

## Measures for brand knowledge: Comparison of testing formats, languages and product categories

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**Abstract:** Brand knowledge represents the information stored in consumers' memory about a specific brand within the product category. Research indicate that the fund of knowledge can affect product choice as well as decision making and better knowledge usually facilitates purchase intention. In the marketing research, free recall is the most commonly used tool of knowledge and awareness testing. However, studies have indicated that free recall may not be an accurate representation of memory as the actual fund of knowledge of some individuals with relatively poor expressive ability may be underestimated by the free recall format. The current study aims to compare the use of free recall and recognition format in assessing brand knowledge for different languages and product categories. A total of 40 university students from Institute of Textiles and Clothing, The Hong Kong Polytechnic University were recruited. The results suggested that the participants could recognize more brand names, as compared with free recall format and the difference was greatly significant if the brand names were given in Chinese. In addition, their recognition performance of English and Chinese brand names was differential for product categories. Therefore, accurate measure of individuals' brand knowledge seems to depend on the testing formats, languages used and product categories.

### Introduction

Brand knowledge represents the information stored in consumers' memory about a specific brand within the product category [1]. Research have indicated that the fund of knowledge can affect product choice [2] as well as decision making [3][4][5] and better knowledge usually facilitates purchase intention [6]. Consumers tend to purchase products that are more familiar and possess sufficient knowledge to lower their risk in purchasing poor quality or unsatisfactory products. Therefore, how to promote brand knowledge and brand awareness of consumers become essential in the marketing research.

In the marketing research, free recall is one of the most commonly used tool of knowledge and awareness testing [7][8] in which the subject has to recall the information about the specific products and product categories from memory. This kind of testing format requires the subject to have good expressive language ability so this testing format is measuring both the fund of knowledge and expressive verbal ability of the individuals. However, studies from neuropsychology have indicated that free recall may not be an accurate representation and valid estimation as the actual fund of knowledge of some individuals with relatively poor expressive ability may be underestimated by the free recall format [9][10][11]. Therefore, Kaplan and her colleagues [12][13] have highlighted the importance of using tests that are less dependent on expressive ability to test the individuals' fund of knowledge and the recognition format has been incorporated into some of the neuropsychological tests. Our previous study [10] has suggested that the recognition format, which requires less expressive ability, is more sensitive in

assessing the fund of verbal knowledge, particularly in individuals with younger age. Therefore, the first aim of the present study was to compare the testing formats of free recall and recognition in assessing the brand knowledge.

When a company brings its products into a foreign market, one of its important decisions is the choice of brand name which can enhance image, perception, awareness, attributes and benefits of the product [14][15]. Many multinational companies from developed Western countries often use their original brand names in English. Research have indicated that English brand names can enhance the perceived globalness of the products and is associated with country of origin which is in turn often associated with more favorable attributes and product quality [16]. On the other hand, some studies have suggested that consumers preferred brands in their own language [17][18]. For instance, American consumers preferred brands in English to brands in French or German [17] and Taiwanese consumers rated products with Chinese brand names higher on brand friendliness, brand trust, self-brand connections, and brand liking [19]. Therefore, at present, it is quite common for companies to use both English and Chinese names for their products, particularly if the products are marketed in the countries with Chinese population, such as China. However, it is unknown if the products using English and Chinese names can really increase their knowledge or awareness or not. At the same time, in some product categories, consumers still think that products with foreign brand names are more favorable than those with local brand names [20] so they will recognize their original foreign brand name (such as English)

better than its translated local brand names (such as Chinese). Therefore, another aim of the present study was to investigate the interaction effects of language used and product categories on individuals' brand knowledge.

## Experimental

### Participants

A total of 40 university students (Male/Female: 3/37) from Institute of Textiles and Clothing, The Hong Kong Polytechnic University were recruited in the study as participants. No history of brain damage or learning difficulties was reported. All participants underwent standardized neuropsychological assessment and the entire assessment completed in one session that lasted for about 1 hour for each participant. Demographic information is summarized in Table 1. All participants were native Cantonese-speakers who had begun to learn English before the age of 6, and had at least 10 years of education in English. Participants who cannot speak Cantonese and/or read traditional Chinese script were excluded from the study. They all participated voluntarily and have given informed consent according to institutional guidelines. The study was ethically approved by the Human Subjects Ethics Sub-committee of The Hong Kong Polytechnic University.

