Language and Brand Attitudes: Impact of Script and Sound Matching in Chinese and English

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Chinese names consist of logographs that represent the meanings of a word, whereas English names consist of alphabetic letters that represent the sound of the word. Therefore, we propose that Chinese brand attitudes are primarily affected by the match between script associations and brand associations, but brand attitudes of English names are primarily affected by the match between sound associations and brand associations. A cross-cultural study conducted in China and the United States confirms these predictions. These findings add further evidence to the stream of research that shows how structural features of languages and writing systems affect consumer behavior.

Research in psychology and consumer behavior provides ample evidence for low-level processing influences on attitudes, purchase intentions, judgments, and choice (Maheswaran, Mackie, & Chaiken, 1992; Miniard, Sirdeshmukh, & Innes, 1992; Petty, Unnava, & Strathman, 1991). These persuasive effects are typically attributed to the presence of so-called peripheral cues that affect attitudes via heuristic processing (Chaiken, Liberman, & Eagly, 1989).

In an advertising context, peripheral cues include the number of arguments provided (Petty & Cacioppo, 1984; Yalch & Elmore-Yalch, 1984), background music (Gorn, 1982; Kellaris & Kent, 1992, 1994; MacInnis & Park, 1991), affect-laden pictures (Mitchell & Olson, 1981), and personal characteristics of the spokesperson, such as physical attractiveness and gender (Kahle & Homer, 1985). For brand names, peripheral cues may include script cues (when brand

names appear in writing, e.g., in a print ad or on packaging) and sound cues (when brand names are communicated in speech, e.g., by a spokesperson or announcer in a commercial or by a salesperson in a store).

THE EFFECT OF SCRIPT AND SOUND CUES ON INFORMATION PROCESSING AND ATTITUDES

There is evidence in consumer and psychological research that script and sound cues influence information processing. For example, "cosmetic elements" (such as endorser, layout, font, color, wording, and order of arguments) presented together across multiple presentations, affected attitudes positively under low-involvement conditions (Schumann, Petty, & Clemons, 1990). Prior exposure to a word in a certain typeface increased the probability of later perceptual identification (Jacoby & Hayman, 1987). In a speeded comparison task, interference and facilitation effects were observed when the graphic size of a word was either inconsistent or consistent with the concept represented by the word (Foltz, Poltrock, & Potts, 1984). Moreover, errors were observed in the recall of acoustically similar verbal material that was semantically unrelated (Baddeley, 1981; Rubinstein, Lewis, & Rubenstein, 1971). Finally, slower reaction times were obtained for words whose typefaces were inconsistent with their meanings, for example, the word *fast* presented in a "slow" typeface (Lewis & Walker, 1989). Taken together, these studies suggest that both visual and auditory peripheral features of verbal material are processed and represented in people's minds.

Do script and sound cues also affect brand attitudes? To explore these issues, it is useful to turn to the concept of a match, fit or congruency among multiple cues. In the case of brand names, one sort of association is evoked by the brand itself, for example, by associations to its name (e.g., Chanel) and the product category (e.g., lipstick; Leclerc, Schmitt, & Dubé, 1994). Other associations are evoked by the script of the brand (e.g., the Chanel corporate script Arial) and by the sound of the name and the speaker's voice (e.g., a French accent). According to MacInnis and Park (1991), the effect of peripheral cues must be described in terms of their complementary relation to other cues. Therefore, in the context of brand names, we must examine what we call "script matching" (the match, or fit, between script associations and brand associations) and "sound matching" (the match, or fit, between sound associations and brand associations). In other words, peripheral cues such as script and sound may influence brand attitudes depending on the degree to which they match or mismatch with brand associations.

