

An Empirical Analysis of Consumer Product Evaluation from an Ethnic Subcultural Perspective

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Received: January 15, 2012 Accepted: March 1, 2012 Online Published: July 1, 2012

doi:10.5539/ach.v4n2p69

URL: <http://dx.doi.org/10.5539/ach.v4n2p69>

Abstract

One of the most significant cultural manifestations in buyer behavior may be the way in which a product is evaluated as a function of its various attributes. People from different cultures have different experiences and value structures which may cause them to view products differently. This purpose of this study was to examine variation in product evaluation across three consumer ethnic subcultures in Malaysia: Malay, Chinese, and Indian. Mobile phone was chosen as the target product in this study. Exploratory factor analysis, comparison of means, and analysis of variance were employed to analyze the data collected through a questionnaire survey. The results indicate that image, reference group influence, media, and post-sale services best distinguish the three ethnic groups in their evaluation of mobile phone attributes. Theoretical and managerial implications were discussed.

Keywords: product evaluation, mobile phone, ethnic subculture, Malaysia

1. Introduction

The globalization of the marketplace as well as changing ethnic structures of society, both within and across national boundaries, have prompted marketers to consider the development and implementation of marketing strategies specifically targeted towards diverse ethnic groups (Pirez & Stanton, 2005). Using ethnicity as a segmentation variable is justifiable by its nature as ‘an obviously relevant causal construct’ for both seller-buyer and consumer behavior (Hui, Joy, & Laroche, 1992). Identification of similarities and differences between ethnic subcultural groups, and how these change over time, is important in making a segmentation decision.

Paralleling the growing acknowledgement of cultural diversity and the potential of using ethnic subcultures as a segmenting variable within domestic economies, the past two decades or so have witnessed a heightened level of attention to the study of ethnicity by consumer researchers. Despite the attention this topic has received, most were done in the North American or European context. There is a paucity of studies that have investigated ethnic influences in an Asian setting. This is surprising at a time when marketing scholars make continuous pleas for cross-national studies and emphasize the acute need for international research to establish the universality of consumer behavior concepts and theories (Lee & Green, 1991; Luna & Gupta, 2001; Odgen, Odgen, & Schau, 2004). The study reported in this article responds to these calls and extends the research stream into Malaysia.

Malaysia provides a good starting point for subcultural analysis on Asian consumers as it is a multiracial society of Malays, Chinese, and Indians. Abdullah and Pedersen (2003) assert that individuals in a multi-ethnic society such as Malaysia are likely to have a set of ethnic and other identities that may be differently salient. Due to cultural differences that exist in the origins of different communities, there is a noticeable absence of homogeneity in the behavior of consumers in Malaysia where the nature of its domestic market is highly characterized by the “ethnically segmented consumer market” (Mohd Salleh, Teo, & Pecotich, 1998, p. 481).

This study was designed to gain insights into how consumers from different ethnic backgrounds vary in their evaluation of product attributes. An awareness and understanding of subcultural variances in consumers’ product evaluation is critical in creating effective marketing strategies. Investigating such cultural variations is significant, because without clear evidence and guidelines, marketers may run the risk of making wrong decisions.

Marketers may well be attempting to present and sell unified and homogenous product images to increasingly heterogeneous cultures, which may perceive and evaluate products in entirely different ways. The assumption of universal product attribute importance could lead to stressing an irrelevant attribute, or ignoring one central to a given cultural group. This can easily result in impaired marketing communication and diminish the success of the entire marketing effort (Faber, O'Guinn, & McCarty, 1987).

This study involved the empirical assessment and comparison of three consumer ethnic subcultures in Malaysia (i.e. Malays, Chinese, and Indians) and the degree of importance members of each ethnic group assigned to product attributes. The author hypothesized that consumers of different ethnic groups employ different and embedded cultural dimensions in their evaluation of product attributes. For the purpose of investigation, the study focuses on one consumer durable product – mobile phone.

The paper is structured as follows. Following this introduction, section 2 presents a brief review of related literature on consumer product evaluation. Section 3 describes the research methodology. Section 4 discusses the empirical results obtained. Section 5 concludes the findings of the study.

