 1 asserted that a parent brand in the leading ad would lead to a contrast effect on the judgment of the sub-brand in the succeeding ad. When the leading ad presented the parent brand, the mean attitude toward the sub-brand strategy was 3.42 (SD = 1.02), which was significantly lower than when the leading ad was irrelevant ($M = 3.81$, SD = .76) with $F(1,348) = 13.19$ ($p < 0.01$). This revealed that whether the provided information was deep or surface information, and irrespective of whether the respondents were experts or novices, Sony in the leading ad mitigated respondents' evaluation about the professional level of SONY-Master K-9. Hypothesis 1 is supported again. It is worth mentioning that the supported result was based mainly on the

negative attribute correlation group ($F(1,170) = 35.01$, $p < .01$). The means of the positive attribute correlation with the sub-brand condition in both leading ad conditions were almost the same ($F(1,177) = 0.00$, $p = .96$), although the overall sub-group condition was as expected in hypothesis 1. These inconsistent results open a space for further discussions on hypotheses 3 and 5.

Hypothesis 2 discussed the situation of employing a new brand in the succeeding ad while the focal attributes in the two ads were negatively (H2a) and positively (H2b) correlated to the attribute in the leading ad. However, the three-way interaction of the leading ad, the branding strategy, and the attribute correlation was no longer significant in study two. It is speculated that the depth of the appeal in the ad and the ability of respondents to process that information might have influenced this interaction effect which was originally supported in study one.

Although the interaction of the leading ad, the branding strategy, and the information depth did not reach a significant level ($F = 3.05$, $p = .08$), the sub-group analysis was still performed because hypothesis 3 is only about sub-brand and surface information. When the target brand was an unambiguous sub-brand (i.e., SONY-Master K-9) and the appeals were of a surface nature (i.e., a high number of pixels and low price), with the parent brand in the leading ad, the average evaluation of professional usage on the digital camera in the succeeding brand ($M = 3.06$, SD = 1.07) was significantly lower than the baseline evaluation ($M = 3.75$, SD = .71) ($F(1,170) = 19.38$, $p < .01$). As long as the succeeding brand was an unambiguous sub-brand and the appeal information was easy to understand, and regardless of whether the appeals in the two sequential ads were positively or negatively correlated, respondents took the leading brand as the basis of comparison, feeling the sub-brand was inferior to the parent brand. The contrast effect occurred and supported hypothesis 3. In other words, when the focal attribute in the leading ad was of a

surface variety, respondents tended to infer that the succeeding unambiguous sub-brand was worse on the attribute of "professional use" than when the leading ad was irrelevant.

The mean score of respondents' evaluations concerning the "professional use" of the succeeding new brand (i.e., DigiXpert) was 1.69 (SD = .47) when the appeals in the sequential ads were negatively surface correlated (i.e., a low price) to the leading ad. This was significantly worse than the baseline evaluation (M = 2.75, SD = .85) (F(1,71) = 47.16, p < .01), which implied a strong contrast effect on the judgment of the succeeding new brand. The result was consistent with hypothesis 4a. On the other hand, the mean score became 3.63 (SD = .60) when the appeal of the new brand in the sequential ads was positively correlated at a surface level (i.e., a high number of pixels) to the leading ad. A significant assimilation effect (F(1,88) = 12.00, p < .01) was observed as predicted in hypothesis 4b: that respondents judged the professional level of the target brand better than the baseline evaluation (M = 3.04, SD = .95).

Hypothesis 5 concerns the higher order interaction on experts and deep attributes. The results supported hypothesis 5 and showed that experts but not novices could catch the negative relation between the deep attribute correlation in the leading and succeeding ads and be primed by the leading ad. With this combination, experts gave the succeeding brand an average of 2.95 (SD = .96) on its professional usage, which was a significant contrast effect (F(1,80) = 3.97, p = 0.05) compared to the baseline (M = 3.40, SD = .91). This contrast effect was not found on novices (F(1,72) = 1.30, p = .26). However, it was unexpected but worth notice that the insignificant result of novices were mainly from the new brand situation. In the sub-brand situation, novices also revealed a contrast effect when they rated the target (M = 3.33, SD = .76) worse than the baseline (M = 4.00, SD = .38) (F(1,44) = 10.24, p < .01) .

Consistent with hypothesis 6, experts evaluated that the succeeding unambiguous sub-brand

Sony-Master K-9 with a deep and positively correlated focal attribute (i.e., multiple automatic default modes, M = 4.41, SD = .56) was more professional than the baseline evaluation (M = 4.00, SD = 1.25, see Figure 4). However, the assimilation effect was not significant ($F(1,41)$ = 2.12, p = .15). For novices, their evaluation was from the baseline 3.67 (DS = .59) to 3.65 (SD = .88) under the context of the leading ad, which has no context effect ($F(1,40)$ = .01, p = .93).

Hypothesis 7 is similar to hypothesis 6 in that both predicted an assimilation effect. When the new brand DigiXpert advertised its high quality of lens, only respondents with a higher level of product knowledge would understand its positive relationship with professional use. Thus, they were primed to infer DigiXpert in the succeeding ad to be more professional (M = 3.70, SD = .68) than when the leading ad was not relevant (M = 3.30, SD = 1.06). This assimilation effect was a directional fit with what was proposed in hypothesis 7, but not statistically significant ($F(1,42)$ = 1.98, p = .17). Facing this combination, novices did not reveal any context effect. They evaluated the professional usage level of the new brand DigiXpert at 3.00 (SD = .83), compared with the baseline 3.17 (SD = .62); no assimilation effect was detected ($F(1,47)$ = 0.54, p = .47).