Following MacInnis and Park's (1991) fit notion, one would expect script matching and sound matching to have more positive effects than would mismatching conditions. This prediction is based on the classic Gestalt psychology notion that complementary items in the same stimulus display reinforce one

another to provide a good perceptual gestalt (Koffka, 1935; Pomerantz, 1981). The prediction is also consistent with recent associative network models of memory in which mental representations are viewed as a system of interrelated nodes that are interlinked via pathways of differing degrees of association (Anderson, 1984; Schmitt, Tavassoli, & Millard, 1993). Once meaningful relations have been established among the nodes, they are likely to be invoked at the same time and to create further linkages (Barsalou, 1991). Indeed, relations among ad elements (visual, verbal or both) were shown to enhance memory and attitudes (MacInnis & Park, 1991; Park & Young, 1986; Schmitt et al., 1993). Thus, we hypothesized that consumers would have more positive attitudes under matching than under mismatching conditions.

THE DIFFERENTIAL EFFECT OF WRITING SYSTEMS

Is script matching likely to produce equally strong effects on brand attitudes as does sound matching? As suggested by recent cross-cultural research, the answer seems to depend on the type of writing system used as part of a language system.

Writing systems were classified by Gibson and Levin (1975) and Pinker (1994) into three major categories: those using alphabetic characters (e.g., English), those using syllabic characters (e.g., Japanese *kana*), and those using logographic characters (e.g., Chinese). In alphabetic writing systems and in writing systems with syllabic characters, orthography and phonology are closely related: The writing of a word is a close clue for its pronunciation. In other words, the writing symbol (i.e., the letter or the syllabic character) represents a sound unit of the spoken language. Logographic writing systems, on the other hand, are characterized by a very loose correspondence between writing and sound. A Chinese character stands for a concept; it is not a symbol for a sound unit. That is, from their structural form, logographic characters offer practically no clues to their pronunciation; words that differ little in script may be pronounced very differently.

Research provided ample evidence that differences in orthographies affect mental representations. Alphabetic systems seem to be represented in the mind primarily in a phonological code (Baddeley, 1981; McCusker, Hillinger, & Bias, 1981; Rubenstein et al., 1971), whereas logographic systems seem to be represented primarily in a visual code (Cheng & Yang, 1989; Yik, 1978). Evidence for these differences in mental representations comes from a variety of sources including studies on the visual lateralization effect, aphasia (a brain-lesion related language impairment), and the Stroop effect (see Hung & Tzeng, 1981, for a review). In these studies, Chinese native speakers were often compared with English native speakers; alternatively, bilinguals or Japanese subjects were compared among each other under different experimental conditions.

For example, comparing Chinese and Americans in visual field studies of verbal processing, a left-visual field (i.e., right-brain hemispheric) advantage was

shown for Chinese characters, but a right-visual field (i.e., left-brain hemispheric) advantage for English is known for visual processing (Rothschild, Hyun, Reeves, Thorson, & Goldstein, 1988). Moreover, in some studies involving the Stroop test, that is, asking subjects to name the colors of words that spell conflicting colors (e.g., the word *red* printed in blue), Chinese native speakers showed more interference than did English native speakers (Biederman & Tsao, 1979; however, see Smith & Kirsner, 1982, who failed to replicate this difference).

These studies comparing Chinese and English speakers must be interpreted with caution because other cultural differences, apart from language and writing systems, may also explain the results. This criticism does not apply to the same degree to studies conducted with bilinguals, and it does not apply to studies with Japanese subjects. Japanese use all three types of writing systems concurrently in the form of the logographic script *kanji*, the syllabic *kana* scripts (*hiragana* and *katakana*), and in the form of the Roman-alphabetic writing system.

A comparison of individuals' responses to different types of writing systems in Japanese resulted in a replication of the effects observed between Chinese and English. Regarding the visual lateralization effect, a right-visual field (i.e., left-hemisphere) superiority was observed for *kana* scripts, and a left-visual field (i.e., right-hemisphere) advantage was observed for *kanji* scripts (Hatta, 1976, 1977; Hirata & Osaka, 1967). A *kanji* version of the Stroop test produced more interference than did a *kana* version (Feldman & Turvey, 1980; and several unpublished studies reported in Hung and Tzeng, 1981). Moreover, when Chinese–English and Spanish–English bilinguals were asked to name the color of the word either in the language in which it was written (e.g., English) or in the other language with which they were familiar (e.g., Chinese), there was a greater reduction in the magnitude of Stroop interference for Chinese–English bilinguals than for Spanish–English bilinguals (Fang, Tzeng, & Alva, 1981). Finally, writing-system specific impairments were reported for Japanese patients with aphasia (Sasanuma, 1974).

