

## **CONSUMER KNOWLEDGE AND ITS CONSEQUENCES:**

### **AN INTERNATIONAL COMPARISON**

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### **Abstract:**

By far the theories of consumer knowledge are mainly estimated in the western countries. It is important and necessary to assess theory generalizability and model equivalence across different culture contexts. This paper intends to gain a preliminary understanding of the relationship between two consumer knowledge components and four product-related task performances, with a focus on the influences of two psycho-linguistic differences in cognition. Based on the results of our empirically multi-group comparison of Chinese and French wine consumers, we find that consumer knowledge is a multi-dimensional construct in both cultural contexts. It appears that psycho-linguistic differences largely affect the consumption task performance. Consequently different consumer knowledge components play different roles in consumption tasks and lead wine consumers to employ dissimilar information processing strategies in various cultural contexts.

## INTRODUCTION

Since the 1980's, consumer knowledge has become an independent area of research and theorization in the field of consumer behaviour and has been extensively investigated (Alba and Hutchinson, 1987). Consistent evidence has found that novices and experts differ in their knowledge and then exhibit large variances when performing product-related tasks. However, despite the importance of this issue and the fact that many substantial results have been achieved, few studies are interested in institutional differences (notably cultural), which can influence the representation of knowledge and play a pivotal role in consumer behaviour. By far, the theories of consumer knowledge are mainly estimated in the western countries. It is important and necessary to assess theory generalizability and model equivalence across various culture contexts. Three questions are evidently raised: is the consumer knowledge structured in the same manner through cultures? Does culture have an impact on consumption task performances? And do consumer knowledge components play the same role in product-related tasks in different cultural contexts? In an attempt to preliminarily answer these three questions, we extended the current work of Aurier and Ngobo (1999) to gain a greater understanding of the relationships among consumption experience, subjective product knowledge and four product-related task performances, with a focus on the influence of two psycho-linguistic differences in cognition between the Chinese and French languages.

The rest of this paper flows as follows. We will first review the framework of consumer knowledge and then propose a series of hypotheses regarding the effects of two psycho-linguistic differences. The second section will present an empirical study to test our hypotheses and explore

whether consumer knowledge components play different roles in consumer behaviour across cultures. We will end this paper with the discussion and conclusion.

## **LITERATURE REVIEW**

### **Framework of Consumer Knowledge**

The level of knowledge allows us to well understand consumer behaviour and activities. Research has found that experts and novices differ in the amount, content and organization of their knowledge and as a result, exhibit large variances when they perform some product-related tasks (Aurier and Ngobo, 1999). Two major dimensions of consumer knowledge have been distinguished in literature: *experience* (or familiarity) and *product knowledge*. *Experience* is defined as the number of product-related consumption experiences that have been accumulated by the consumer (Alba and Hutchinson, 1987). *Product knowledge* can be regarded as the sum of product class information and rules stored in memory, or as a judgment process in which consumers scan memory for cues in order to help them evaluate their product-related experiences (Park et al, 1994; Aurier and Ngobo, 1999). Research has discovered two natures of product knowledge: (a) objective knowledge (or factual knowledge), which can be measured by an impartial third party; (b) subjective knowledge (or perceptions of knowledge), which represents the self-evaluation of knowledge level (Brucks, 1985; Park et al., 1994; Laroche et al., 2003). Normally, what people think they know (subjective knowledge) is often different to what they actually know (objective knowledge) (Schacter, 1983).

In this study, we restricted our analysis to focus only on subjective knowledge because of the measurement difficulty associated with objective knowledge, in which it is rather hard to

precisely identify what constitutes an “expert” in a given product class (Zaichkowsky, 1985). Subjective product knowledge, however, can be measured on a standardized scale across different product categories (Brucks, 1985). In addition, Park and Lessig (1981) claim that subjective measures can better capture consumer strategies and heuristics because these measures are based on perceptions and self-confidence. Perceived (subjective) knowledge is also a superior predictor of purchasing behaviour and more critical for evaluation purposes than absolute (objective) knowledge (McDougall, 1987; Raju et al., 1993; Park et al., 1994). For these above reasons, we considered an inclusive conceptualization of subjective knowledge.