Table 1. Participants' Demographic Information

Variables	Mean (SD)
Age (year)	20.65 (0.89)
Education (year)	15.03 (0.28)
Gender (Male/Female)	3/37
TONI-III	106.20 (11.97)
HKLLT	12.23 (1.72)
Verbal Fluency	21.20 (3.30)

Note: n = 40

### Neuropsychological assessments

Each participant received assessment on their intellectual function, memory, language ability and brand knowledge. All neuropsychological tests employed were standardized tests with established norms that are commonly used in the field [21][22][23]. The tests included:

*Test of Nonverbal Intelligence - Third Edition (TONI-III)*. The TONI-III [24] was administered to assess the IQ of each participant. The test consisted of 45 matrix reasoning questions, with raw scores ranging from 0 to 45. The raw scores were then converted to deviation quotients based on the norms provided in the test manual. The TONI-III was used because the test was relatively language-free so it would less be affected by language ability, reducing the covariance on similar cognitive ability as measured by the Vocabulary test.

*Hong Kong List Learning Test (HKLLT)*. The HKLLT [23][25][26][27], a clinically validated verbal list

learning test for Chinese, was used for measuring memory function. Participants were presented with a list of 16 two-character Chinese words during three learning trials. They were asked to recall the items after each learning trial, and after delays of 10 and 30 minutes. The total number of words recalled in the 30-minute delay trial of the HKLLT (maximum score = 16) [23] were used as their verbal memory score.

Verbal fluency Test [28] will be used for evaluating expressive language ability. Participants were invited to generate examples of some categories and an example of how to generate items of flowers was given. The participant was also reminded to give the name of each item only once and to generate as many items as he/she could. After indicating that he/she understood the instructions, the participant was told to generate as many animal names as he/she could think of in 1 minute.

### Assessment of Brand knowledge

Two testing formats, that is, free recall and recognition were used to assess brand knowledge of the participants. In the free recall trial, the participant was given 1 minute respectively to generate names of fashion brand in English and Chinese. In the recognition trial, a list of 48 items was given to discriminate brand names from non-brand names. In total, there were 24 fashion brand names, 12 brand names from categories of electronic and cars (E & C) and the remaining 12 items were distracters that are non-brand names. Brands with both English and Chinese names and that were formally used by the companies were selected for recognition in the study. These brands are commonly found in Hong Kong and pilot screening was done to eliminate the brands that could not be identified by undergraduate students. Furthermore, in order to make sure that participants had basically knowledge about the brands, they had to read English and Chinese brand names after completion of the assessment. All participants were able to read over 90% of English and Chinese brand names correctly.

## Results and Discussion

### Performance on free recall and recognition formats for English and Chinese brand names

The three most popular fashion brand names in English and Chinese generated by the participants within one minutes is shown in Tables 1 & 2, respectively. In general, when the participants were asked to recall English brand names, most of them were international brands, such as whereas they recalled Chinese fashion brand names, majority were local brands in Hong Kong. Therefore, it seems that the participants were more able to recall international brand names in English. For Chinese, local brand names were relatively more familiar with, as compared with international brand names.

Table 2. Three most popular English brand names being recalled within one minute

English brand names	Frequency count
Louis Vuitton	29/40
Gucci	22/40
Armani	21/40

Note: n = 40

Table 3. Thres most popular Chinese brand names being recalled within one minute

Chinese brand names	Frequency count
佐丹奴 (Giordano)	16/40
堡獅龍 (Bossini)	13/40
李寧 (Li Ning)	11/40

Note: n = 40

Figure 1 shows the number of names recalled and recognized for fashion brands in English and Chinese. Within-subjects repeated measures ANOVA was conducted to examine any interaction effects between testing formats (free recall vs. recognition) and languages (English vs. Chinese). The results showed that the interaction effect of was significant,  $F(1, 39) = 70.91, p = 0.000$ . Post-hoc paired-samples t-tests further suggested that in general, participants recalled (English:  $16.03 \pm 4.31$ ; Chinese:  $4.38 \pm 3.41, t(39) = 20.39, p = 0.000$ ) and recognized (English:  $18.43 \pm 2.85$ , Chinese:  $12.35 \pm 3.56, t(39) = 14.423, p = 0.000$ ) more English fashion brand names than Chinese fashion brand names. The recognition performance was better than recall performance for English ( $t(39) = -3.495, p = 0.001$ ) and Chinese ( $t(39) = -15.691, p = 0.000$ ) and the difference was prominent for Chinese. Among the 24 Chinese fashion brand names, the participants could recognize an average of 12 items whereas they could only recall an average of 4 items freely.