Place Figure 4 about here

Discussions

Study two replicated the findings of study one, and explored the roles of information depth and product knowledge as well. In addition to supporting the basic findings of study one, study two also found that attribute correlation induced more context effects on expert consumers than on novice consumers when the appeal relations were deep and hard to understand. However, when the product attributes were of a surface variety, both experts and novices could detect the

relationship between the two sequential product attributes and be primed by the leading ad. Study two provided a more complete picture of context effects in the sequential presentation of advertisements.

GENERAL DISCUSSIONS AND IMPLICATIONS

Summary of Results and Discussion

This study consisted of two experiments exploring context effects in sequential ad presentations in order to reveal the influence of the preceding ads on the succeeding ones. Study one showed that with an unambiguous sub-brand, the parent brand in the leading ad would lead to a contrast effect on the evaluation of the sub-brand in the succeeding ad. Moreover, with a new brand which is more ambiguous in nature, the positive attribute correlation between the two succeeding ads lead to an assimilation effect, whereas the negative attribute correlation lead to a contrast effect.

Study two further tested the moderating roles of information depth and consumer product knowledge. For situations with surface information which both experts and novices can understand, the effects of target ambiguity and attribute correlations parallel those in study one. That is, the contrast effect occurred when respondents were given an unambiguous sub-brand; when an ambiguous new brand was provided, the positive and negative attribute correlations induced assimilation and contrast effects, respectively. Finally, for situations in which deep information was available but was only explicable by experts, these experts tended to contrast the target toward the contextual reference when they were negatively correlated. Novices simply did not react to the deep correlation.

However, when the target and the context were positively correlated in a deep manner, experts didn't assimilate the target toward the reference as we expected. One possible explanation is that the deep correlated attributes manipulated in this study were not so difficult to catch their positive relation. This assumption can be supported by the fact that even novices somehow spotted the positive correlation. It's possible that experts sensed that they were comparing the target brand with the contextual parent brand in the preceding ad which was unfair. Consequently, they mentally adjusted their judgment about the target brand: in other words, there was a correction contrast effect (Maringer & Stapel, 2009; Strack, 1992; Wegener & Petty, 1997; Wilson & Brekke, 1994). The design of the current study cannot adequately distinguish if any correction effect happened. It would be interesting to design another experiment to investigate this possibility.

Academic Contributions

The present research further extended the theory of context effects into brand evaluations via the sequential presentations of advertisements. This topic has received very limited attention in the literature. From the standpoint of advertising research, this present research calls attention to the effects of a serial presentation of advertisements. There was advertising research that studied how competitive ads, when placed in adjacent positions, could influence the memory of the ad vis-à-vis each other (Burke & Srull, 1988), but the effects of ad positions on attitudes toward the ads through the mechanisms of assimilation and contrast have not been systematically explored in the past. Finally, the present study also takes into account other variables, such as information depth, that have been only marginally explored in past research on context effects. Information depth was more often noticed in research on knowledge transfer in analogical reasoning (Reeves & Weisberg, 1994). The present study pointed out what has only

been mentioned previously (Broniarczyk & Alba, 1994), that different levels of information depth may interact with already obtained knowledge of a product to influence the context effect.

Previous studies of assimilation and contrast effects have employed unreal objects as their ambiguous targets to bring out the effect, such as fictitious animals (Herr et al., 1983), hypothetical cars (Herr, 1989), and nonexistent restaurants (Stapel, Koomen, & Velthuijsen, 1998). It was assumed that when respondents carried no prior impression about these unreal objects, their judgment could be changed easily. The assimilation or contrast effect was then obvious. The researchers did not reveal any further information about these non-existing objects in the experiments: no information about their ferocity, size (Herr at al., 1983), cost (Herr, 1989), or elegance was issued (Stapel et al., 1998). However, the current study used an advertisement scheme which is closer to the reality of current marketing to present new and sub-brands with specific product attributes. This study demonstrates that the assimilation or contrast effect is strong enough even with descriptions about the target in an ad or prior brand image (i.e., sub-brand in this study) still in mind.

Prior research of assimilation and contrast effects usually primed the effect in the same dimension; in other words, the context and target stimuli both carried a single same attribute (Della Bitta, et al., 1981; Herr, 1989, Wänke, et al., 1998). This study makes obvious that assimilation and contrast effects can occur in correlated attributes. Another perspective to examine the influence of one attribute of a product on the unrevealed attribute of another product is the effect of inference. The high attribute correlation in this study may evoke stimulus-based inferences; whereas the control group may generate memory-based inferences. Prior knowledge and experience can also moderate the results of inferences (cf., Kardes, Posavac, & Cronley, 2004). Comparing these two perspectives from the theoretical angle and consequent

result should be an interesting follow-up research.