Some empirical studies have reported the positive relationship between experience and product knowledge (e.g., Nisbett and Ross, 1980; Raju et al., 1995). With the increase of consumption experiences, consumers may have greater attitude confidence to perform product-related tasks (Fazio and Zanna, 1981; Alba and Hutchinson, 2000). That is, subjective product knowledge can be regarded as a function of consumption experiences (Laroche et al., 2003).

### **Consumer Knowledge and Product-related Task Performances**

Consumer knowledge is recognized in consumer research as characteristics that influence all phases in the decision process (Bettman and Park, 1980). Alba and Hutchinson (1987) propose that there are five qualitatively distinct aspects of task performances (or expertise) that can be improved as consumer knowledge increases, namely cognitive effort, elaboration, cognitive structures, analysis and memory. Given that many studies have addressed several relations between consumer knowledge and its cognitive consequences, herein we focused on four sub-components of the later three aspects. They are:

(1) *Family resemblance*, which often refers to prototypical product examples. These good examples of a category are highly similar to other members of the same category while highly dissimilar to members of the other categories. With the increase of experience and knowledge, expert consumers are more able to find out the membership and discriminate product variations in a product category (Aurier and Ngobo, 1999). In other words, consumer knowledge is positively related to the variability of family resemblance.

(2) *Basic level*, which emerges as the predominant way of structuring concepts for a particular culture. For example, car, rather than vehicle, sedan, or Chevette, has been identified as a basic level (Rosch et al., 1976). Prior research finds that an increase in ability to categorize below the basic level simply means that finer discriminations can be made with greater reliability; while categorizing above the basic level are likely to discover more abstract and more related to important causal mechanisms (Rosch et al., 1976; Dougherty, 1978; Murphy and Medin, 1985; Alba and Hutchinson, 1987). Therefore, consumer knowledge is negatively related to categorization at basic level.

(3) *Stereotyped judgment*, which means overgeneralization of product attributes. Usually, people may amplify the correlations among products of the same category and thereby may incorrectly assume that attributes true of typical members are also true for all other members. Knowledge about particular members is then over-generalized. However, because expert consumers know more facts and categorize objects in more complicated ways, they may be less inclined to stereotyping than novice consumers (Alba and Hutchinson, 1987).

(4) *Memory capability*, which denotes consumer's ability to remember product-related information. Naturally, more experiences result in the growth of information and improve the ability to include more products and attributes into consumer's memory-based evoked sets for

decision-making. Consequently, brands and products become highly dissimilar and attributes attach task-relevant values (Alba and Hutchinson, 1987).

### **Research Hypotheses**

The impact of consumer knowledge on consumption task performances may be contingent upon the context of culture, because numerous conceptual and empirical studies have found that consumers are members of a particular national culture, who are affected not only by their own makeup, but also by the norms and beliefs of their cultural environments (e.g. Hofstede 1980; Schwartz 1994; Triandis, 1989). Among various cultural characteristics, language is central to communication and closely related to people's thought and cognition. Whereas behaviours, attitudes and values change over time, the structure of a language remains largely unchanged (Tse et al, 1989). A number of explanations have been theorized to account for the psycholinguistic differences, which likely have dramatic consequences for basic consumer processes such as perception, mental representations and memory (e.g., Schmitt et al, 1994; Pan and Schmitt, 1996). Since that consumer knowledge cognitively affects consumer behaviours, we cannot ignore the influences of language differences with the Chinese language in particular, because it is a unique language in the world based on ideograph system, very distinct from the western alphabet system in respects of the use of classifiers and the mental representation of language. We suggest that Chinese speaking consumers employ significantly different information processing strategies and their consumption performances are accordingly different to those of their western counterparts—herein, we refer to the French speaking consumers.

### *The means of categorization - use of classifiers*

Classifiers, referring to shared features of physical objects and creating concept-classifications, are linguistic labels for classifying the world into categories (Lucy, 1992). They depict perceptual properties of objects, such as shape, size, thickness, length and conceptual properties, such as bendable elastic, graspable, and so forth (Schmitt and Zhang, 1998). The Chinese use many classifiers in phrases. In contrast, most of the western languages (e.g., French, English, and German) have very few classifiers. Western people thus need to construct categories by observing properties and regularities in the world. The Chinese, however, engage in a top-down process in which they access the conceptual knowledge (e.g., perceptual and conceptual features) represented in the classifiers (Schmitt and Zhang, 1998).