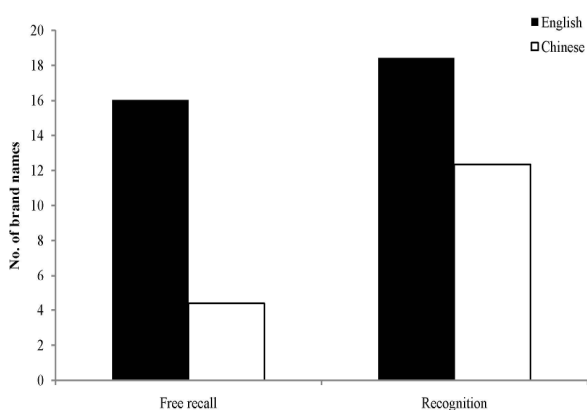


Figure 1. Total number of fashion brand names in English and Chinese being freely recalled and recognized.

*Effects of languages and product categories*

In order to test out the specificity of product category, apart from recognizing fashion brand names, the participants also had to recognize brand names from categories of E & C printed in English and Chinese.

Given that the total number of brand names for fashion and E & C was different (24 items for fashion brand names and 12 items for E & C), the percentage of recognized items was used for comparison.

Figure 2 shows the percentage of items recognized for brand names for fashion & E & C in English and Chinese. Within-subjects repeated measures ANOVA was conducted to examine any interaction effects between languages used (English vs. Chinese) and product categories (fashion vs. E & C). The results showed that the interaction effect of was significant,  $F(1, 39) = 121.104, p = 0.000$ . Post-hoc paired-samples t-tests further suggested that the participants were able to recognize similar amount of English and Chinese brand names from categories of E & C ( $t(39) = -1.097, p = 2.79$ ). However, they recognized less amount of Chinese brand names than English names from fashion category ( $t(39) = 14.423, p = 0.000$ ). Therefore, languages used for brand names seemed to have differential effects on the product categories. For product category of fashion, the participants were less familiar with their Chinese brand names but in the product categories of E & C, the participants were familiar with their English and Chinese brand names similarly.

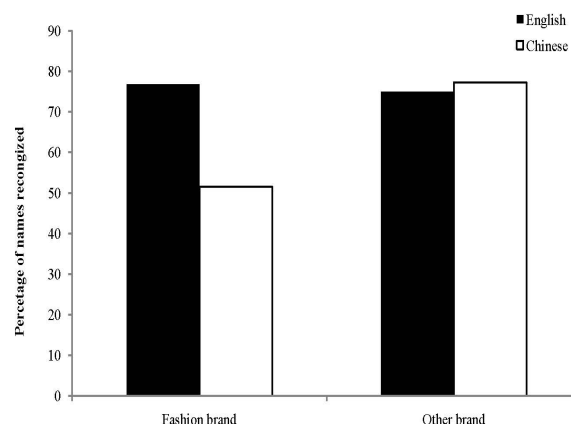


Figure 2. Percentage of brand names in English and Chinese being correctly recognized.

*Factors affecting free recall and recognition performance*

Correlation analyses were conducted to explore the factors that could affect their free recall and recognition performance of English and Chinese brand names and across product categories of fashion and E & C. The results suggested that across product categories, their free recall and recognition performance of English and Chinese brand names was not correlated with their intellectual functioning, memory or language ability ( $p > 0.05$ ). However, within product category of fashion, their free recall performance of English brand names was significantly correlated with their free recall performance of Chinese brand names ( $r(40) = 0.544, p = 0.000$ ) (Figure 3).