2. Consumer Product Evaluation

The process of choosing a particular consumer product can be a fairly complicated event, especially for high involvement products such as mobile phones. Because of the importance of making the right choice, consumers are presumed to apply the traditional approach of decision making (i.e. need recognition – information search – evaluation of alternatives – purchase – consumption – post-purchase evaluation). This six-step decision making process assumes that the consumer approaches buying decisions rationally in the sense that alternatives are evaluated on the basis of carefully selected information. Consumers are presumed to search for attribute values either internally, in memory, or externally, in the environment. They process this information by a set of rules, and select an item for purchase (Blackwell, Miniard, & Engel, 2006).

Various theories have been proposed to explain how and why consumers choose a particular product or brand (e.g. Simonson, 1989; van Harreveld et al. 2000; Creusen & Schoormans, 2005). Among the many attempts, consumer behavior scholars have studied extensively on how a consumer develops attitude toward a product or brand (e.g. Steenkamp, & de Jong, 2010; Dempsey & Mitchell, 2010). The Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975) suggest that there are two major components influencing an individual's attitude toward an object – belief structure and evaluative criteria. An individual's belief that a brand possesses given characteristics may be formed through direct personal experience with the brand, interpersonal communication with others who have tried or used the brand, and mass media sources. The impact of cultural norms and values on the belief structure may come from any one of these sources (Lee & Um, 1992).

The second component of TRA model, evaluative criteria, is where culture exerts the greatest impact on consumer choice. Customarily, it is assumed that consumers make their purchase decisions on the basis of their knowledge about, and evaluation of, the product attributes. A consumer evaluates a product by certain attributes he or she feels are pertinent to the purchase decision of that product. They constitute the primary evaluative criteria for consumers' attitude toward a brand. These criteria can be either subjective (emotional benefits) or objective (such as price and warranty) (Jamal & Goode, 2001). Culture affects consumers' product evaluation on two fronts. First, culture provides a consensual validation on what attributes are considered pertinent and important to the decision of purchasing a product. Secondly, culture tends to highlight the subjective criteria through an implicit symbolic meaning system for consumer products in a society (Lee & Um, 1992).

Few scattered studies have focused on cultural variations manifested in the perceived importance of product attributes between ethnic groups. Faber et al. (1987) conducted a study to determine if Hispanics and Anglos differed in their importance ratings of different product attributes. Their study showed that, when the product was a nondurable and less expensive (laundry detergent), few significant differences were found between the groups. In contrast, when the product was a consumer durable and expensive (television sets), significant differences were found between Anglos and Hispanics in their ratings of attribute importance. A similar study by Bristow and Asquith (1999) also showed that Hispanic consumers tend to differ substantially from their Anglo counterparts in their evaluation of several attributes for five product categories of sunglasses, alcohol, automobiles, blue jeans, and book bags. Although not exhaustive, these studies provide evidence that consumers' evaluation of product attributes, and therefore responses to marketing strategy are differential across ethnic groups. Clearly this, and other related concepts, needs to be investigated further if empirical generalizations are to be drawn about the ethnicity construct in terms of its potential to explain some of the variations in consumer behavior.

3. Methodology

3.1 Product Selection

Mobile phone was used as the target product in this study. This product was chosen because it is generally considered as a high involvement product since the purchase interval is normally long and price and perceived risk are usually high. Further, a product like mobile phone is normally evaluated on several attributes, both tangible and intangible, before a choice is made. Therefore, the presentation of information on several attributes is neither unusual nor unexpected for the student subjects.

3.2 The Questionnaire

The results reported in this paper were part of a larger study. For the study, a survey instrument that included questions designed to measure consumers' product evaluation and demographic related questions, was developed. The evaluation of product attributes were operationalized as the importance an individual assigns to the product attributes when it comes to the purchase decision-making (Jaccard, Brinberg, & Ackerman, 1986). Participants were asked to rate the relative importance of 29 attributes associated with the purchase of mobile phones. These items were developed based on past literature (Karjaluoto et al. 2005; Ling, Hwang, & Salvendy, 2006). Responses were measured on a Likert-type scale with values ranging from 1 (not at all important) to 7 (very important). To obtain personal background of the participants, questions regarding their gender, age, ethnicity, faculty, and course studied were included in the questionnaire.

The draft version of the survey form was pre-tested using ten undergraduates to check for possible problems with statement clarity and respondent understanding as well as ability to complete the survey instrument. A slight re-wording of some of the statements was made as a consequence.

3.3 Sampling

Sample consisted of undergraduate students who were attending classes in a public university located on the east coast of Malaysia. The student population was purposively chosen for the survey study because they represent an enthusiastic user group of mobile phones (Hakoama & Hakoyama, 2011). In addition, using a relatively more homogenous group such as undergraduate students minimizes random error that might occur by using a heterogeneous sample such as the general public (Calder, Phillips, & Tybout, 1981).