Managerial Implications

The present study suggests that the serial position where an ad appears is important to the effectiveness of the ad. Global consumer-product companies, such as P&G and Unilever, usually adopt multi-brand strategies in which multiple independent brand names are marketed. Ideally, each brand should have its own position and brand image. Media operators often offer "set manuals" for media buyers to purchase media space or time in a bundle at a lower unit cost. Our conclusions suggest those companies who purchase bundled media should strategically place several ads of different brands in one magazine or one commercial break. Two brands with a negative attribute correlation should not be placed together to avoid a possible contrast effect. If a new brand shares a similar appeal with a well established brand, they may be placed adjacent to each other to induce an assimilation effect and thereby the new brand may leverage the other's brand equity.

These managerial implications do not only apply to brands that belong to the same company but also to brands of competing companies. In order to elevate consumers' evaluations of a company's new brand, companies might place the brand after another ad of a strong competing brand sharing a positive attribute with the target brand; but it should avoid doing so when the focal attributes are negatively correlated or when the target brand is a sub-brand of the parent brand in the leading ad. Furthermore, if the focal attribute requires a certain level of knowledge about it, the media selection becomes the key issue. The inference about the succeeding ad made by the audience or viewer occurs only when the audience or viewer of the media has enough expertise.

The present results also speak to media targeting strategies. The present study indicated

that context effects are stronger on expert than novice consumers, while novice consumers showed context effects only with surface but not with deep information. Given that context effects are desirable, a company can use either surface or deep information when targeting expert consumers, but it should only employ surface information when targeting novice consumers.

Finally, it should be noticed that the explored context effects of this study do not happen with advertisements only. All the brands in the same product category endure the direct influence and comparison from other competing brands on the shelf. Retail stores usually display all the brands of facial cleansers from one company together and next to competing company's brands on the shelf. When consumers make their final purchasing decision, the "moisturizing" appeal on one brand's package may influence the perception of consumers about, say, the "deep cleansing pores" attribute on another brand. The results of this study can be applied to the point of purchase, but it is worth further study to directly test any shelf comparison effect.

Other than the limitations that inhere in using student samples and experimental designs, this study recognizes the limitations associated with only using new ambiguous brands in the succeeding ad. Even the sub-brand condition in this study is still a new entry with half of the brand name new. This study simply assumes that consumers hardly change their attitude toward a well established brand because of context effects. However, according to Herr (1986), an unambiguous well-known brand might be a target which tends to cause a contract effects. To complicate the scenario, what would happen if an ad of Head & Shoulders by P&G was posted before Lux by Unilever? Research considering this question by including the competition and position of the proceeding and succeeding brands would be of interest. In addition, the product category in the present study is the same for the leading ad and the

succeeding ad. It may be worth considering whether different products varying in their degrees of similarity among the two respective ads may reveal similar context effects.

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Table 1

ANOVA Results for Study One

	DF	MS	F
Parent Brand Ad (PB)	1	0.85	1.53
Branding Strategy (BS)	1	7.48	13.36 **
Attribute Correlation (AC)	1	18.91	33.78 **
PB × BS	1	10.78	19.25**
PB × AC	1	4.93	8.81**
BS × AC	1	5.71	10.20**
PB × BS × AC	1	3.96	7.08 **
Model	7	7.43	13.27 **

Note. ** denote significance at the α=0.01 level.

Table 2

Assimilation and Contrast Effects in Proposed Conditions for Study Two

Attribute correlation:	Negative		Positive	
Information depth:	Surface	Deep	Surface	Deep
Attribute manipulation	*low price*	*multiple automatic default modes*	*high number of pixels*	*high quality of lens*
Sub-brand strategy (Sony-Master K-9)				
Product knowledge Expert	Contrast (H_3)	Contrast (H_5)	Contrast (H_3)	Contrast (H_6)
Novice	Contrast (H_3)	No Effect (H_5)	Contrast (H_3)	No Effect (H_6)
New brand strategy (DigiXpert K-9)				
Product knowledge Expert	Contrast (H_{4a})	Contrast (H_5)	Assimilation (H_{4b})	Assimilation (H_7)
Novice	Contrast (H_{4a})	No Effect (H_5)	Assimilation (H_{4b})	No Effect (H_7)

Table 3

Attribute Correlations between Context and Target Attributes in Expert and Novice Consumers

Comparison Attributes	Product Knowledge	Correlation Score (SD)	T-test
Deep and positively correlated	Novice	1.15 (0.99)	13.37 **
Professional camera – High quality lens	Expert	2.29 (0.81)	
Deep and negatively correlated	Novice	-0.35 (1.47)	6.42 **
Professional camera – Multiple automatic modes	Expert	-1.17 (1.21)	
Surface and positively correlated	Novice	2.38 (0.87)	0.71
Professional camera – High number of pixels	Expert	2.32 (0.93)	
Surface and negatively correlated	Novice	-2.46 (0.92)	0.94
Professional camera – Low price	Expert	-2.54 (0.86)	

Note 1. Correlation questions were scaled from -3 (extremely negatively related) to 3 (extremely positively related).

Note 2. ** denote significance at the α=0.01 level.