According to semantic network models (Anderson and Bower, 1973), memory is organized around category concepts and objects are represented in memory by conceptual nodes. For example, “table” will activate a corresponding concept in memory in which information about its attributes (such as flat; pieces of furniture; typically four legs) are stored. Furthermore, one object can be related to another via a common feature linked to both objects. Research found that the individuals speaking a language with classifiers (e.g., the Chinese) see objects sharing a classifier as relatively more similar than objects that do not share a classifier (Schmitt and Zhang, 1998). For example, the Chinese may judge “board” is similar to “card” because the “flatness” shares a same classifier “*zhang*”. That is to say, compared to the French, the Chinese are more likely to look for the similarity instead of the dissimilarity among objects. When the most prototypical members of a category are learned first, the Chinese consumers normally incline to remember only the typical attributes and stop going further to find out the atypical ones. We believe that the



Chinese are aware of relatively less product specific information than are the French. The variability of their judgment on family resemblance may consequently be small. So,

*H1. The variability of consumer's judgment on family resemblance is smaller in Chinese cultural context than in French cultural context.*

In the same way, the use of classifiers keeps the Chinese categorizing products at a basic level. As we know, discrimination at a basic level by superficial attributes tends to be easier and more spontaneous than at any other levels (Alba and Hutchison, 1987). Since the Chinese are not adept at “chasing down” the dissimilarity among objects, they probably will not increase the specific evaluation of product categories. The shift from “surface structure” to “deep structure” categories may not occur as consumer knowledge increases. We suppose that compared to French consumers, Chinese consumers have more tendency to grade products by the perceptual attributes (e.g., appearances, colours) at basic level.

*H2. The tendency to categorize products at basic level is stronger in Chinese cultural context than in French cultural context.*

On the other hand, linguistic labels (i.e. classifiers) exercise top-down effects on categorization and related behaviour (Gentner and Raitermann, 1991). According to Schmitt and Zhang (1998), consumers at first notice the classifier-based similarity between the referent and the target and thus associate the referent with the target. After that, consumers will transfer either positive or negative effect from the referent object to the target, thus affecting evaluative judgments and choices directionally. For example, the classifier “*zhi*” in Chinese means “long, thin”. If we say “one lipstick (in Chinese: *yi zhi kou-hong*)” to a girl who has not seen lipstick before, because of the same classifier “*zhi*” sharing with “pencil”, she may infer lipstick is as long and thin as pencil. Therefore, being influenced by the use of classifiers, Chinese consumers have more practice than French consumers to categorize objects into categories based on relative perceived similarities

and expect certain attributes to be present. Their propensity to draw schema-consistent inferences should be stronger.

*H3. The propensity to make stereotyped judgment is stronger in Chinese cultural context than in French cultural context.*

### *The mental representation of language*

Reading and learning language heavily relate to Short-Term Memory (STM). There are three different components of STM: *phonological loop*, which codes linguistic information in phonological form and processes, or rehearses that information by re-circulating it in a serial manner (Baddeley, 1986); *visuospatial buffer*, which stores information in an imaginal code and rehearses information percept-like, that is, as if viewing a scene that contains the imagined objects (Kosslyn, 1980); and *conceptual store*, which codes information in a modality-free way, in terms of its conceptual properties (Potter, 1993). Reading any language relies on each of these components to encode verbal information. However, different languages appear to do so to various degrees (Hung and Tzeng, 1981).

The alphabetical languages (e.g., French) tend to record and rehearse words in a phonological way in the short-term memory (McCusker et al., 1981; Baddeley, 1986; Paivio, 1986; Van Orden, 1987). The process of reading Chinese differs considerably where a reader has to visually distinguish upward of thousands of logographs. Reading Chinese characters is less based on the phonological, but more on visual processes (Hung and Tzeng, 1981; Schmitt et al, 1994; Tavassoli, 1999; Zhou and Marslen, 1999). Even when logographs represent sound, the association with pronunciation is largely arbitrary and acquired via rote associative learning. Moreover, Chinese pronunciation is tonal in nature. Each tone is associated with the vowel in each syllable, and tonal patterns of vowels signify meaning. Finally, Chinese has a large number

of phonemes which correspond to several homonymous characters (Schmitt et al., 1994). Therefore, to correctly read and speak Chinese, we should concurrently mobilize all the three parts of short-term memory in order to integrate the sound, the form and the meaning of each Chinese character. These relative processing differences can largely affect consumer behaviours in many ways (Tavassoli, 2002). For example, prior study finds that Chinese consumers are better at remembering words integrated visual objects and better at recalling brand names when they are asked to write down the names than do their western counterparts (Schmitt et al, 1994). Since the Chinese language requires speakers to employ more cognitive effort and remember more information than French, we propose that even a Chinese novice has a good memory capability of certain product features.