The whole population of undergraduates at the university's campus is estimated at 6,200 students. According to standards reported by Krejcie and Morgan (1970), the minimum sample size suggested for a population of 7,000 is 364 or 5.2% of the population. The questionnaires were distributed to a non-probability sample of 500 full-time students. Although the sample is selected on the basis of convenience and ease, data were gathered at different locations (classrooms and faculties), on different days of the week, and at different times of the day, thus reducing location and timing biases. Surveys were collected immediately upon completion, which yielded a total of 371 usable questionnaires, which was considered to be adequate to represent the population (Krejcie & Morgan, 1970).

4. Analysis and Results

4.1 Composition of the Sample

Of the 371 questionnaires, 70.1% were from female respondents. Respondents' ages ranged from 19 to 26 years, with a mean of 21.9 (standard deviation [SD] = 1.03). In terms of ethnicity, 72.2% of the respondents were Malay, 14.6% were Chinese, 10.8% were Indian, and other ethnic group, 2.4%. In this group, there were 140 (37.7%) first-year students, 82 (22.1%) second-year, and 149 (34.2%) third-year students.

4.2 Exploratory Factor Analysis

As an initial step, the suitability of the data for factor analysis is investigated. The KMO measure of sampling adequacy is found to be 0.867, higher than the minimum acceptable value of 0.5, indicating that the sample size is large enough to factor analyze 29 variables. Besides, the Chi-square value of Bartlett's Test of Sphericity ($\chi^2 = 2681.976$), which shows the suitability of the intercorrelation matrix of the 29 variables for factor analysis, is significant at the 0.001 level. As for the adequacy of the sample size, there is a 37-to-1 ratio of observations to variables in this study. According to Hair, Anderson, Tatham, and Black (1998), the ratio for adequate sample size should be at least 10:1, which, in this case falls well within the acceptable limits. Thus, the sample size and the nature of the data are both fit for the analysis.

In order to obtain more interpretable results solution, varimax factor rotation was applied using the minimum eigenvalue of one as the criterion to control the number of factors extracted. This caused the loadings to be distributed among the selected factors making it easier to interpret results (Hair et al., 1998). Variables with

similar loadings on more than one factor were deleted, as were items that did not conceptually belong to the factor. The analysis resulted in seven homogeneous sub-scales with the eigenvalues of ranging from 1.07 to 6.25 (Table 1). The total percentage variance explained by these seven factors of the overall variance of the data was 60.93%, which satisfies the percentage of variance criterion for social science research (Hair et al. 1998). All items are grouped meaningfully into the factors with high loadings.

Factor 1 is a dominating factor which explained 16.84% of the total variance of the data. The factor exhibits heavy loadings for eight items pertaining to the importance of new innovative features mobile phones nowadays have: built-in camera, larger memory capacity, multimedia, Bluetooth and infrared, audio and video recording, color screen, radio and MP3, and design and styling. This factor is labeled 'innovative features'.

Factor 2 accounts for 9.72% of the total variance and is defined by five items, namely expensive and limited edition, country of origin, new product, brand image and accessories. All the five items directly related to the 'image' of mobile phones. Factor 3 is defined by three items relating to 'price', namely model at reduced price, special offer and alternative payment condition. This factor accounts for 9.65% of the total variance. Factor 4 can be called 'reference group influence' because the items loading at this factor refer to the importance of salesperson, family, and friend in influencing consumer choice of mobile phone.

Factor 5 has loading items of physical durability, being light and small size. This factor accounts for 6.10% of the total variability of the items. Physical durability can be defined as how long the device can last under normal use, or whether the device can resist impact from abnormal use (Ling *et al.* 2007). As a mobile device, mobile phones must have a tough case and a hard material. In addition, mobile phones need to be handy to carry around. Small and lightweight make a phone more portable. Thus, this factor is labeled 'durability and portable aspects'.

Factor 6, which explained 6.06% of the total variance, has loading items of television advertising and positive review in media. Thus, this factor is named the 'media influence'. The seventh factor explains 5.80% of the total variance and is labeled 'post-sales service', as the items comprising the factor refer to guarantee/warranty and after sales service.