Table 4

ANOVA Results for Study Two

Variables	DF	MS	F
Parent Brand Ad (PB)	1	12.27	21.04**
Branding Strategy (BS)	1	65.96	113.09**
Attribute correlation (AC)	1	70.81	121.40**
Information Depth (ID)	1	16.53	28.33**
Product Knowledge (PK)	1	0.54	0.46
PB × BS	1	2.61	4.48*
PB × AC	1	30.02	51.46**
PB × ID	1	4.79	8.22**
PB × PK	1	0.60	1.02
BS × AC	1	1.52	2.61
BS × ID	1	1.08	1.85
BS × PK	1	0.03	0.05
AC × ID	1	15.78	27.05**
AC × PK	1	5.77	9.88**
ID × PK	1	1.74	2.99
PB × BS × AC	1	0.32	0.54
PB × BS × ID	1	1.78	3.05
PB × BS × PK	1	0.57	0.98
PB × AC × ID	1	5.54	9.50**
PB × AC × PK	1	1.10	1.88
PB × ID × PK	1	0.04	0.07
BS × AC × ID	1	0.16	0.28
BS × AC × PK	1	0.17	0.30
BS × ID × PK	1	2.13	3.65*
AC × ID × PK	1	1.92	3.30
PB × BS × AC × ID	1	1.69	2.90
PB × BS × AC × PK	1	0.74	1.28
PB × BS × ID × PK	1	0.52	0.90
PB × AC × ID × PK	1	0.80	1.37
BS × AC × ID × PK	1	0.19	0.33
PB × BS × AC × ID × PK	1	1.04	1.78
Model	31	10.70	18.35 **

Note. ** denote significance at the α=0.01 level; * denote significance at the α=0.05 level.

Table 5

Mean Values and Standard Deviations in the Respective Experimental Conditions

Experimental Group: parent brand in the leading ad					
Sub-brand strategy					
	Attribute correlation:	Negative		Positive	
	Information depth:	Surface	Deep	Surface	Deep
	Product knowledge				
Expert		2.15 (0.72)	3.59 (0.73)	3.75 (0.67)	4.41 (0.56)
Novice		2.38 (0.85)	3.33 (0.76)	3.76 (0.87)	3.65 (0.88)
New brand strategy					
	Attribute correlation:	Negative		Positive	
	Information depth:	Surface	Deep	Surface	Deep
	Product knowledge				
Expert		1.69 (0.47)	2.26 (0.66)	3.72 (0.58)	3.70 (0.68)
Novice		1.68 (0.48)	3.00 (1.51)	3.55 (0.62)	3.00 (0.83)
Control Group: irrelevant brand in the leading ad					
Sub-brand strategy					
	Attribute correlation:	Negative		Positive	
	Information depth:	Surface	Deep	Surface	Deep
	Product knowledge				
Expert		3.36 (0.67)	3.85 (0.55)	3.90 (0.74)	4.00 (1.25)
Novice		3.65 (0.81)	4.00 (0.38)	4.06 (0.44)	3.67 (0.59)
New brand strategy					
	Attribute correlation:	Negative		Positive	
	Information depth:	Surface	Deep	Surface	Deep
	Product knowledge				
Expert		2.70 (0.95)	2.92 (1.00)	3.08 (1.16)	3.30 (1.06)
Novice		2.79 (0.80)	2.92 (1.04)	3.00 (0.74)	3.17 (0.62)

Note. Standard deviations are in parentheses.

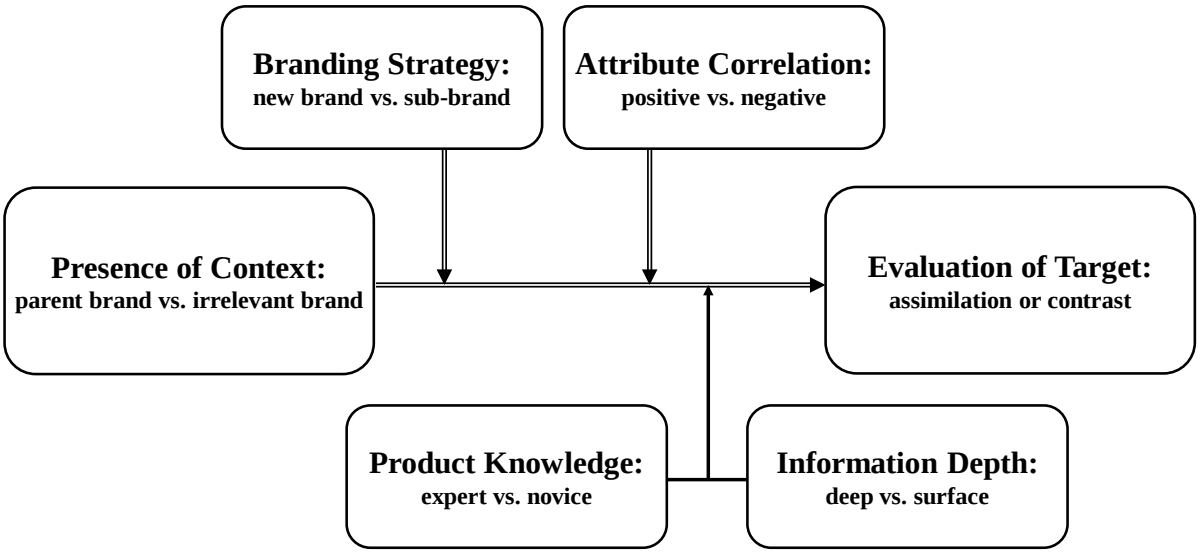

Figure 1

Conceptual Framework of Study One and Study Two

Note: Double lines represent the framework of study one. The whole framework is investigated in study two.

