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Sound symbolism effects across languages: Implications for global brand names

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ABSTRACT

Selecting good brand names for products is a critical step for marketers, and many aspects of a brand name influence brand perceptions. Three experiments investigated the effects of phonetic symbolism (the impact of sound on meaning) on brand name preference, the extent to which these effects generalize to other languages, and the processes that underlie these effects. When choosing brand names, French-, Spanish-, and Chinese-speaking participants who were bilingual in English preferred words in which there was a match between the phonetic symbolism of the words and the product attributes. These results were unaffected by whether participants completed the study in their first or second language, by second-language proficiency, or by whether the Chinese language representations were in logographic or alphabetic form. These findings replicate those of Lowrey and Shrum (2007) and indicate that phonetic symbolism effects for brand name perceptions can generalize across languages, and thus suggest that marketers may be able to embed universal meaning in their brand names.

1. Introduction

Selecting good brand names for products is a critical step for marketers. Good brand names can enhance memorability, create favorable images, and increase preference for products, and they are an important component in building brand equity (Aaker, 1996). Poor brand names can of course have the opposite effect, with the Ford Edsel as a case-in-point: The pervasive dislike for the brand name has been implicated as a major reason for the failure of the brand (Klink, 2000). It is thus no surprise that the construction and testing of brand names is itself a big business (Kohli & LaBahn, 1997).

The brand naming process is made more difficult by the globalization of markets. Fortunately, commonalities between languages sometimes make it possible to derive benefits from the same brand name in multiple markets. For example, the L'Oreal brand *Hydrovive* has a similar meaning in French and English because the two languages share the letter combinations of the morphemes *hydro* and *vive*, as well as their respective meanings — moisture and life (Lerman, 2007). However, in many cases, desirable brand names in one market may be detrimental in another.

Brand name challenges are magnified further when Western brands are introduced into a market like China, where the language is based on an entirely different writing system. Consider, for example, the Hydrovive brand in China. The combination of sounds does not map onto the same meanings, or perhaps any meaning, as they do in English and French. In such cases, the marketer must make a choice (Zhang & Schmitt, 2001). One option is to translate the name into Chinese, thus abandoning the sound, to find a name with a similar meaning. The other option is phonetic translation or transliteration, abandoning the meaning to maintain the sound. A third (but more difficult) option is to translate phonosemantically; that is, to translate sound with meaning (Dong & Helms, 2001). Thus, most firms must choose between maintaining the phonetic brand sound and preserving the meaning of the brand name (Francis, Lam, & Walls, 2002; for a review, see Zhang & Schmitt, 2007).

In the examples mentioned, the phonetic qualities pertain to preserving the sound of the name across translations. However, what if the actual sound of the name itself conveys meaning? Moreover, what if the extent of this effect differs across languages? If so, these effects have important implications for considering the sound of the word when constructing new brand names, as well as for the translation strategies that might be adopted. In this study, we investigate this concept and its implications for brand name construction. Numerous studies in psycholinguistics suggest that sounds convey meaning apart from their semantic connotations, a concept referred to as phonetic symbolism or sound symbolism (for a review, see French, 1977). Recent research in marketing has demonstrated that phonetic symbolism has implications for brand name perceptions and preferences (for a review, see Shrum & Lowrey, 2007). However, the extent to which these findings generalize to other languages and writing systems has not been sufficiently addressed, which is clearly

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crucial for applying previous findings to international brand naming contexts.

To address this issue, we report a study that is a replication of previous work (Lowrey & Shrum, 2007), but one whose context is relevant to global brand name construction. Specifically, we investigate the effects of phonetic symbolism across multiple languages, including one with a non-alphabetic writing system (Chinese logographic). Our study uses a bilingual context by testing whether the effects also occur in a consumer's second language and tests whether the effects vary by second-language proficiency. The international context of the investigation allows us to generalize brand name construction recommendations to global marketing and advertising situations.

2. Theoretical development

2.1. Phonetic symbolism and brand name development

Phonetic symbolism refers to a non-arbitrary relation between sound and meaning. It suggests that the mere sound of a word, apart from its actual definition, conveys meaning. Research supporting the notion of phonetic symbolism has shown that the distinct sounds resulting from different letter combinations are consistently associated with the magnitude of concepts such as size, weight, speed, and hardness, at rates above those predicted by chance (French, 1977). For example, front vowel sounds (such as the [i] vowel sound in *pip*), in which the tongue is positioned toward the front of the mouth, are associated with perceptions such as smaller, faster, brighter, and harder, whereas back vowel sounds (in which the tongue is toward the back of the mouth, as with the [ä] vowel sound in *pop*) are associated with perceptions such as larger, slower, darker, and softer. Similar associations have also been documented for consonants (Klink, 2000).

