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Using Brand Knowledge to Predict Beer Brand Preference and Loyalty for Samples of New Frequent Users in Perth and Beijing

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Abstract

This study tests a model of Brand Knowledge and Brand Equity of brands of beer on new and frequent users in two populations that differ in their stage of the beer product life cycle and culture. Using Multiple Logistic Regression (MLR) and Binomial Logistic Regression (BLR), models based on the respondents' Brand Knowledge are able to correctly identify Chinese respondents' preferred brand of beer 56% of the time, while correctly identifying 77% of respondents in an Australian sample when three top brands are tested. The model could further identify 67% of those that stay or switch in both the Australian and the Chinese samples.

Keywords: Brand knowledge, consumer-based brand equity, discrimination ability, prediction, Australia beer market, China beer market

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The literature that concerns Brand Knowledge (BK) or Brand Equity (BE) is very diverse in its fields of application, theoretical bases, representations of relationships and presumed outputs. For example, the disciplines of Human Resources, Accounting and Real Estate have all proposed and tested models of BE relevant to their focus (Simon and Sullivan 1993). Many areas of marketing, such as Business-to-Business (B2B), Hospitality and Hospital Marketing, have developed and tested models of BK/BE (Kim and Kim, 2004; Kim et al., 2006; Taylor et al. 2004).

This study focuses on Consumer-Based Brand Equity (CBBE) in marketing, and uses the psychological oriented approach to its measurements and modelling. This body of literature tends to focus on using cognitive-based constructs and consumer awareness of the brand in its modelling (Aaker, 1991; Aaker, 1996; Keller, 1993; Keller, 2003). This orientation has been more frequently tested with products like beverages that have primarily subjective attributes (Alison and Uhl, 1964), than tested by other BK/BE studies (Erdem and Swait, 1998).

Almost all of the studies in CBBE use structural equation modelling (SEM) to show how their model fits the data they collected (Yoo et al., 2000). However, the credibility of this body of work may be questioned because the constructs and tested relationships differ so widely among the models in the studies (e.g. Broyles et al., 2009; Netemeyer et al., 2004; Yoo and Donthu, 2001). Perhaps only two of over 100 studies testing a model of Brand Knowledge/Brand Equity, offer a gauge of their model's ability to discriminate or predict outputs of their model. The discrimination ability of models based on the psychological-oriented CBBE studies was 35% to 59% (Kayaman and Arashi, 2007).

The best discrimination or correct classifying respondents' reported preference for a brand based on their BK from CBBE was Signalling Theory from Information Economics (Wang et al., 2008). These studies reported their best accuracy was between 55% and 65%, and that the models had some level of extrapolation to another country. Most of the products tested tend to be high-involvement products (laptops, financial services), with relatively more objective criteria for evaluation than other products (Taylor et al., 2007).

The respondents' brand preference and their loyalty to their preferred brand are two outputs that most scholars, specifically Aaker (1991; 1996) and Keller (1993; 2003), argue reflect the nature and output of Brand Equity. However, no study has empirically tested a behavioural response reflecting a brand's loyalty based on brand knowledge.

One previous study (Johnson, Hermann and Huber, 2006) looked at BK/BE in one market over time as the product category (mobile phone service) went through different stages of the Product Life Cycle (PLC). Australia and China are at different stages of the PLC for beer in their markets. In Australia, beer is in the decline stage of the PLC although per-capita consumption is still one of the highest in the world (Tang, 2009).

China appears to be somewhere in the growth stage of the beer PLC. Although China has the world's largest consumption of beer, it is one of the lowest countries in per-capita consumption (Pettigrew, 1999). Many Western brands like Heineken, Fosters and Budweiser are fighting for a share in this rapidly growing and developing market.

This study will attempt to test if both markets have constructs that reflect Brand Knowledge. If so, can BK be measured with the same method in both markets? Will consumers' BK be an effect (evidence of an association) in their beer brand equity outputs of brand preference and loyalty to their preferred beer brand?

Method

This is an exploratory study using actual choice and behavioural experiment to test brand loyalty. Two samples from the Pacific Region countries of Australia and China were drawn recognizing that differences in culture regarding beer would probably be a strong but unmeasured factor in the results. The product tested is single servings of beer in an out-of-home environment. The consumers are new and frequent (at least once in the last week) users of beer. The largest group of these new and frequent users is university students where their lifetime use of alcohol usually peaks. The on-campus tavern in the University of Western Australia and the on-campus restaurant in the Chinese University of Agriculture were used to collect data. Both universities were rated in the top 10 universities of their country. The sample frame consisted of patrons of the venue.