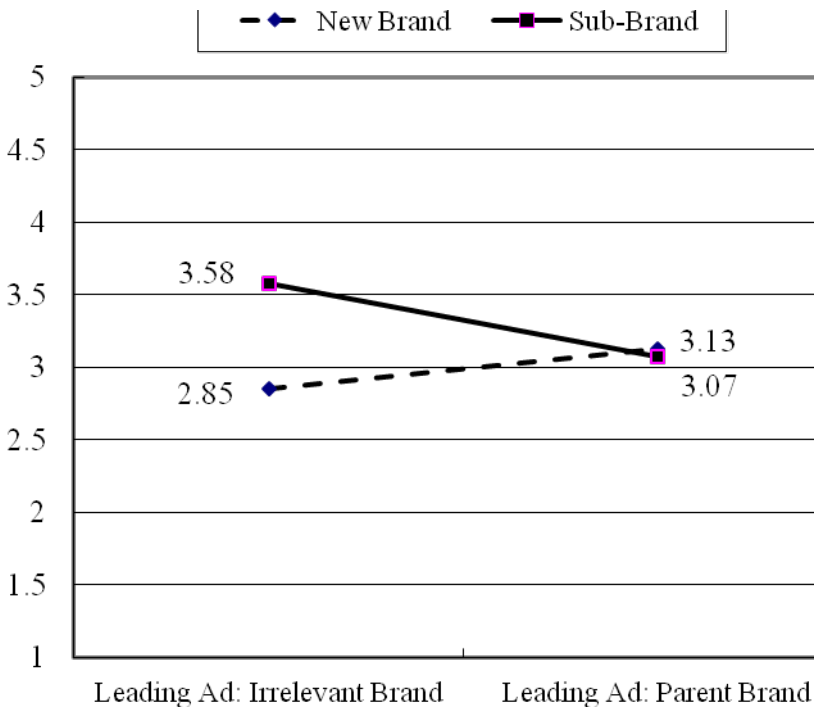

Figure 2

Mean Evaluations for the Interaction Effect of Leading Ads and Brand Strategies of Study One