Recent research has extended the concept of phonetic symbolism to brand name perceptions and preferences. For example, when presented with fictitious brand names, people perceived names with back vowels to be associated with concepts such as thicker (ketchup), darker (beer), and creamier (ice cream) compared to names with front vowel sounds (cf. Klink, 2000; Yorkston & Menon, 2004). More recent research has extended these findings to show that brand attitudes and preferences can be enhanced when the fit between the phonetically induced perceptions of a brand name and the product's attributes is maximized. Lowrey and Shrum (2007) constructed fictitious brand names that varied only by one vowel, which represented the manipulation of the front/back vowel sound distinction (e.g., tiddip vs. toddip). Relative to back vowels, front vowel sounds are perceived to be faster, smaller, sharper, cleaner, and crisper. Consistent with the phonetic symbolism hypothesis, front vowel sound words were preferred over back vowel sound words, by approximately a 2–1 margin, when participants were asked to choose a brand name for a convertible or a knife. However, the opposite was true when participants were asked to choose a brand name for an SUV or a hammer — again by approximately a 2–1 margin.

Although research on phonetic symbolism and brand names suggests that the sounds of brand names influence brand name preferences, there are clear limitations of these studies that inhibit their applicability to international contexts. These limitations include the fact that the majority of research has been conducted only in English and in the United States, has used only alphabetic writing systems, and has not accounted for possible language proficiency effects when the brand name is foreign-sounding or presented in a second-language context.

2.2. Hypotheses

To address these shortcomings in the literature, we conducted a replication of Lowrey and Shrum (2007), but varied a number of factors to test the extent to which the findings generalize across situations that are applicable to international brands. The primary hypothesis we tested is that particular words will be preferred as brand names when the phonetic connotations of the words are consistent with the product attributes. We also varied the language in which the study was presented (English, Spanish, French, and Chinese), whether the language was the first or second language for bilingual speakers, and for Chinese language administrations, whether the writing system was alphabetic or logographic. We also measured language proficiency. For all of these language factors, our expectations were less clear. First, although phonetic symbolism effects have been noted in several languages (Ultan, 1978), it is not clear whether the magnitude of the effects is similar across languages (Brown, 1958; Sapir, 1929). Second, although fluent and non-fluent speakers process second-language information differently (Luna & Peracchio, 2001; Zhang & Schmitt, 2004), it is not clear whether such processing differences influence phonetic symbolism effects. Third, theorists hold differing views on whether phonetic symbolism effects should be observed for logographic word representations (cf. Chua, 1999; Fang, Horng, & Tzeng, 1986; McCusker, Hillinger, & Bias, 1981; Perfetti & Zhang, 1991).

3. Experiments 1a–1c

3.1. Method

Data collection was conducted in three countries (Experiments 1a–1c) to test our hypotheses. The experiments represented a close replication of Lowrey and Shrum (2007), which crossed vowel sound with product category. Spanish-, French-, and Chinese-speaking participants who were fluent in English expressed preferences between brand name pairs that differed only in their primary vowel sound (front vs. back) and did so as a function of product category. In addition, Chinese-speaking participants received brand name stimuli that were constructed using either alphabetic letters or logographic symbols. We also manipulated the languages in which the experiments were completed — whether participants completed the experiment in English or a different language — and we measured their proficiency in the two focal languages.

3.1.1. Participants, procedure, and measures

Participants in Experiments 1a–1c spoke French, Spanish, or Chinese and were bilingual in English. Participants in Experiment 1a ($n=106$, 58 women, 47 men, 1 missing; $M_{age}=23.7$ yrs., $SD=2.57$) were undergraduates at a French university, participants in Experiment 1b ($n=88$, 39 women, 48 men, 1 missing; $M_{age}=23.6$ yrs., $SD=5.53$) were undergraduates at a university in the United States with a substantial proportion of Hispanic students, and participants in Experiment 1c ($n=181$, 104 women, 77 men; $M_{age}=31.8$ yrs., $SD=7.56$) were Chinese participants who were recruited by students in a graduate research course at a university in Taipei.