To ensure that the items constructed in the questionnaire is reliable, Cronbach's alpha was calculated. A commonly accepted rule of thumb is that 0.50 is the lower level of acceptability for the alpha scores (Kerlinger & Lee, 2000). Since the reliability coefficient values for all the constructs shown in Table 1 are greater than the guideline of 0.50, the scales are of acceptable reliability and can therefore be applied for further analysis.

Table 1. Exploratory factor analysis

Factor label	Item	Factor loadings	Variance explained	Cronbach α
Factor 1: Innovative features	Built-in camera	0.82	16.84%	0.85
	Larger memory capacity	0.77		
	Multimedia	0.77		
	Bluetooth and infrared	0.68		
	Audio and video recording	0.67		
	Color screen	0.62		
	Radio and MP3	0.53		
	Design and styling	0.49		
Factor 2: Image	Expensive and limited edition	0.72	9.72%	0.69
	Country of origin	0.68		
	New product	0.55		
	Brand image	0.47		
	Accessories	0.42		
Factor 3: Price	Model at reduced price	0.74	9.65%	0.55
	Special offer	0.70		
	Alternative payment condition	0.51		

Factor 4: Reference group influence	Salesperson's recommendation	0.74	6.77%	0.51
	Family's recommendation	0.57		
	Friend's recommendation	0.57		
Factor 5: Durability and portable aspects	Physical durability	0.75	6.10%	0.53
	Being light	0.57		
	Small size	0.46		
Factor 6: Media influence	TV advertising	0.75	6.06%	0.51
	Positive review in media	0.73		
Factor 7: Post-sale service	Guarantee and warranty	0.80	5.80%	0.52
	After sale service	0.67		

4.3 Ranking Importance of Choice Criteria by Ethnicity

In order to analyze differences in the relative importance of product evaluation factors, a ranking table was produced showing the mean score of each factor. The factors that were more important to one ethnic group were less important to other groups, resulting in a difference in how the factors were ranked. As can be seen from Table 2, Malays and Indians share some similarities in their product evaluation, rated innovative features, reference group influence, and price as the most important factors influencing their choice decision. Chinese on the other hand, considers reference group influence as the most important factor, followed by price, and durability and portable aspects. Image was the least important factor for both Malays and Chinese. Media influence was perceived the least important factor to Indians.

Table 2. Ranking importance of product evaluation by ethnic groups

	Malay		Chinese		Indian	
	Mean	Rank	Mean	Rank	Mean	Rank
Innovative features	5.60	1	4.21	6	5.67	1
Image	4.64	7	4.20	7	4.82	5
Price	5.16	3	5.10	2	5.42	3
Reference group influence	5.22	2	5.28	1	5.55	2
Durability and portable aspects	5.03	4	4.83	3	5.12	4
Media influence	4.71	6	4.30	5	4.50	7
Post-sale service	4.94	5	4.50	4	4.78	6

4.4 Analysis of Variance

A one-way between-group analysis of variance (ANOVA) was conducted to explore the influence of ethnicity on choice criteria of mobile phones. Respondents were divided into three groups according to their ethnic groups (Malay, Chinese, and Indian). The null hypothesis that there is no difference in means between groups is rejected if the F-statistic is sufficiently large to be significant. The probability level accepted for statistical significance of F-statistic in the present study was set at $p < 0.10$, showing there was 10% probability that the result occurred by chance. The results of ANOVA are shown in Table 3. The results revealed that the three groups were statistically different on the evaluation of the four mobile phone attributes. At the 0.01 significant level, there was a variation for 'image' factor ($F = 5.363$, $p = 0.005$). At the 0.05 level, factor of which the three samples had variation was 'post-sale service' ($F = 3.456$, $p = 0.033$). At the 0.10 level, factors of which the three samples had variation were 'reference group influence' ($F = 2.404$, $p = 0.092$) and 'media influence' ($F = 2.618$, $p = 0.074$).

To determine where the significant difference(s) lie after the null hypothesis has been rejected in ANOVA, pairwise multiple comparison tests were conducted. In keeping with customary practice, the significance level was set at $p < 0.05$ for all post-hoc comparisons. Both Malay and Indian emphasized image ($\bar{x} = 4.64$ and $\bar{x} = 4.82$, respectively) more so than Chinese ($\bar{x} = 4.20$). Malays also placed significantly more importance on both media influence ($\bar{x} = 4.71$), and post-sale service ($\bar{x} = 4.94$) than did their Chinese counterparts ($\bar{x} = 4.30$, and

$\bar{x} = 4.50$ respectively). Indians valued reference groups ($\bar{x} = 5.55$) to a greater degree than their Malay counterparts ($\bar{x} = 5.22$).