Taken together, these studies indicate that there are differences in the processing of Chinese characters as compared to alphabetically printed words (Flores d'Arcais, 1992). Although there is continuing debate on whether Chinese characters are processed like pictures rather than like words, or whether the empirical differences reflect stimulus-driven (i.e., script-features effects) rather than orthography-specific processing effects (Flores d'Arcais, 1992; Hung & Tzeng, 1981; Sasanuma, 1974; Smith & Kirsner, 1982), researchers agree that, compared to English speakers, Chinese native speakers are more likely to encode script features rather than phonetic characteristics (Chen & Juola, 1982).

This phenomenon also was demonstrated in a consumer context. Using visual and spoken recall to access visual and phonemic representations, respectively, Schmitt, Pan, and Tavassoli (1994) showed that Chinese speakers were more likely to recall stimuli presented as brand names in visual rather than spoken recall, whereas English speakers were more likely to recall the names in spoken

rather than visual recall. Moreover, in a regression study using nine predictors to predict attitudes toward actual Chinese and U.S. brands, Pan and Schmitt (1995) found that "script liking" was a significant predictor of brand-name attitudes for Chinese but not for those of Americans, whereas "sound liking" was a stronger predictor of brand-name attitudes of Americans but not for those of Chinese.

In sum, although the exact nature of the differences in language processing between Chinese and English speakers is somewhat controversial, we propose that the different tendencies of using visual versus phonological representations should affect the language processing of brand names. Consequently, script matching should affect the brand attitudes of Chinese native speakers but should have a much weaker effect (if any) on brand attitudes of English native speakers. In contrast, sound matching effects should affect the brand attitudes of English native speakers but should have a much weaker (or no) effect on those of Chinese native speakers. In other words, in an experimental study with Chinese and English respondents, we predicted 2 two-way interaction effects: an interaction of language and script matching, and an interaction of language and sound matching.

THE EXPERIMENT

To test these hypotheses, an experiment was conducted in China and in the United States. Subjects saw novel brand name/product category combinations written in certain scripts and read by an announcer.

Scripts and sounds possess a variety of allusions, but not all are easily related to product associations. For example, Lewis and Walker (1989) asked subjects to rate typefaces in terms of *heavy/light, fast/slow, bright/dull*, and *strong/weak*—characteristics that were applicable to the names of animals employed as stimuli in their study. For our study, we selected stereotypical gender associations, for example, "masculine" versus "feminine" (Gentry & Doering, 1977), which are commonly made to scripts as well as to product categories. Moreover, matching and mismatching sound conditions were created by selecting a male and female voice.

In sum, masculine and feminine scripts, masculine and feminine product categories, and male and female voices were employed to create script–product match–mismatch conditions and sound–product match–mismatch conditions for Chinese and American subjects.

Method

The pretests and the experiment were conducted in the United States and in China during the fall of 1994. The samples were highly comparable: Subjects were undergraduate business majors, lived in major metropolitan areas (Chicago

and Beijing), and were of similar age. Subjects were screened to be native speakers of English and Chinese, respectively, but not bilinguals. They had no direct experience (e.g., via travel) with the other culture.

The experiment took the form of a 2 (language: Chinese vs. English) $\times$ 2 (sound match–mismatch) $\times$ 2 (script match–mismatch) between-subject design. Approximately half the subjects in each language group were men; the other half were women. Gender did not result in any significant effects in any of the subsequent analyses and therefore is not discussed further. Sound matching was operationalized by using a male (female) voice for a masculine (feminine) product; conversely, sound mismatch was operationalized by using a male (female) voice for a feminine (masculine) product. Analogously, script matching was operationalized by using a masculine (feminine) script for a masculine (feminine) product; and vice versa for script mismatch. Scripts and products were pretested for perceptions of masculinity and femininity.