Participants in all three experiments received the same set of stimuli in the form of questionnaires that differed only in the language in which they were administered. Participants were told that they were participating in a study of brand names. In the first part of the questionnaire, participants were presented with a series of six word pairs (due to translation errors, only four word pairs were used in Chinese logographic conditions). Each word pair differed only by one vowel, which represented the phonetic symbolism manipulation of front versus back vowel sounds. Artificial words were used to avoid semantic associations. Although the artificial words are technically not translatable because they have no meaning, the instructions were translated across languages, a process that was expected to prime that language's pronunciations and sound associations. The order of presentation was counterbalanced, and all words were evaluated separately by individuals who were bilingual in

English and the target language, to ensure that the pronunciation of the words was as intended and did not closely resemble a real word, which might prime some semantic association. The set of stimuli are shown in Table 1.

Participants were asked to indicate their preferences between each word pair as brand names for a 4×4 vehicle, a hammer, a 2-seater convertible, or a knife. Product categories were pretested to establish that they were properly understood. Because we had similar predictions for the 4×4 vehicle and hammer and for the 2-seater convertible and knife, to conserve statistical power, we combined the product categories so that some participants expressed brand name preferences for both a 4×4 vehicle and a hammer (three word pairs for each; order was randomized) while other participants expressed brand name preferences for both a 2-seater convertible and a knife (three word pairs for each; order was randomized). This allowed us to collapse across product categories for which back vowel words (4×4 vehicle, hammer) or front vowel words (convertible, knife) were expected to be preferred, if circumstances warranted. Finally, we manipulated the language in which the study was administered: in English, in the language that was the focus of that particular experiment (French, Spanish, or Chinese), and in Experiment 1c, in either Chinese alphabetic or logographic depictions.

Following the brand name preference exercise, participants completed a 13-item language proficiency scale ($\alpha = .92$) that measured their proficiency in both English and either French, Spanish, or Chinese (Luna, Ringberg, & Peracchio, 2008). Participants also indicated their age, gender, and first language. Finally, they were asked to indicate what they believed the purpose of the study was (none correctly guessed the purpose).

3.2. Results

3.2.1. Effects of sound as a function of product

Our focal hypothesis was that preference for front versus back vowel sound words as brand names will vary as a function of product category: Front vowel sound words will be preferred over back vowel sound words for 2-seater convertible and knife, and back vowel sound words will be preferred over front vowel sound words for 4×4 vehicle and hammer. Thus, we expected a crossover interaction between vowel sound and product. To test these possibilities, we first created continuous dependent variables that represented the proportion of front and back vowel sound words chosen for each product category (e.g., preferring three back vowel words out six = 50%).

Preliminary analyses indicated that, as expected, responses did not differ as a function of whether the brand name was for a 2-seater convertible or knife, or as a function of whether the brand name was for a 4×4 vehicle or hammer. Thus, we combined the two pairs to form two product categories: convertible and knife, and 4×4 and hammer. The effects of order and gender were not significant, and thus were not included in the analysis. Next, we combined data from all three experiments into one dataset, and coded experiment as an independent variable. To assess the effects of the alphabetic versus logographic administration in experiment 1c, we coded these factors as two separate experiments for analysis purposes. We then conducted a 2 (vowel sound)×2 (product category)×4 (experiment) mixed model analysis of variance (ANOVA), with vowel sound a within-subjects factor and product and experiment between-subjects factors. This analysis allows us to test our overall hypothesis but also determine whether findings differed significantly across experiments.

As predicted, the interaction between vowel sound and product category was significant ($F(1, 367) = 63.87$, $p < .001$). The preference results as a function of vowel sound and product category can be seen in the top panel of Table 2. Replicating Lowrey and Shrum (2007), front vowel sound words were preferred over back vowel sound words for convertible and knife (58% to 42%; $t(188) = 5.33$, $p < .001$, one-tailed). In contrast, for 4×4 vehicle and hammer, the predicted opposite pattern was observed: Back vowel sound words were preferred over front vowel sound words (59% to 41%; $t(185) = 5.37$, $p < .001$, one-tailed). Thus, the predicted crossover interaction was observed.

3.2.2. Effects of language and language proficiency

The three-way interaction between sound, product, and experiment fell just short of significance ($F(3, 367) = 2.61$, $p = .052$). To decompose this interaction, we performed sound×product ANOVAs for each experiment. The findings from this analysis can be seen in the middle and lower panels of Table 2. The results show that the pattern of effects for the four conditions is consistent: The expected crossover interaction in which majority preference for front versus back vowel sound words changes as a function of product category was observed in each instance (all $ps < .006$). Individual paired comparisons within product for each experiment indicated that the predicted differences were also significant (all $ps < .02$, one-tailed), with two exceptions, but both of which were in the expected direction. For Experiment 1c (Chinese alphabetic), the expected preference for front vowel sound words (53%) over back vowel sound words (47%) for 2-seater convertible and knife was not significant ($p > .15$); for Experiment 1c (Chinese logographic), the expected preference for back vowel

Table 1
Word pair stimuli (exp. 1a–1c).