*H4. The number of attributes that an individual can memorize is larger in Chinese cultural context than in French cultural context.*

Given the exploratory nature of this study and the relative paucity of extant literature on cross-cultural differences about the constructs under analysis, we offer no *a priori* conjectures in terms of the possible national culture moderating effects on the relationships between the consumer knowledge components and the above four task performances. They will be explored in the next section.

## **EMPIRICAL STUDY AND ANALYSIS**

### **Sampling and the Survey Procedure**

To test our hypotheses, we carried out an empirical survey to both Chinese and French consumers. The focal product category herein is “wine”, because it is a complex and involving product demonstrating a great deal of variety (Aurier and Ngobo, 1999). The self-administrated survey instrument was written in French and then underwent a “double back-translation” process. The items were first translated into Chinese by a French lady living in China, translated back into French by a Chinese student in France. We translated it again into Chinese by the same lady, and then finally translated back into French again by the same student. This translation procedure was consistent with the guidelines regarding the equivalence of language translations. Once the translation process was completed, pilot tests were conducted in both two countries in order to ensure the clarity and accuracy of the survey translation. Once the finalized version was agreed upon, our questionnaires were distributed.

Our study was conducted in two French cities (Nantes and Rennes) and in two Chinese cities (Beijing and Zhanjiang). The sample was selected randomly throughout main streets, libraries, municipal parks and major shopping malls. 200 examples in French were distributed and 110 returned (55%). We also handed out 160 examples in Chinese and got 125 back (78%). Within both samples, the proportion of male respondents is slightly bigger than that of female. Most of them were youth (19 to 35 years old). 34.5% of French respondents and 62.4% of Chinese respondents were professional (see Table 1). However, the relatively high percentage of student (47.2%) implies that our sample may not be representative of “people in general” (Peterson, 2001). This bias should be taken into account in interpreting the results of this study.

TABLE 1: descriptive statistics of respondents

		Sample		Total
		French	Chinese	
Sex	Female	45 (40.9%)	53 (42.4%)	98 (41.7%)
	Male	65 (59.1%)	72 (57.6%)	137 (58.3%)
Age	<=18	1 (0.9%)	7 (5.6%)	8 (3.4%)
	19-35	83 (75.5%)	83 (66.4%)	166 (70.6%)
	36-50	17 (15.5%)	27 (21.6%)	44 (18.7%)
	>=51	9 (8.2%)	8 (6.4%)	17 (7.2%)
Occupation	Professional	38 (34.5%)	78 (62.4%)	116 (49.4%)
	Student	68 (61.8%)	43 (34.4%)	111 (47.2%)
	Retired	4 (3.6%)	4 (3.2%)	8 (3.4%)
Total		110 (100%)	125 (100%)	235 (100%)

## Measures of Variables

### Consumer knowledge

- Experience Inspiring from Aurier et al. (2000), we measured the consumption frequencies of the high/normal quality of red/white/pink wines in four consumption contexts. Three measures were calculated: 1) the average consumption frequency of six variety wines; 2) maximum frequency across six varieties; 3) maximal frequency through the four consumption contexts.
- Subjective Product Knowledge Three items were used to capture the “feeling of knowing” facts about wine (a five-point scale from nothing to much, see Table 2).