Pretest 1: Selection of Scripts

The objective of Pretest 1 was to select logographic scripts (for Chinese subjects) and alphabetic scripts (for U.S. subjects) with gender connotations. The Chinese language and calligraphy distinguishes between a variety of scripts based on stylistic and aesthetic grounds (Billeter, 1990; Yee, 1973). After consulting linguistic experts, we selected four scripts that promised to be distinct in their gender associations: *li shu, xing shu, fan-song ti, and cao shu.* For English, scripts, available in WordPerfect 5.1, were included: Bookman 24 point, Script (bold 36 point), Helvetica (bold 24 point), and Sapfchancery (italic 24 point).

Thirty-two Chinese undergraduates participated in the pretest conducted in China; 38 U.S. undergraduates participated in the U.S. pretest. A translation and back-translation procedure was used to construct comparable questionnaires for the two pretests. Subjects were shown the same neutral word in different scripts and were asked to rate each script on three 7-point scales: "I think that the following writing style is . . . (*masculine* = 1, *feminine* = 7)"; "I think this writing style looks like the writing of . . . (*a man* = 1, *a woman* = 7)"; and "I think the following writing style is suitable for brands used by . . . (*women* = 1, *men* = 7)." Item 3 was reverse coded, and the three scales were averaged to form a composite scale. Coefficient alphas were .72 for the Chinese sample, .94 for the U.S. sample, and .87 for the aggregate sample. For English, Script was rated the most feminine script ($M = 5.45$; $SD = 1.12$), and Helvetica was rated the most masculine script ($M = 2.42$; $SD = 0.95$). The difference between the two scripts was highly significant ($p < .0001$). For Chinese, *xing shu* was rated the most feminine script ($M = 4.27$, $SD = 1.21$) and *chao shu* was rated the most masculine script ($M = 2.54$, $SD = 1.20$). The scripts again differed significantly ($p < .0001$). Thus, the following scripts were selected for the experiment: *xing shu* as a feminine Chinese script, *cao shu* as a masculine script, Script as a feminine

Roman-alphabetic script, and Helvetica as a masculine script. Separate tests in terms of formality and overall liking showed no significant differences.

Pretest 2: Selection of Product Categories

The objective of Pretest 2 was to select two masculine and two feminine product categories (ideally, a durable and nondurable product each). Gender associations to product categories are more common than to scripts, which allowed us to select stimuli from a broader initial set. A total of 40 products (masculine, feminine, and neutral) were generated as candidates in a focus group with four subjects. A different set of subjects was recruited for the following pretest. These 40 products were pretested with 35 Chinese in China and 30 Americans in the United States, using three 7-point scales: "Is this product predominantly used by ... (men = 1, both = 4, women = 7)?"; "Is this product ... (feminine = 1, neutral = 4, masculine = 7)?"; and "Is this product ... (a men's product = 1, both a men's and women's product = 4, a women's product = 7)?" Item 2 was reverse coded, and a composite index was formed by averaging the scale scores (coefficient alphas = .62 for Chinese, .90 for Americans, and .77 for the aggregate sample.

Based on the pretest results, we selected durable and nondurable products with masculine and feminine associations: power drill and tie (masculine) and sewing machine and lipstick (feminine). The means and standard deviations for each product are shown separately in Table 1 for the pretest samples of Chinese and English speakers. As Table 1 shows, although American subjects' ratings were somewhat more extreme ($p < .05$), the means and standard deviations are comparable in the two samples. Most important, the products selected differed significantly in their masculine and feminine association scores in both samples ($p < .0001$). In fact, the smallest masculine mean (for tie, in the Chinese sample)

TABLE 1
Means and Standard Deviations of "Masculine" and "Feminine" Products
in the Pretests With Chinese and English Native Speakers

Category & Product	Chinese		English	
	M	SD	M	SD
Masculine				
Power drill	2.19	1.07	1.48	1.03
Tie	2.40	1.04	2.19	0.94
Feminine				
Sewing machine	5.30	0.82	6.08	0.93
Lipstick	5.86	0.88	6.43	0.86

Note. Ratings were provided on 7-point scales. Higher numbers indicate higher perceived femininity of products.

was still roughly 3 points lower than the smallest feminine mean (for sewing machine, in the Chinese sample).