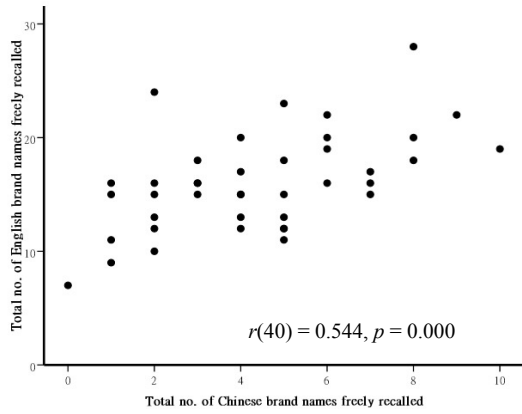
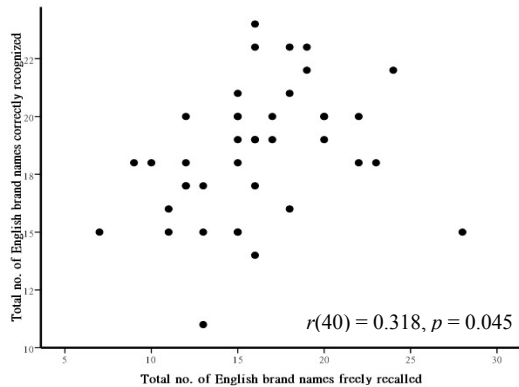


Figure 3. Correlation between free recall and recognition performance of English and Chinese brand names for product category of fashion.

In addition, double dissociation was found in their free recall and recognition performance of languages used across product categories. Specifically, their free recall performance of English brand names was correlated significantly with their recognition performance of English brand names for product categories of fashion and E & C, respectively (Fashion,  $r(40) = 0.318, p = 0.045$ ; E & C,  $r(40) = 0.358, p = 0.023$ ) (Figure 4) but not correlated with recognition performance of Chinese brand names in either product category ( $p > 0.05$ ).

A)



B)

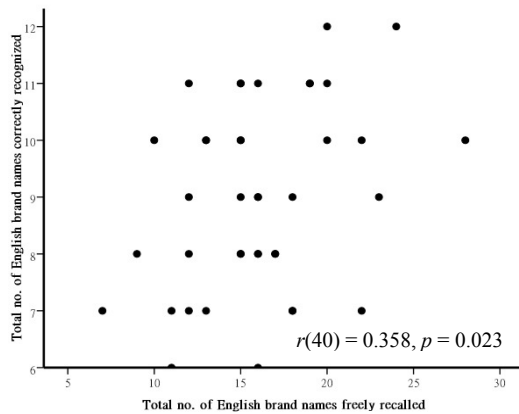
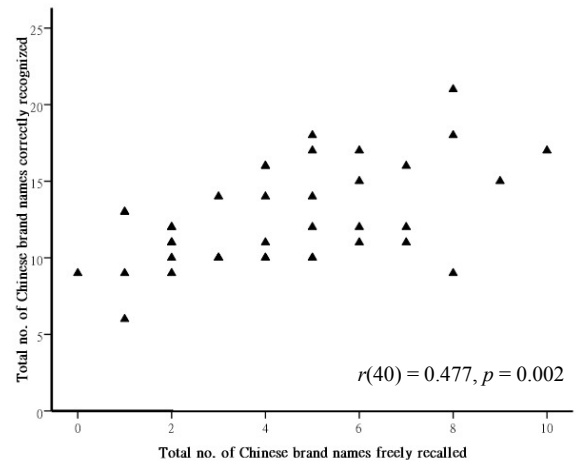


Figure 4. Correlation between free recall and recognition performance of English brand names for product categories of (A) fashion (B) electronics and cars.

Similar patterns of correlation was found in free recall and recognition performance of Chinese brand names for product categories of fashion and E & C (Fashion,  $r(40) = 0.477, p = 0.002$ , E & C,  $r(40) = 0.327, p = 0.040$ ) (Figure 5) and no significant correlation was found between free recall performance of Chinese brand names and recognition performance of English brand names ( $p > 0.05$ ). Therefore, if a person could freely recall more Chinese brand names, their recognition performance of Chinese brand names was also significantly better.

A)



B)

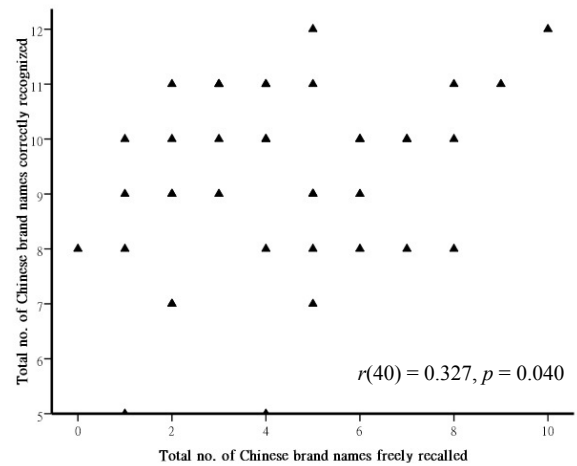


Figure 5. Correlation between free recall and recognition performance of Chinese brand names for product categories of (A) fashion (B) electronics and cars.