### *Product-related task performances*

- Variability of Family Resemblance A piece of paper in colour was presented featuring 8 bottles of wine certified as A.O.C. The respondents should judge the resemblance between the actual bottle and their images of “high quality wine”. For each case, the variance of its family resemblance judgments across the eight wines was used as the indicator.
- Categorization at Basic Level The colour of wine (red, white, pink) serves as the basic level of categorization (Aurier and Ngobo, 1999). Therefore, we showed a piece of colour paper featuring 8 different bottles of wine. Their appearances of bottle, vintages, alcohol levels, regions and colours were quite different. The respondents were prompted to categorize them with 3 most important characteristics coming to mind (non-aided). If colour was cited at first, we coded this case as 3, 2 if cited second, 1 if cited third, 0 if not cited or no answer.
- Stereotyped Judgment Ice wine is new and most of the actual consumers know little about it. We developed 5 items in terms of the depiction of ice wine and asked the respondents to judge with 4 possible answers: *1, it is wrong, because I know it. 2, it is wrong, I infer from my prior knowledge about the red, white or pink wine. 3, it is true, because I know it. 4, it is true, I infer from my prior knowledge about the red, white or pink wine.* The correct answer was coded as: 0 for no stereotyping. The wrong one was coded as 1 for stereotyping. Non-answer was regarded as without tendency to stereotype. The sum of these 5 questions was computed.
- Memory Capability A colour photo of a bottle of red wine made in New Zealand was presented to the respondents with some descriptions. New Zealand is not a traditional country producing famous wine. We believed neither French nor Chinese consumers know well its vineyard or regions of production. After the presentation of this wine,

respondents continued to answer the other questions that disturbed their temporal memory. And then, they were prompted to recall 8 attributes of this wine without cue. The number of correct answers was taken as the score of memory capability.

## Analysis and Results

### *Factorial structure of consumer knowledge*

Exploratory Factor analysis As recommended by Anderson and Gerbing (1982), an exploratory factor analysis (EFA) using principle component method was conducted on the two dimensions of consumer knowledge for both Chinese and French samples respectively. Two distinct factors emerged (jointly accounting for 75.68% of the variance in Chinese sample and 85.12% in French sample), corresponding to “experience” and “subjective product knowledge”. Subsequent to scale reliability analyses, the coefficients of Cronbach’s alphas were computed. They all were satisfyingly above 0.60. (See Table 2)

TABLE 2 Exploratory factor analysis

Measures	Factor One		Factor Two	
	Chinese	French	Chinese	French
<b><i>Experience</i></b>				
Average consumption frequency of six varieties of wine (EXP1)	0.944	0.953		
Maximal frequency across six varieties of wine (EXP2)	0.893	0.894		
Maximal frequency across four consumption contexts (EXP3)	0.860	0.870		
<b><i>Cronbach’s Alphas</i></b>	<b><i>0.8492</i></b>	<b><i>0.8713</i></b>		
<b><i>Subjective product knowledge</i></b>				
Feeling of knowing about brands (SUB1)			0.837	0.897
Feeling of knowing about the features of wine (SUB2)			0.818	0.913
Feeling of knowing about the terminologies related to wine (SUB3)			0.761	0.910
<b><i>Cronbach’s Alphas</i></b>			<b><i>0.7542</i></b>	<b><i>0.9101</i></b>

Confirmatory Factor Analysis A confirmatory factor analysis (CFA) was performed with *LISREL* 8.51 to test the two-factor structure obtained in EFA. It was confirmed with first-order CFA in both samples. Examination of sample-free fit indices in Table 3 suggested that the model fitted the data quite well. However, the positive relationship between experience (EXP) and subjective product knowledge (SUB) was significant ( $p < 0.01$ ) only in the French sample. To verify whether consumer knowledge was structured in the same manner through cultures, we performed a multi-group analysis to test the equivalencies of measurement and structure across Chinese and French samples. We followed the *increasingly restrictive process* recommended by Jöreskog (1971) and Byrne (1998). That is, a best-fitting model for each group is established, which represents the best fitting to the data both from the perspective of parsimony and substantive meaningfulness. Second, a base line model involving no between-group constraints is estimated. Third, Model 1 is built to contain the constraints of invariance of factor loadings ( $\lambda$ ) between two groups. If Model 1 is not statistically different to the base line model, Model 2 will be estimated to test the constraints of invariance of measurement errors ( $\delta$ ,  $\varepsilon$ ) between these two groups. If Model 2 is not statistically different to the base line model, the equivalence of measurement can be true. Finally, Model 3 is tested, containing the constraints of invariance of relationships among latent variables ( $\gamma$ ,  $\phi$ , or  $\beta$ ). If Model 3 is still not significantly different to the base line model, the psychometric properties of model between two samples are equivalent.