In order to make certain that such subcultural differences was not caused by other demographic factor, the product attributes was examined via multivariate analysis of variance. Gender was included as a fixed factor in the general linear model since it was felt that gender differences across the three groups might produce artifactual differences in the dependent measures. Statistically significant differences in group means could then be interpreted as meaningful, and not simply the results of gender differences between subcultural groups. Because of the disparity in group sizes among the three ethnic groups, the homogeneity of covariance matrices was first tested using the Box's test of equality of covariance matrices. The test produced non-significant result (Box's $M = 44.51$, $F = 0.749$, $p = 0.918$), suggesting that the covariance matrices were equal and the assumption was not violated. Results of the analysis indicated that, when controlling for the effect of gender, there were statistically significant differences among the three ethnic groups on image ($F = 5.837$, $p < 0.01$), reference group influence ($F = 2.332$, $p < 0.10$), media influence ($F = 2.663$, $p < 0.10$), and post-sale service ($F = 3.481$, $p < 0.05$).

Table 3. Analysis of variance

	Malay	Chinese	Indian	F-value
Innovative features	5.60 (0.97)	4.21 (0.97)	5.67 (0.93)	1.069
Image	4.64 (1.01) ^A	4.20 (0.99) ^B	4.82 (1.08) ^A	5.363 ***
Price	5.16 (1.04)	5.10 (0.93)	5.42 (0.96)	1.320
Reference group influence	5.22 (0.92) ^A	5.28 (0.84)	5.55 (0.83) ^B	2.404 *
Durability and portable aspects	5.03 (0.90)	4.83 (0.87)	5.12 (0.91)	1.428
Media influence	4.71 (1.28) ^A	4.30 (1.20) ^B	4.50 (1.32)	2.618 *
Post-sale service	4.94 (1.12) ^A	4.50 (1.16) ^B	4.78 (1.32)	3.456 **

Note: The Levene's F-test showed that, for all seven dependent variables, none were significant ($p > 0.05$), indicating that the data meet the homogeneity of variance assumption.

*** Significant at $p < 0.01$; ** Significant at $p < 0.05$; * Significant at $p < 0.10$

Superscript letters A, B indicate between-ethnic differences as per Duncan multiple range tests ($p < 0.05$) used in ANOVA. A number with different superscript indicates a statistically significant difference between mean responses. The Standard Deviations are given in parentheses.

5. Conclusion

This study was conducted to determine whether consumers of different ethnic subcultures differed in their ratings of the importance of a selected product attributes. Among the seven product attributes tested for mobile phone, four showed significant differences between the ratings of the different subcultural groups even after differences in gender across subcultural groups were statistically controlled: image, reference group influence, media influence, and post-sale service. These differences indicate a higher level of importance attached to image, media, post-sale service among Malay consumers compared to Chinese, and a higher level of importance attached to image and reference group influence among Indian consumers compared to Malays. To the extent that these differences translate into actual buying behavior, then ethnicity may act as a powerful determinant of consumers' need for uniqueness and status, media exposure, and opinion leadership – all of which are manifested in the evaluation of product attributes by consumers.

On the theoretical side, this work has attempted to fill the gap in the consumer behavior literature on ethnic subcultures in Malaysia. Given the limited empirical evidence on this topic to date, the study should provide additional information to support the growing theoretical base for the study of subcultures. In addition to their theoretical implications, the findings of this study offer important implications for international marketers, especially those targeting the Malaysian market. In a manner consistent with the marketing concept, marketers must first identify product attributes considered most important by each ethnic group (Perez & Stanton, 2005). This study provided evidence that consumers of various ethnic background differ in their product evaluation, thus it does not make sense to treat them all as being the same. Different ethnic groups may well require different

strategies. Developing a value proposition that better meets the needs and preferences of ethnic consumers can be a way of winning them and holding their loyalty (Pirez & Stanton, 2005).

Some limitations of this study should be noted. One main limitation is the use of a student sample. Although students were considered appropriate for this study, the sample may not represent views held by the ethnic segments of the population in Malaysia. Future research that extends sampling beyond a university environment would allow for a more representative assessment of ethnic influences on consumer choice in general society. In addition, only one product was examined in this study, namely mobile phones. Further research may be conducted to see if similar results are obtained with other durable and non-durable products.

Acknowledgement

The author would like to thank Norsaleha Remlan for her assistance with the data collection and its entry.

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