A total of $n=257$ Australian subjects in the Perth and $n=158$ Chinese subjects in the Beijing sample reported at least weekly users of beer were interviewed. Participants were asked questions with Likert scale response options (strongly disagree to strongly agree) about their perceptions of the top three beer brands by sales in their venue. They were also asked questions about their demographic background (disposable income, age, gender), and consumption of beer in the last week.

The respondents' first preferred beer brand and whether they stayed with the first preferred brand or switch to the second preferred brand with a price discount (loyalty) were measured. For the measure of loyalty to their first preferred brand, the subjects were told that as a 'thank you' for their participation, they would be given a voucher for either \$0.50 for their normally \$2.00 beer, or they could have their second preferred beer free.

Results

Both samples' responses about their perceptions of their first preferred beer were analysed with exploratory factor analyses and found to comprise a construct one could label as beer brand knowledge. The Chronbach Alpha's for the two samples BK constructs were .88. Both samples have quite similar factors based on the statements, but the order of the factors was different (Table 1).

Table 1: Brand knowledge factors in two samples of beer drinkers

Rank	Sample	
	Australian drinkers'	Chinese drinkers'
1st	Brand attributes	Brand images
2nd	Emotional benefits	Affect
3rd	Brand images	Utilitarian attributes
4th	Affect	Experiential attributes
5th	Physical benefits	Physical benefits
6th	Party beer	Emotional benefits
7th		Country identity

Each sample's brand knowledge factors, demographics and beer consumption were then used as inputs to a Multiple Logit Regression to identify the respondents' preferences. Table 2 shows the classification of the Australian samples' reported beer preference, with Table 3 showing the classification for the Chinese sample.

Table 2: Australian MLR classification of First Preferred Beer

Observed	Predicted			
	Toohey's New	Amber Ale	Swan Draft	
Toohey's New (n=129)	116	10	3	
Amber Ale (n= 96)	18	76	2	
Swan Draft (n= 32)	18	7	7	
Correct out of n=257	89.9%	79.2%	21.9%	77.4% overall

Table 3: Chinese MLR classification of First Preferred Beer

Observed	Predicted			
	Yanjing	TsingTao	Snow	
Yanjing (n= 56)	31	20	5	
TsingTao (n= 72)	16	51	5	
Snow (n=30)	9	14	7	
Correct out of n= 158	55.4%	70.8%	23.3%	56.3% overall

The BK items, demographics and respondents' reported beer use were modelled and tested for their possible effect in the subjects' choice to stay with their first preferred brand at a premium, or to switch to their second preferred brand at a discount. The model provided an ability to correctly identify 28.1% better (67.5%) than the actual choice of 52.7% from the Australian sample's choices. That is above the 25% threshold for a significant improvement over chance. The ability to identify the choice of switching (42%) was substantially above the threshold, but the model did 9.2% worse for identifying those that stayed.

Table 4: Australian sample BLR correct identification rate by brand

	Stay with first preferred brand	Switch to second preferred brand	Overall
Actual	38.2%	61.8%	52.7%
BLR	34.7%	87.9%	67.5%
Improvement over actual	-9.2%	42%	28.1%
Items significant in BLR model: Attribute B = -.58, p=.004; Benefits B=.36, p=.04; Country identity b=.55, p=.08			

The model for the Chinese sample was just short (22%) of the 25% level needed for significance. Here, the model was accurate for identifying the subjects that stayed with their first preferred brand of beer, but far worse predicting actual switching (-30.3%).

Table 5: Chinese sample BLR correct identification rate by brand

	Stay with first preferred brand	Switch to second preferred brand	Overall
Actual	65.4%	34.6%	55%
BLR	89.4%	24.1%	67.1%
Improvement over actual	36.7%	-30.3%	22%
Items significant in BLR model: Income B = -.002, p=.001			

Only two factors of first preferred brand knowledge factors (physical benefits and attributes) were significant effects in explaining brand loyalty for the Australian sample. The subject's disposable income was the only factor that explained the Chinese subjects stay or switch behaviour. The less income the subject reported, the greater their tendency to switch for the discount.

Summary and Conclusions

This method of measuring constructs, modelling those factors and testing the model's link to preference and loyalty was able to identify respondents' brand preferences at levels above those previously reported. The model also provides the first actual behaviour identification of those who would be loyal to (or switch from) their preferred brand. This suggests that knowing consumers' brand knowledge is diagnostic and predictive of what brands they will prefer and whether they will be loyal to those brands.

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