### Conclusions

The first aim of the present study was to compare the testing formats of free recall and recognition in assessing individuals' brand knowledge. By using fashion brand names, the results suggested that, as compared with their performance free recall condition, the participants could in general identify more brand names when the names were given in recognition format and the difference was greatly significant if the brand names were written in Chinese. Among the 24 Chinese fashion brand names, the participants could

recognize an average of 12 items whereas they could only recall an average of 4 items freely. Therefore, the participants basically had knowledge about Chinese fashion brand names but they had difficulty to retrieve them freely from memory. Therefore, the findings were consistent with our previous study [10] that the recognition format might be a better testing format to assess individuals' fund of brand knowledge.

It is very common for companies to use both English and Chinese names for their products, particularly if the products are introduced to the markets with Chinese population. Studies have indicated the benefits of using English and Chinese brand names [16][19]. Whereas English brand names can enhance the perceived globalness of the products and is associated with country of origin which is in turn often associated with more favorable attributes and product quality [16], Chinese brand names were rated with higher on brand friendliness, brand trust, self-brand connections, and brand liking among Chinese population [19]. Therefore, products having both English and Chinese brand names may be associated with double benefits if the products are targeted for Chinese population. The results of the present study suggested that the participants were able to recognize English and their respective Chinese brand names for product category of E & C. However, they significantly recognized less Chinese brand names than English brand names for product category of fashion. It may be related to the fact that the participants were less familiar with Chinese fashion brand names, resulting in fewer names being freely recalled and recognized by the participants. At the same time, the effect seems to be product specific as the participants could recognize similar amount of English and their respective Chinese brand names for product category of E & C. Therefore, when we assess brand knowledge, we should be careful in selecting product categories and languages as their two factors have differential effects on individuals' brand knowledge.

In the present study, the cognitive function of the participants was assessed by standard neuropsychological tests to make sure that they had relatively intact intellectual function, memory and language ability and to rule out the possibility of any cognitive factors affecting their recall and recognition performance on brand knowledge. Furthermore, the findings suggested that free recall performance in English and Chinese brand names were highly associated, suggesting that if the participants were familiar with and had knowledge about the brand names, they were able to identify and associate the brand with their English and respective Chinese names. Therefore, products using English and Chinese brand names can facilitate their customers to be familiar with their products. In addition, the familiarity can be transferred to other product categories because double dissociation was found between their free recall and

recognition performance. If the participants had better free recall performance in English brand names in fashion, their recognition ability in English brand names was also better in other product categories. Similar pattern of better performance was found in Chinese brand names. Therefore, the dissociation is interesting that if the company introduces their products into Chinese population, using Chinese brand names seems to facilitate the customers to be more aware of other products categories with Chinese brand names. Therefore, using both English and Chinese names seems to be a beneficial market strategy to improve customers' knowledge which can promote their awareness of other product categories as well.

This was a preliminary study to evaluate measures for brand knowledge. Accurate measure of individuals' brand knowledge seems to depend on the testing formats, languages used and product categories. One limitation of the present study was that all participants were college students so they were able to read and know the brand names. It is unknown if the brand names in English and Chinese may have different effects on individuals with lower educational background as some of them may not know English and they may be easier to remember Chinese brand names than English brand names. Therefore, whether brand with Chinese names can better facilitate their knowledge is still uncertain and further studies are deserved for investigation. Another limitation is that products with brand names with both English and respective Chinese brands are limited, particularly for fashion products. Whereas most product categories of electronic and cars usually have Chinese brand names, not all fashion brands will have their Chinese names. Therefore, the selection of some fashion brands may be restricted. Finally, in addition to language and category, some other factors, such as marketing time, country of origin and usability in daily life, and gender effect, may possibly affect familiarity of brand name and was not addressed in the present study. Therefore, it will be worthwhile to explore these possible important factors in future.

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