TABLE 3: Confirmatory Factor Analysis

	Experience (EXP)		Subjective product knowledge (SUB)	
	Chinese <sup>1</sup>	French <sup>2</sup>	Chinese	French
<b>SUB</b>	0.08 <sup>3</sup> (0.88) <sup>4</sup>	<b>0.15 (2.27)</b>		
<b>EXP1</b>	<b>1.05 (16.10)</b>	<b>1.02 (21.72)</b>		
<b>EXP2</b>	<b>0.79 (10.20)</b>	<b>0.85 (16.04)</b>		
<b>EXP3</b>	<b>0.75 (9.52)</b>	<b>0.80 (14.45)</b>		
<b>SUB1</b>			<b>0.73 (7.67)</b>	<b>0.79 (12.97)</b>
<b>SUB2</b>			<b>0.75 (7.85)</b>	<b>0.82 (13.48)</b>
<b>SUB3</b>			<b>0.66 (7.03)</b>	<b>0.74 (12.10)</b>

1:  $X^2(8) = 14.93$ ,  $p = 0.06$ ; RMSEA=0.084; GFI=0.96; AGFI=0.90; NNFI=0.96; CFI=0.98; IFI=0.98.

2:  $X^2(8) = 12.72$ ,  $p = 0.12$ ; RMSEA=0.050; GFI=0.98; AGFI=0.95; NNFI=0.99; CFI=0.99; IFI=0.99.

3: Standardized solution estimates.

4: T-value. Significant coefficients are in bold.

The test results were presented in Table 4. We found that as the degree of freedom increased, the changes of  $X^2$  were always insignificant. This means the postulated relations between measures and construction could become widespread. As a consequence, the measurement models of consumer knowledge were declared invariant across Chinese and French groups in subsequent model testing.

TABLE 4: Invariance test of CFA model

Models	Degree of Freedom	$\Delta df$	$X^2$ value	$\Delta X^2$	P-Value
Base Model	18		22.52		
Model 1 (Measurement Loading $\lambda$ invariance)	22	4	22.49	0.03	0.99
Model 2 (Measurement Errors $\delta$ and $\varepsilon$ invariance)	28	10	31.49	8.97	0.53
Model 3 (Correlation $\phi$ invariance)	29	11	31.87	9.35	0.59

### *Test of hypotheses*

Once it was known that consumer knowledge was organized in the same way in both groups, we could estimate the links between the two dimensions and four product-related tasks (one model

for each task). The full latent structural models were first estimated via *LISREL* 8.51 for each group separately. Then, to examine our hypotheses, we conducted the multi-group tests for invariant latent mean structures for two knowledge components and the four tasks. The method outlined by Byrne (1998) was followed--the Chinese group was designated as reference group while the French group as comparison group. An intercept term with variance fixed to 1.00 was specified, which constrained all intercepts of the observed measures to be equal across groups. All the factor intercepts were free estimated for the French group, and constrained equal to zero for the Chinese group. Because the reference group had their parameters fixed to zero, only the magnitude and direction of comparison group (French) were estimated. Overall latent mean differences for the six factors were shown in Table 5. Additionally, in order to see whether the roles of knowledge components in those four tasks were significantly different across groups, we followed the abovementioned *increasingly restrictive procedure* again and tested the multi-group invariance of structural path coefficients. Table 6 presented the estimate results for each model.

TABLE 5: Invariance test of latent mean structures

	<b>Subjective product knowledge</b>	<b>Experience</b>	<b>Family resemblance</b>	<b>Categorization at basic level</b>	<b>Memory capability</b>	<b>Stereotyped judgment</b>
Estimate	<b>-0.29<sup>1</sup></b> <b>(-2.28)<sup>2</sup></b>	<b>0.31</b> <b>(6.51)</b>	<b>0.49</b> <b>(4.36)</b>	0.24 (1.41)	<b>-1.31</b> <b>(-3.45)</b>	<b>-0.89</b> <b>(-2.95)</b>
1: Given that the Chinese group was designated as the reference group with parameters fixed to zero, only the results for the French group are shown. The positive estimation suggests that the Chinese score is higher than the French one. The negative result means lower.						
2: T-value. Significant values are in bold.						

Experience and subjective product knowledge From Table 5, we found that the Chinese have fewer wine consumption experiences than the French. The Chinese score of subjective product knowledge (SUB), however, was interestingly higher than the French one. As we expected, experience had a positive effect on SUB in every model (see Table 6). The coefficients were

always significant in the French group, but did not exhibit statistical differences across groups in all the full latent structure models.