Subjects, Stimuli, and Procedures

A total of 161 Chinese and 128 Americans participated in the actual experiment. Subjects participated in groups. Within the Chinese and American samples, subjects were randomly assigned to the four experimental cells: script match–sound match, script match–sound mismatch, script mismatch–sound match, and script mismatch–sound mismatch. Subjects were told that they would read the names of new products and would hear them pronounced at the same time by an announcer, as is often the case in TV advertising.

Each stimulus consisted of a written two-syllable novel brand name and a product category. Brand names and product categories were identical in both samples (except that they were written in Chinese and English scripts). The names were copied from a recent study by Schmitt et al. (1994). In this prior study, extensive pretests (pp. 423–424) were conducted to ensure that the brand names were equivalent in terms of phonemic components, overall phonemic similarity, visual complexity, and familiarity; moreover, Chinese and English names did not differ in the number of associations or in brand-name attitudes.

Subjects saw the names, and, at the same time, the names were read to subjects, by an announcer recorded on tape. For example, in the script match–sound match condition, subjects saw the stimuli of two masculine (and two feminine) products, one at a time, written in masculine (feminine) scripts and pronounced by a male (female) announcer. After each stimulus, subjects were given 1 min to provide their attitude ratings (see Dependent Variables) on the following page of the questionnaire. Ratings were totaled across the four products in each experimental condition and then averaged.

Dependent Variables

For each stimulus, subjects provided attitude-toward-the-brand ratings on seven 7-point semantic differential scales: *good–bad, positive–negative, dislike–like, unpleasant–pleasant, approve–disapprove, awful–nice,* and *unattractive–attractive.* Items 1, 2, and 5 were reverse coded. Coefficient alphas for the composite attitude scale were .94 for the Chinese sample, .96 for the U.S. sample, and .95 for the aggregate sample. Purchase intentions were measured by asking subjects to indicate the degree to which they agreed with two statements: "This product is worth trying" and "If the product was not more expensive than other products, I would buy the product" (1 = *definitely disagree,* 7 = *definitely agree*). All items were reverse coded to make them comparable to the composite attitude scale. The intercorrelations between the two items were .56 for the Chinese sample,

.67 for the U.S. sample, and .59 for the aggregate sample. Ratings on the two items were summed and averaged to create a composite intentions scale.

RESULTS

We predicted that script matching would have a significant effect on the attitudes of Chinese native speakers but a much weaker effect on the attitudes of English native speakers. In contrast, we predicted that sound matching effects would have a significant effect for English native speakers but a weaker effect for Chinese native speakers. To test whether the two predicted two-way interactions (Script Matching × Language and Sound Matching × Language) were present in the data, 2 (language) × 2 (script matching) × 2 (sound matching) analyses of variance (ANOVAs) were conducted separately on the attitudes and purchase intentions measures.

The ANOVA performed on attitudes revealed significant effects: a main effect of language, $F(1, 281) = 24.87, p < .001$; a main effect for sound matching, $F(1, 281) = 7.76, p < .01$; an interaction of script and sound matching, $F(1, 281) = 7.93, p < .01$; and, most important, the predicted two-way interactions between language and script matching, $F(1, 281) = 11.08, p < .01$, and between language and sound matching, $F(1, 281) = 7.42, p < .01$. The main effect of script matching and the three-way interaction were not significant.

Table 2 (upper panel) shows the attitude means and standard deviations. In general, Americans provided higher attitude ratings than did Chinese respondents, and products were more positively evaluated in sound-mismatching conditions; that is, when the announcer's voice was female for feminine products and male for masculine products rather than vice versa. These two main effects must be interpreted, however, in the context of the significant two-way interactions. Figure 1 graphs the interactions.