Back vowel sound words	Front vowel sound words
Glav	Gliv
格啦芙 (ge la fu)	格理芙 (ge li fu)
Frag	Frig
弗樂珠 (fu le zhu)	弗莉珠 (fu li zhu)
Brado	Brido
布啦島 (bu la dao)	布尼島 (bu ni dao)
Prash	Prish
普啦斯 (pu la si)	普莉斯 (pu li si)
Urad	Urid
Plam	Plim

Note. — Alphabetic words were used for all experiments. The logographic representations were administered to only half of the participants in Experiment 1c, and those participants saw only the logographic representations. The alphabetic representation and logographic representations are shown together here for illustration only, as are the pronunciations.

Table 2
Experiment 1a–1c: brand name preference as a function of vowel sound, product category, and language conditions.

Product category	% front vowel words preferred	% back vowel words preferred
All languages combined		
Convertible/Knife	58% [a]	42% [b]
4×4 SUV/Hammer	41% [a]	59% [b]
French (Exp. 1a)		
Convertible/Knife	60% [a]	40% [b]
4×4 SUV/Hammer	37% [a]	63% [b]
Spanish (Exp. 1b)		
Convertible/Knife	56% [a]	44% [b]
4×4 SUV/Hammer	42% [a]	58% [b]
Chinese Alphabetic (Exp. 1c)		
Convertible/Knife	53% [a]	47% [a]
4×4 SUV/Hammer	41% [a]	59% [b]
Chinese Logographic (Exp. 1c)		
Convertible/Knife	76% [a]	24% [b]
4×4 SUV/Hammer	46% [a]	54% [a]

NOTE. — Comparing across columns, numbers with different superscripts differ at $p < .05$, one-tailed.

sounds (54%) over front vowel sounds (46%) for 4×4 and hammer was not significant ($p>.20$).

An inspection of the results also shows that the size of the effects vary somewhat across experiments, which accounts for the three-way interaction. In particular, effect sizes for the French and Chinese logographic conditions tend to be larger than those of the Spanish and English conditions, with the Chinese logographic effect sizes being primarily driven by the front vowel sound effect for convertible/knife category. Further analyses confirmed this observation, with the effect size of the Chinese logographic condition differing from the Spanish ($p<.05$) and Chinese alphabetic ($p<.03$) administrations. The difference between the French and the Chinese alphabetic effect sizes approached significance ($p<.07$).

Finally, we tested whether the effects differed as a function of language proficiency (scale measure) or whether the stimuli were administered in the participants' first or second language. Neither variable had any significant influence (both Fs<1 for each interaction), nor did their inclusion alter the interaction between vowel sound and product category.

4. General discussion

Inputs into brand name perceptions are numerous and complex, and a number of factors may influence consumers' preferences for one brand name over another. In the studies presented here, we showed that the sound of a name, through its phonetic symbolism, is one factor that influences brand name preference. Across three experiments, we showed that preference for a particular brand name over another can be influenced not only by the fit between the name's phonetic symbolism and the attributes of the product, but in fact the preference as a function of this fit can be reversed. Moreover, we showed that this effect is remarkably stable. We demonstrated the effect in four different languages — English, French, Spanish, and Chinese — and for both alphabetic and logographic language formats in Chinese. We also showed that these effects hold equally for one's own language and for bilinguals in a second language. For the bilingual conditions, we also showed that this effect does not appear to be affected by language proficiency.

These results add to the growing literature on marketing applications of phonetic symbolism effects. They also provide a theoretical contribution, particularly with respect to the processing of logographic versus alphabetic scripts. The findings suggest that phonetic information is encoded from brands when they are written in logographic scripts, affecting perceptions of those brands, at least when semantic information is minimized by using artificial logographs that are the equivalent of non-words (pseudologographs). Moreover, these findings appear to be relatively automatic (Yorkston & Menon, 2004). Although the effectiveness of any phonetic manipulation may depend on the extent to which naming strategies (phonetic, semantic, and phonosemantic) prime a phonetic versus semantic emphasis (Zhang & Schmitt, 2001, 2007), our results suggest that phonetics do play a role.