TABLE 6: estimate results of the structural models and testing the equality of paths across groups

Endogenous variables	Experience (EXP)			Subjective product knowledge (SUB)		
	Chinese Sample	French Sample	Test of path invariance (P-value) <sup>3</sup>	Chinese Sample	French Sample	Test of path invariance (P-value) <sup>3</sup>
SUB	0.07 <sup>1</sup> (0.77) <sup>2</sup>	<b>0.33**</b> (3.36)	0.097			
Family resemblance	0.11 (1.35)	-0.17 (-1.65)	<b>0.021</b>	<b>0.20<sup>+</sup></b> (1.93)	-0.08 (-0.74)	0.109
SUB	0.10 (1.04)	<b>0.34**</b> (3.44)	0.166			
Basic level categories	0.03 (0.34)	<b>0.17<sup>+</sup></b> (1.67)	0.175	<b>0.31**</b> (2.92)	<b>-0.19<sup>+</sup></b> (-1.78)	<b>0.012</b>
SUB	0.08 (0.85)	<b>0.34**</b> (3.43)	0.181			
Stereotyped judgment	0.10 (1.24)	0.05 (0.49)	0.229	-0.13 (-1.31)	<b>-0.27**</b> (-2.56)	0.192
SUB	0.07 (0.67)	<b>0.34**</b> (3.47)	0.103			
Memory capability	<b>0.24**</b> (2.82)	0.17 (1.63)	<b>0.016</b>	0.10 (1.03)	<b>-0.26**</b> (-2.35)	<b>0.025</b>

1: Standardized solution estimation.

2: T-value. Significant values are in bold.

3: Herein, we follow the increasingly restrictive strategy (Byrne, 1998). These models are nested and compared to the base-line model (with no invariance constraints). We evaluate the Chi-square value change to test the equivalence for structural paths.

+: p<0.10.

\*\*: p<0.01.

Variability of family resemblance The latent mean score on the variability of family resemblance judgment was significantly lower in the Chinese group than in the French group, which lent credence to our H1 (see Table 5). From Table 6, we noticed that SUB in the Chinese group had

significant influence (0.20,  $p < 0.10$ ) on family resemblance. In contrast, in the French group neither of the structural paths was significantly positive.

Categorization at basic level The estimate of the latent mean score on basic level was positive, which meant that French consumers were slightly more inclined to categorize wine by colour at basic level than did the Chinese. This difference, however, was not statistically significant and then our H2 was rejected. The results in Table 6 showed that both two knowledge components had positive relationships with categorization at basic level in the Chinese group, especially the path of SUB was strongly significant (0.31,  $p < 0.01$ ), statistically different to that in the French group.

Stereotyped judgment Results indicated that Chinese consumers had significantly more propensities to make stereotyped judgment than their French counterparts. Our H3 was held. The paths of experience were insignificantly positive. The paths of SUB were negative and significant only in the French group (-0.27,  $p < 0.05$ ). Neither of these structural coefficients was statistically different across groups.

Memory capability Our H4 cannot be rejected. The Chinese had remembered significantly more product attributes than the French. The paths of experience were positive in both groups and strongly significant in the Chinese group (0.24,  $p < 0.01$ ). The path of SUB in the French group was unexpectedly negative (-0.26,  $p < 0.01$ ). All of the structural relationships were significantly different across groups.

## **DISCUSSION AND CONCLUSION**

Several results emerged from this study are worthy of discussion. First, as we expected, probably because of the influence of two psycho-linguistic differences, there are significant differences in three wine-related task performances between Chinese and French consumers. Compared to their French counterparts, Chinese consumers find out less dissimilarity among different wines, have more propensities to make stereotyped judgment and remember more product attributes.

Second, consistent with prior studies (Brucks, 1985; Park et al., 1994; Mitchell and Dacin, 1996; Aurier and Ngobo, 1999), we identified and validated the existence of two components of consumer knowledge--experience and subjective product knowledge. This pattern of multi-dimensional construct is supported not only in French but also in Chinese cultural contexts.

Third, our study identified the argument contended by Alba and Hutchinson (1987) that different components of consumer knowledge have different effects on different cognitive tasks. In Chinese cultural context, experience increases consumer's capability of memory; but has no significant effect on subjective product knowledge, given that the Chinese consume significantly fewer wines while claim having more wine-related knowledge than do the French. What Chinese wine consumers think they know seems to be independent of how many consumption experiences that they have accumulated. On the other hand, subjective product knowledge predominantly affects consumer's cognitive structure. It increases consumer expertise in finding out good examples of a product category and finer distinctions among products. However, as self-generated knowledge without any objective verification, subjective knowledge may cause consumers to make decisions in an intuitive and irrational way.