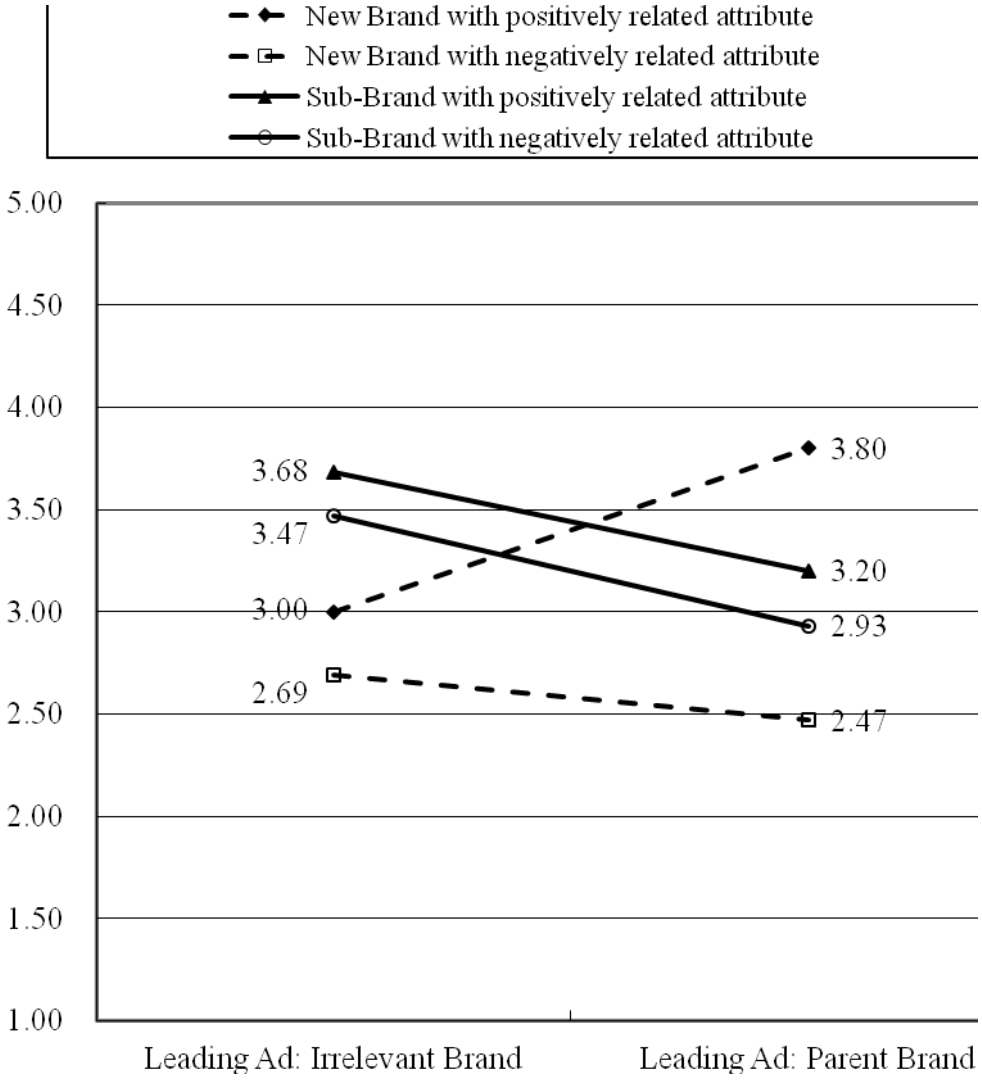

Figure 3

Mean Evaluations for the Three-way Interaction Effect of Study One

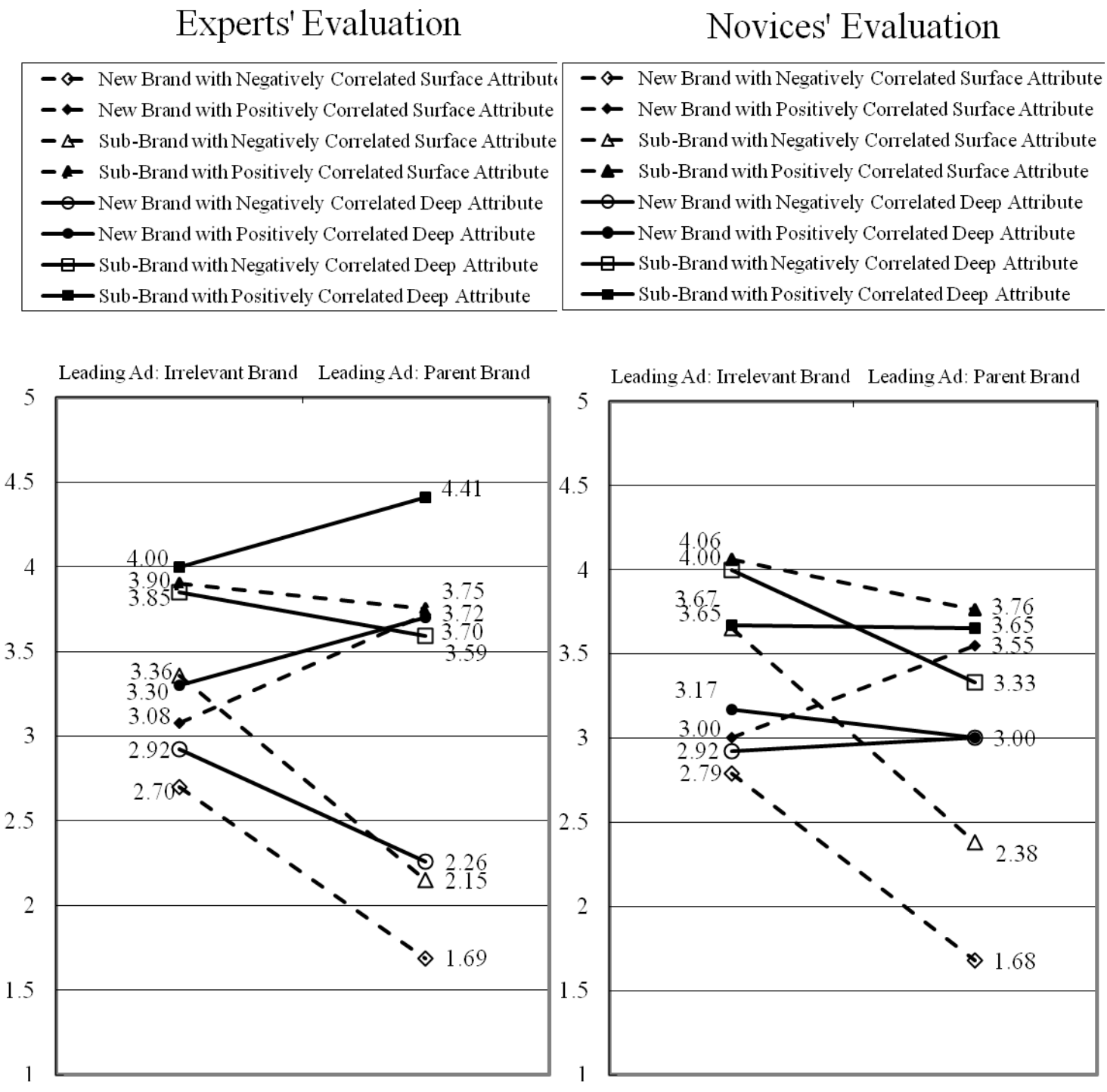

Figure 4

Mean Evaluation by Knowledge Group of Study Two

國科會補助專題研究計畫項下出席國際學術會議心得報告

日期：2011 年 7 月 19 日

計畫編號	NSC 98-2410-H-004-052-MY2		
計畫名稱	母品牌形象對產品線延伸的影響 —同化與對比作用中的屬性相關性觀點		
出國人員 姓名	別蓮蒂	服務機構 及職稱	國立政治大學企業管理學系 特聘教授
會議時間	2011 年 7 月 15 日 至 2011 年 7 月 18 日	會議地點	美國加州聖地牙哥
會議名稱	(中文) 第 18 屆零售與服務研究前瞻研討會 (英文) The 18th Recent Advances in Retailing & Services Science Conference (European Institute of Retail and Services Studies, EIRASS)		
發表論文 題目	(中文) 以行動電話自動搜集消費者前往零售店動線研究 (英文) **Phone-based Data Collection for Understanding Consumer Flow Behavior to Physical Stores**		

一、參加會議經過

本研討會的議題涵蓋極廣，任何與消費者或是零售服務業有關的主題都在討論範圍內。研討會共計三天，其中所發表的論文涵蓋 Consumer Behavior、Customer Satisfaction、Retail Management、Service Quality、Consumer Psychology、Pricing、Logistic、Methodology 等重要主題，共有 40 場次的論文研討，超過百篇論文，內容相當豐富。