4.1. Managerial implications

Our research has implications for managers looking to introduce their brands into foreign markets. The general findings from previous research on the marketing applications of phonetic symbolism suggest that sound does convey meaning, and thus represents one more controllable input for developing good brand names. However, previous research has been constrained predominantly by Western, English-speaking contexts, which makes the generalizability of the managerial implications and applications problematic. Our research shows that the managerial implications can be extended to other languages in a bilingual context. This is good news for managers debating branding strategies for extending their well-established brand names into foreign markets. Our research suggests that qualities implied from the sound of the brand name will generalize. Our findings are also good news for managers who are constructing new brand names. They can feel more confident in employing a strategy that uses the same brand name in multiple markets.

Although our findings have some specific implications for brand name development based on the front/back vowel sound distinction we tested, we want to stress some limitations as well. Our findings imply that one might be well-served to use front vowel sounds for smaller automobiles and back vowel sounds for larger ones. Although some common examples of real brand names consistent with this logic easily come to mind (e.g., Hummer, Tundra (Toyota) for large, powerful vehicles; Prius (Toyota), Twingo (Renault) for small, light vehicles), exceptions are also easily generated (e.g., Ford Focus for a small car, Chevrolet Equinox for a large SUV).

Three important points are worth noting. First, our focus on the front/back vowel sound distinction was primarily to test a theoretical proposition: Does the sound of a brand name influence perceptions and preferences that are generalizable across languages for bilinguals? The decision to use only the front/back vowel sound distinction and hold all other sounds constant was a methodological choice to maximize construct validity. For real brand names, however, the situation is much more complex. The front/back distinction refers to vowel sounds, but there are a number of consonant sounds that have been shown to influence perceptions as well. Examples include fricatives versus stops, and voiceless versus voiced consonants. Moreover, not only are these two sets of categorizations orthogonal (and thus one can have voiced and voiceless fricatives), but some categorizations also have additional dimensions (e.g., occlusive vs. nasal stops). All of these categorizations have been shown to influence perceptions through their sound symbolism (Shrum & Lowrey, 2007).

Thus, the main recommendation that emerges from phonetic symbolism research for brand name creation is that marketers should attempt to maximize the sound-attribute fit. Such fit must be calibrated based on a detailed knowledge of how the sounds of brand names map onto their respective meanings across multiple dimensions. Our point is that knowledge of phonetic symbolism effects would be useful in the brand naming process, both by enhancing sound associations and avoiding bad ones.

The second point we want to stress is that there is much more to a word than just its sound. In fact, sound often plays a very minor role in relation to semantics in constructing brand names. This is evident in the counterexamples we mentioned for naming vehicles. Although the Focus and the Equinox may violate the front/back vowel sound guideline, the names clearly have a meaning, and it is reasonable to assume that semantic connotations will often overwhelm sound connotations. However, when considering two equally attractive brand names that convey meaning through their semantic associations, sound symbolism may provide an added value.

The third point we want to make concerns whether we should expect to see evidence of sound symbolism across brand names for a particular product category, such as the automobile category we chose for our stimuli. The answer depends on a number of variables. One is whether particular product categories tend toward the use of semantics in constructing brand names. In such cases, one might expect to see evidence of the effect only in instances in which the names are fictitious. Although most product categories may rely more heavily on semantics than phonetics, there are also well-known brand names that are made up (Kodak, Exxon).

That said, there are some product categories that may tend to use fictitious names, particularly those likely to use numeric or alphanumeric brand names (Pavia & Costa, 1993). One particular product category that tends, almost entirely, to use fictitious brand names is medication trade names (e.g., Avistin and Taxol, both cancer medications); in fact, there is evidence that phonetic symbolism may be related to the development of brand names in that category. Abel

and Glinert (2008) coded the trade names of 60 frequently used cancer medications in terms of the frequency in which they had voiced or voiceless consonants. They reasoned that because voiceless consonants are associated with concepts such as smaller, lighter, and faster (Klink, 2000; Newman, 1933), medication trade names with voiceless consonants might be associated with more tolerable chemotherapy and would thus be more likely to be used in trade names than voiced consonants. Abel and Glinert (2008) found that this was indeed the case: Voiceless consonants were used in cancer medication brand names more often than would be predicted by their base rate in the English language.

In conclusion, the results of this study support the findings of previous studies that showed that phonetic symbolism influences brand name perceptions and that brand name preference can be enhanced when the fit between the concepts associated with the sound of the brand name and the attributes of the product are maximized. In addition, the results extend previous findings by showing that they generalize to other languages in both alphabetic and logographic writing systems, have similar effects for bilinguals in both their first and second languages, and hold regardless of language proficiency. Thus, an understanding of phonetic symbolism effects represents an additional tool for brand managers when constructing brand names, including names for international brands.

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