The interaction of script and sound matching in the combined sample (Figure 1) reflects the fact that both Chinese and U.S. subjects provided the most positive attitude ratings when both the script and the announcer's voice matched the product ($M = 4.12$). But they provided lower ratings when either the sound ($M = 3.70$), the script ($M = 3.79$), or both ($M = 3.84$) did not match. The script/sound-matching condition was significantly different from the other cells ($p < .01$), whereas the remaining three cells did not differ significantly. Thus, in general, overall match had a positive effect, but overall mismatch was not evaluated any lower than when there was a mismatch on either sound or script.
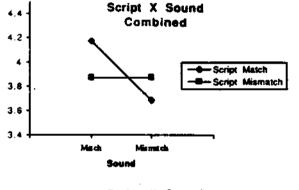
The remaining two-way interactions indicate that script- and sound-matching effects must be discussed separately for speakers of Chinese and English. As predicted, the Chinese speakers liked the product significantly more when the Chinese script matched the product than when it did not ($M = 3.85$ vs. 3.54), $t(161) = 2.71, p < .01$. The English speakers' data showed a surprising trend toward more positive attitudes under the mismatching script condition ($M = 4.19$

TABLE 2
Means and Standard Deviations of Brand Attitude and Purchase Intentions
as a Function of Language, Script Matching, and Sound Matching

	Sound Matching							
	Chinese				English			
	Mismatch		Match		Mismatch		Match	
Script Matching	M	SD	M	SD	M	SD	M	SD
Attitudes								
	3.61	0.80	3.46	0.69	4.13	0.62	4.27	0.52
	3.77	0.76	3.93	0.66	3.61	0.65	4.35	0.52
Purchase intentions								
	3.64	0.87	3.24	1.07	3.91	0.92	4.05	0.72
	3.70	1.07	3.87	0.89	3.37	0.72	4.09	0.69

Note. Higher numbers indicate more positive attitudes and higher purchase intentions.
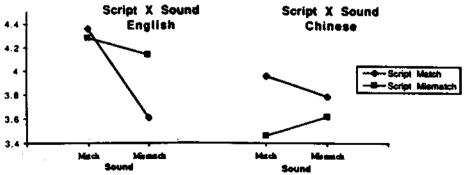

FIGURE 1. Attitude means as a function of script matching and sound matching for English and Chinese speakers.

vs. 3.97); however, the effect was not significant. In contrast, these subjects liked products better when the announcer's voice matched the product than when it did not ($M = 4.31$ vs. 3.87), $t(128) = 4.17$, $p < .001$. For the Chinese, however, the means for the sound match and mismatch condition were virtually identical ($M = 3.69$ vs. 3.68).

ANOVA results for the purchase intentions measures were similar to the results for the attitude measures (see Table 2, lower panel). The following effects were significant: a main effect of language, $F(1, 281) = 5.05$, $p < .05$, an interaction of script and sound matching, $F(1, 281) = 7.06$, $p < .01$, and, again, the predicted two-way interactions between language and script matching, $F(1, 281) = 7.44$, $p < .01$, and between language and sound matching, $F(1, 281) = 6.37$, $p < .02$. The main effects of script matching, the three-way interaction, and, in contrast to the attitude results, the main effect of sound matching were not significant. The means were patterned similarly to the results on attitudes.[1]

Finally, potential product-category effects were explored using additional ANOVAs that included product category as a within-subjects variable. The four-way interaction with language, sound, and script was not significant. However, two of the three-way interactions were significant: the interaction of product, language, and sound, $F(1, 281) = 34.14$, $p < .0001$; and the interaction of product, script, and sound, $F(1, 281) = 4.23$, $p < .05$. As in the previous analyses, the key interactions (viz., of script and sound, of nation and script, and of nation and sound) remained significant, $F(1, 281) = 7.42$, $F(1, 281) = 11.08$, $F(6.67) = 7.93$, all $ps < .01$. That is, the three-way interactions involving product category only modified the effects in strength but did not change the direction of the results.