本次參加的主要目的是發表論文「Phone-based Data Collection for Understanding Consumer Flow Behavior to Physical Stores」，此文之共同作者為中研院博士後研究游創文與台大資工系朱浩華教授，為一跨領域研究，摘要如附件。由於本研討會本質仍屬行銷與消費者行為領域，因此由本人代表出席與報告，在場學者對本研究相當有興趣，報告後引起熱烈討論，並提供許多後續研究與應用範圍的建議。

二、與會心得

本國際研討會是由歐洲該領域的學者先發起，地點採隔年輪流於美國或歐洲舉行，以利各地學者與會。這個研討會的國際化程度相當高，今年有來自 33 個不同個國家、五大洲的學者參與，共 168 位學者與會。雖然並不是行銷領域的頂尖學術研討會，但是是一個真正涵蓋全球觀點的研討會，因此在這個研討會上，非常容易觀察出各國的學術發展程度，以及對於消費者

研究關注的重點。

例如歐洲的學者，整體來說比較偏向質化或人文角度切入的研究，許多研究是採個案方式進行，嚴謹度遠不如美國學者的研究，但是整體感與實務性較高，且多了幾分非科學的親切度。感覺中，歐洲學者的研究切入角度，比較可能發掘創新的議題，不過他們對於過去文獻中已累積的成就所知較少，也不太讀美國的期刊，特別是南歐和北歐國家的學者，因此不少他們自認創新的議題，其實在美國已經有深入研究了。不過就這幾年參與這個研討會的觀察，西歐各國大學學者的研究水準正急起直追，量化能力在快速進步中，而且他們非常樂於與亞洲數量能力優秀的學者合作，以截長補短。以歐洲學者的思考訓練，加上亞洲學者的紮實方法訓練，應該可以擦出相當先進的火花。

亞洲國家的學者還是偏重數量方法，傾向以數字進行研究與說明，對於研究的內涵、精神和具體貢獻的思考不足，這應該還是源自於語言上的弱勢，但某種程度也是因為學術養成訓練所造成的結果，因為其實與會的亞洲學者的英文發表及溝通能力，其實並不比西班牙、義大利、芬蘭、挪威、匈牙利等地的學者差，但明顯地自信心不足。在亞洲各國中，台灣學者和大陸學者的英文能力明顯優於日本學者，年輕學者的表現亦不俗；反之，韓國研究生的英文簡報能力就遠遜於他們的老師。

三、考察參觀活動(無是項活動者略)：無

四、建議

1. 非英語系國家的研究者要特別注意簡報技巧，並改變對研究會的認知。研討會是讓相關學者交流討論的場合，並不是上台單向簡報，所以報告中的互動與引起討論分享，才是最關鍵之處。或許因為本次研討會地點為觀光聖地，我發現大多數參與者都有些心不在焉，年輕學者更不關心是否引起聽眾共鳴，只以交差了事的心態報告完畢，之後便離開會場進行個人的觀光行程，心態實不可取。
2. 由於多數知名學者均是在同一領域持續多年的研究，累計經驗與研究成果，所以建議國內學者若有意建立國際學術地位，應儘量規劃長期性、基礎性研究，而非短期、小品式的應用研究。
3. 由於此研討會的與會者多半相當友善，樂於進行跨文化合作研究，有意多接觸國外行銷學者的國內學者可考慮參加此研討會，結交相關學者朋友，以建立合作關係，對日後研究的國際發表應有相當助益。

五、攜回資料名稱及內容：研討會論文摘要光碟片一張

六、其他：無

Chuang-Wen You

Research Center for
Information Technology
Innovation
Academia Sinica Taipei, 115
Taiwan, R. O. C.

☏ +886 2 26534010
✉ cwyou@citi.sinica.edu.tw

Hao-Hua Chu

Department of Computer
Science and Information
Engineering
National Taiwan University
Taipei, 106
Taiwan, R.O.C

☏ +886 2 33664888
✉ hchu@csie.ntu.edu.tw

Lien-Ti Bei

Department of Business
Administration
National Chengchi University
Taipei, 116
Taiwan, R. O. C.

☏ +886 2 29393091
✉ lienti@nccu.edu.tw

Wei-Fehng Wang

Department of Business
Administration
National Chengchi University
Taipei, 116
Taiwan, R. O. C.

☏ +886 2 29393091
✉ 92307036@nccu.edu.tw

Ju-hui Wei

Department of Business
Administration
National Chengchi University
Taipei, 116
Taiwan, R. O. C.

☏ +886 2 29393091
✉ 96355505@nccu.edu.tw

Phone-based Data Collection for Understanding Consumer Flow Behavior to Physical Stores

An important question in consumer behavior research is how to systematically and quantitatively determine patterns in consumer behaviors that can facilitate understanding of where, when, and how consumers purchase products and services at (non-online) physical retail shops. Collecting naturalistic data on real consumers who shop at retail stores is often one of the most challenging and expensive parts of consumer behavior studies. This research proposes phone-based data collection to consumer behavior research.