In French cultural context, subjective product knowledge fully mediates the relationship between experience and cognitive task performances. The accumulation of consumption experiences alone cannot lead to the progress of consumption skills. Rather, it bolsters up French consumers' self-confidence in consumption. Therefore, French consumers evaluate product information and make a judgment in contemplation of perceptual knowledge obtained directly from consumption practices. As a result, subjective product knowledge systematically improves consumption performances by putting product categorization into further level and by preventing consumers from making a stereotype of product attributes. The negative relationship between SUB and the number of remembered product attributes does not jeopardize the constructive effect of subjective knowledge on consumption expertise. Indeed, a French wine consumer with high self-confidence may selectively remember only those crucial and useful product attributes for judgment instead of all the attributes.

Fourth, the information processing strategy of Chinese consumers is dissimilar to that of French consumers. The Chinese generally have high tolerance for uncertainty and readily take great risk due to their venturous national culture (Hofstede, 1980). They usually assert having high self-evaluated knowledge regardless their experiences and factual product knowledge. When they perform consumption activities, they employ a heuristic information process, mainly drawing upon their self-belief of product class information and rules. In contrast, the French behave more rationally and analytically. Before making any judgment or evaluation, French consumers attempt to assimilate all available cues, consider a broader scope of information including their past experiences, and try to avoid making any wrong or risky decision. With their increasing experience and subjective product knowledge, their task performances are normally improved.

Finally, our findings have some managerial implications for western wine producers who want to penetrate Chinese market. Generally speaking, red wine is much more popular than white and pink wine in China. We found that before or during the ordinary diner at home either with or without friends, the Chinese consume much less wine than do the French, whereas at the banquet there is no significant difference in wine consumptions. This phenomenon implies that the Chinese consume wine probably not because they like its taste (in fact wines are a little too acid for many Chinese). They would rather regard drinking wine in public place as a modern, elegant lifestyle making them different to the others. Many social and psychological meanings are also attached to wine. For example, the red means happiness and then red wine is very appropriate for the celebrations; an expensive imported wine with well designed appearance will bring an image of hospitality and wealth. Therefore, what the Chinese concern most are the social implications of wines. They seem to have little interests in the objective knowledge of wine consumption. We suggest western producers pay more attention to the extrinsic attribute of wine (e.g., design of bottle, package, and price) instead of educating Chinese consumers how to choose good wines.

### **Limitations and Future Research Directions**

The results presented here should be viewed in light of several limits. First, the influence of culture is a complex and controversial issue. This paper addresses only two psycho-linguistic differences. The other aspects of culture that may affect consumption performances should be taken into consideration in future studies. Likewise, a qualitative approach (e.g., interview and observation) or an interactive quantitative model containing more cultural variables may help us yield much more insights. Second, the data collected from the same individuals at the same point

in time have often been criticized on the grounds of being subject to “common method variance”. To test whether the differences are attributable to method bias, we conducted the widely used single-factor CFA tests for all the items of two knowledge dimensions and of each consumption task. The results showed all these models fit data very badly, providing evidence that a substantial amount of common method was not present. Although this statistic remedy can reduce the potential effect of common method variance on the findings of our study, the best way to avoid such measurement error is to follow the recommendations of Podsakoff et al (2003) to design the questionnaire and to obtain the measures of the predictor and criterion variables from different sources. Third, our study did not consider the objective dimension of knowledge, and therefore may not have fully embraced the entire construct of product knowledge. A more comprehensive measurement would be appropriate to incorporate objective knowledge and other dimensions of consumption experience, such as the breadth of experiences, the recency of experiences, and the evaluative nature of experiences (Zaichkowsky, 1985; Park et al., 1994). Fourth, the relationship between consumer knowledge and task performances may be contingent upon the factors other than national culture, such as motivational factors (the interest or involvement with the product class, Brucks, 1985), the age of consumers (Schiffman, 1971), and the gender differences (Laroche et al, 2003). All of these points out that a more comprehensive perspective is needed in future. Finally, because of the financial constrains, our samples cannot be selected by controlling residence area, gender, profession, age, etc. Future study should involve larger and more representative sample of Chinese and French populations to reveal the strength or persistence of the relationships.



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