For example, the means associated with the interaction of product, language, and sound on brand attitudes indicated that Chinese respondents judged all four products similarly, under the sound-mismatch and sound-match conditions ($M = 3.74$ vs. 3.68 for drill, $M = 3.40$ vs. 4.01 for sewing machine, $M = 4.30$ vs. 3.75 for lipstick, and $M = 3.20$ vs. 3.25 for tie). In contrast, the ratings of the English native speakers varied considerably. In general, English speakers rated sound-matching conditions more positively than sound-mismatching conditions, thus confirming our general pattern of results. However, product factors had some influence (e.g., the difference between sound-matching and mismatching conditions was larger for the "hedonic," feminine, nondurable lipstick ($M = 5.04$ vs. 2.72 for matching and mismatching conditions, respectively), than for the "utilitarian," feminine, durable sewing machine ($M = 4.80$ vs. 4.11). In other words, for lipstick, the English speakers clearly preferred a female spokesperson, whereas a female spokesperson was preferred only slightly over a male spokesperson for sewing machine.

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[1] In an analysis of covariance, the variable *attitudes* was significant as a covariate ($p < .0001$) and reduced the effect-size of the key interactions of script and sound, language and script, and language and sound (ps between .10 and .21).

GENERAL DISCUSSION

This study provides two key results. First, a match between peripheral feature associations (script or sound) with brand associations results in more positive brand attitudes than does a mismatch. Second, Chinese native speakers' attitudes are affected primarily by script matching, whereas English native speakers' attitudes are affected primarily by sound matching.

The overall finding of more positive attitudes for matching than for mismatching conditions may seem at odds with past research that showed positive effects for moderate incongruency (in comparison to a strong match or mismatch) on memory and attitudes (Meyers-Levy & Tybout, 1989; Stayman, Alden, & Smith, 1992). However, our study and prior research are different in two critical ways. First, moderate incongruency effects were obtained in prior research with conceptual stimuli rather than with the kind of perceptual stimuli used in our study. Second, more positive attitudes for moderate incongruency were observed in prior research in a context that encouraged cognitive elaboration such that subjects noticed the incongruency between concepts or arguments and exerted cognitive effort to resolve it. Perhaps if the brand names were incorporated into a context that encouraged elaboration, mismatches might lead to more favorable associations than would matches, especially if these mismatches could be interpreted in a positive way (e.g., by suggesting power, in the case of a male spokesperson for a sewing machine; or refined taste, in the case of a feminine script for a tie).

The second finding—differences between Chinese and English native speakers—was hypothesized on the basis of structural differences between logographic and alphabetic systems and their resulting visual and phonological representations. The results thus add evidence to the stream of research that demonstrates the importance of considering structural features of languages and writing systems for theory development in cross-cultural consumer research (Pan & Schmitt, 1995; Schmitt et al., 1994; Schmitt & Zhang, 1995).

In contrast to most prior cross-cultural research that showed main effects, we predicted and obtained a pair of two-way interaction effects that are difficult to explain in terms of cultural factors other than language. Moreover, the selection procedure ensured that the Chinese and American respondents were comparable in many ways and familiar with both print and TV media. Finally, differential bidialectical interference (Lam, 1991) does not seem to provide an alternative explanation because the stimulus material was easy to understand and pretested as such in a prior study by Schmitt, Pan, and Tavassoli (1994).

Future research should employ languages besides English and Chinese. Japanese is a particularly interesting case. Brands written in logographic *kanji* could be judged in terms of script matching, whereas brands written in syllabic and alphabetic scripts (*hiragana, katakana*, and *romaji*) could be judged in terms of sound matching. However, it would be difficult to use gender associations in this case because Japanese script systems themselves possess gender associations

(Schmitt & Tavassoli, 1994). Instead, researchers could employ other dimensions of the semantic space, such as potency and activity, which are applicable to scripts, sounds, and brands (Malhotra, 1981). Future research also should incorporate additional peripheral variables with semantic associations that are of theoretical interest. Color, shape, and background music are obvious choices in terms of gender associations and would allow researchers to examine the interactive effect of peripheral linguistic cues with other peripheral cues that are less directly linked to linguistic items.

In terms of practical applications, this study suggests that peripheral cues must be attended to differently in East Asia than in the West (Schmitt & Pan, 1994). Because native speakers of logographic systems seem to be more attuned to writing cues than are Westerners, graphic executions, logos, calligraphy—and, perhaps, print media in general—may be of greater importance in marketing brands in East Asia than in the West. Conversely, appropriate selections of onomatopoeic name creations, jingles, and voice-overs seem to be critical for Western consumers.

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