Mobile phones have become indispensable part of our everyday lives. New mobile phones are equipped with sophisticated sensing, computing, and communication capabilities. For example, new smart phones have a variety of sensors including GPS, accelerometer, digital compass, Wi-Fi, and cell-ID sensors that can detect consumers' locations and movements. By taking advantages of phones' ubiquitous presence with consumers and phones' sensory capability to observe consumers everywhere, it is possible to leverage and organize these phones (which are user-owned and –maintained) and to build naturalistic and low-cost data collection systems that capture spatially relevant information of user behavior at large scales [Madan 2010][Gonzalez 2008]. Such data collection of user behavior enables geographical and quantitative analysis of where, when and how urban consumers visit their neighborhood convenient stores (CVS) invisibly and non-intrusively, i.e., without disruption to human natural behaviors.

We believe that phones provide opportunities to *outsource* the process of collecting customer flow data to any local residence who owns and/or carries a mobile phone and is also a customer of neighborhood CVS stores. Outsourcing data collection to consumers can significantly reduce the cost for consumer behavior researchers to run quantitative marketing studies. Furthermore, phones provide opportunities to *automate* the data collection process by embedding smart sensing, detecting, and logging of customers' CVS trips in the phones. Automating data collection does not only enable gathering of consumer behavior naturally without interrupting users' activities, but also reduces underreporting and recall errors found in the traditional self-reporting, face-to-face interview, and surveying methods.

We have developed a phone-based data collection system. This system works by enabling consumer behavior researchers to recruit qualified residence, who live or work in an area of interest, to participate in the data collection process. Participants first download an application to their phones, in which the phone application embeds automated sensing to detect trips to CVS outlets and also logs CVS patronage data in their phones. The phone application runs in the background and does not disturb participants' normal phone's usage. Periodically, participants upload data from their phones to a data repository on a server. For security and privacy purpose, the phone application must ask and obtain user permission prior to any data uploading. At the end of uploading data, participants can optionally help in correcting any mistake made by automated sensing and/or label meta-data description (e.g., purchased items, purchased amount, etc.) about their CVS visits. Then, the server

processes data stored in the data repository, while summarizing and visualizing customer flow behavior to the consumer behavior researchers. To encourage participation in data collection, consumer behavior researchers can set incentive policies that reward micropayments to participants based on the quality and quantity of their uploaded data.

We have deployed and tested the system by collecting real customer flow data from 42 participants who made 394 pedestrian trips to three competing CVS stores situated within the same neighborhood area. To compare the data collected using our phone-based data collection system to those using the traditional data collection method, we also ran a pen and paper survey that involved face-to-face interviews with 90 customers of these CVS stores. Preliminary results from this comparison user study showed that (1) the phone-based data collection system achieved over 90% accuracy in detecting CVS store visits, and (2) consumer flow data obtained from our phone-based data collection system had little difference to consumer flow data obtained from the pen and paper survey involving face-to-face interviews in term of distributions of consumer inbound/outbound directions.

This research promotes this new area of applying everyday phone sensing to consumer behavior and marketing research and opens a new door on practical use of phones from everyday consumers to automatically sense and report consumer behavior. Our future work will consider security and privacy issues associated with phones collecting consumer data as well as new incentive policies put in place, such as location-triggered coupon delivery to phones, to encourage everyday consumers to participate in data collection. Our future work will also explore *scalability* potentials in phone-based data collection from recruiting a large number of participants who will cover a large geographical area and shop at different varieties of stores.

We believe that the development of phone-based data collection systems will lead to better quantity and quality of consumer data available to physical store retailers for mining and understanding of their customers, i.e., comparable to the wealth of consumer data collected and mined from online customers and available to online retailers.

References

Gonzalez, M., Hidalgo, C., and Barabasi, A.-L. Understanding Individual Human Mobility Patterns. Nature, 453:779–782, 2008.

Madan, A., Cebrian, M., Lazer, D., and Pentland, A. Social Sensing to Model Epidemiological Behavior Change. In Proceedings of 12th ACM International Conference on Ubiquitous Computing (UbiComp'10), ACM, New York, NY, USA, 291-300, 2010.

國科會補助計畫衍生研發成果推廣資料表

日期:2011/07/26

國科會補助計畫	計畫名稱: 母品牌形象對產品線延伸的影響—同化與對比作用中的屬性相關性觀點
	計畫主持人: 別蓮蒂
	計畫編號: 98-2410-H-004-052-MY2　　學門領域: 行銷

無研發成果推廣資料

98 年度專題研究計畫研究成果彙整表

計畫主持人：別蓮蒂	計畫編號：98-2410-H-004-052-MY2
計畫名稱：母品牌形象對產品線延伸的影響—同化與對比作用中的屬性相關性觀點	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	1	100%	篇	審稿中
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)	無

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■達成目標

□未達成目標（請說明，以 100 字為限）

□實驗失敗

□因故實驗中斷

□其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文：□已發表 ■未發表之文稿 □撰寫中 □無

專利：□已獲得 □申請中 ■無

技轉：□已技轉 □洽談中 ■無

其他：(以 100 字為限)

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）(以 500 字為限)

此研究應用經典的同化對比理論, 探討廣告行銷中常見的問題: 新產品線上市後對原產品線可能造成的影響.

由於新產品線所強調的產品屬性常常是原產品所沒有的, 當新品上市強力廣告時, 對原本產品勢必造成衝擊.

本研究成果亦可同理推論至新上市競品對市場上其他既有產品的影響, 尚有後續研究的擴充性, 目前正指導博士班學生展開後續研究.