

INFORMATION LOAD AND PRODUCT EVALUATION: THE CASE STUDY OF THAI CONSUMERS

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ABSTRACT

This study tested the utilization of such information cues as product attributes, price and country of origin in order to get the highest perception by target consumers. Specifically, this was to test how many product attributes should be highlighted in the advertising and packaging, what is the most appropriate price the firm should use, and which country of origin is highly perceived by its consumers. Survey research with 110 respondents was used in this study for both pretest and main test. Major findings of the study were listed as follows: First, price has its greatest effect on perceived quality when there is only information cue available. Second, as the quantity of information increasing, the utilization of price cue will decrease. Third, when the quality of information is available, the utilization of price cue will decrease. Fourth, country of origin cue is used to measure product quality. Last, similar to the utilization of price cue, the utilization of country of origin cue will decrease if the product is priced very high.

Background of the Problem

Nowadays product manufacturers are required by law to incorporate on the package a relatively large amount of product-related information such as nutrition facts, ingredients, net weights, instructions and so on. Moreover, the manufacturers also voluntarily include advertising or persuasive messages, and as well as promotional materials such as discount coupons for future purchases. Some research findings found that such a practice causes "information overload." It is widely presumed that price is the most important indicator of product quality. Consumer research shows that extrinsic attributes such as price (Monroe, 1973), product warranty, 1985), brand and store (Rao & Monroe, 1989), and country of origin (Bilkey & Nes, 1982) are also used by consumers in quality judgment.

This research attempts to suggest a new computer company should appropriately advertise prices as well as product attributes, and accurately provide product

information in order to get the highest perception by its target customers.

Statement of the Problem

It is proposed by Chang and Wildt (1996, p.56) that "the best mix of product attribute information can be paramount to product success." Today, consumers cannot differentiate the quality of one brand from that of another brand. The general criteria they tend to use are extrinsic or physical appearances such as price, brand name, country of origin, and information on product attributes. The management gets a consensus that they are designing price, country of origin, and product attributes according to the consumers, need. Having no intention to deceive the consumers, the new model of a personal computer is a hybrid product with 30% of its parts are imported from Japan, 30% from Taiwan, 30% from Thailand, and 10% from others. According to

the law, the company has three options in indicating country of origin. The management realizes that a wise utilization of "cue" is an integral element in a marketing strategy and is paramount to product success.

Research Questions

1. How many product attributes should be highlighted in the advertising and packaging?
2. What is the most appropriate price the firm should use? Higher, lower, or moderate?
3. Which country of origin is highly perceived by the consumers? Taiwan, Japan, or Thailand?

Limitations

With a limitation of instruments, each context or condition in the questionnaires could not be designed to resemble a professional format seen in most magazines. The researcher assumed that when the respondents saw the real advertisements and rated their perception of the product quality, the results would turn out most reliable.

Literature Review

In this study, three relevant topics, namely price-quality, information load, and country-of-origin effect, will be discussed as follows:

Price-quality. Leavitt (1954) asked 30 Air Force officers and 30 male and female graduate students to choose between two priced, lettered, imaginary brands for such four products as moth, flakes, cooking sherry, razor blades, and floor wax and then to indicate the degree of satisfaction. It was found that the subjects tend to be less satisfied when choosing lower-priced brands and tend to choose higher priced brands when (1) only information about price is available, (2) product quality is unclear, (3) the price difference is large. Tull, Boring, and Gonsier (1964) replicated the work of Leavitt (1954) and found the consistent result. McCornell (1968)

tested the hypothesis that product quality perception is a function of price. Sixty married students in each of 24 trials chose one bottle of an identical beer differing only in brand name and price. The analysis showed that perceived quality was significant and positively related to price. In an extensive experiment, Shapiro (1968) found that for 600 women (1) price was an indicator of quality, (2) price could not overcome product preference, (3) the use of price to judge quality was an attitude, and (4) price reliance varied over products. Lambert (1972) found that for 200 undergraduates the frequency of choosing high-priced brands was positively correlated with perceived variations in product quality.

As the criticism of "single cue" became stronger, some studies have shifted their attention to "multicue" as follows:

Enis and Stafford (1969) discovered that perception of the quality of carpeting was related to price. Although store information did not affect perception of carpet quality, the interaction effect of price and store information was significant. Jacoby, Olson, and Haddock (1971) used 136 adult male beer drinkers to taste and rate four test beers. The researchers controlled the effect of price as well as brand image and they found that price did not have a significant effect on quality perception, whereas brand image did. Gardner (1971) found no significant relationship between perceived quality and frequency of purchase time spent shopping for the test products. The three studies mentioned give strong evidence that price is not a dominant cue in quality perception. Rao and Monroe (1989) used 144 graduate students to test the role of price in quality perceptions for electric razors and razor blades. Using the multidimensional model of individual differences, Rao and Monroe (1989) found that personality variables, brand display, and prior product knowledge as well as price affect the perception of quality.

Psychological pricing such as customary, odd

pricing or price lines has been regarded as a traditional view in pricing theory (Monroe, 1973). Monroe (1973) found that the research in the field investigating how price influencing buyers decisions yield a variety of results.

"Information load" studies. Jacoby, Speller, and Berning (1974) asking 192 paid housewife volunteers tend to confirm the hypothesis that finite limits exist to the amount of information consumers can effectively use was tested by operationalizing information load in terms of number of brands and amount of information per brand provided. In the study of Jacoby, Speller, and Berning (1974), presented the results of two experiments designed to ascertain the influence of the amount of information available to a consumer on the ability to make a choice among food products. Scammon (1977, p.148) suggests that "increasing amounts of information cause consumers to divide their processing time among the pieces of information presented causing an apparent information overload". 250 subjects were asked to identify the brand that was nutritionally superior instead of choosing their preferred brand. The hypotheses test on such topics as judging choice quality, consumers' post-decision cognitive and psychological states, and recall of the disclosure information. It is reported that no increase in the selection of the most nutritious brand resulting from increases in attribute information.

Malhotra, Jain, and Lagakos (1982) used a multi-variate analysis model to control the number of alternatives and the number of attributes per alternative available and found that no decrease in accuracy as the amount of attribute information increased. Malhotra (1982) found that when consumers were asked to choose among houses, choice accuracy decreased when the number of attributes increased from 5 to 15 or more and when the number of alternatives increased from 5 to 10 or more.

Country of origin studies. Schooler (1965) is the first study on the topic investigating how Guatemala consumers perceived products coming from different origins as Mexico, Costa Rica, El Salvador, and their own "home" products. In the experiment, Schooler (1965) used juice and fabric samples that were identical products except that the labels were fictitious. Furthermore, student samples were employed to test (1) if there was any difference in the evaluation of products by Guatemalan market participants on the basis of the national origin of the products, (2) if there was any difference in the evaluations by Guatemalan market participants of the two test products from any given country, and (3) if differences existed within the entire group on the basis of the evaluation of four national sectors as business, labor, government, and people. Semantic differential questionnaires were designed and pre-tested.

However, Schooler (1965) revealed that there were significant differences in the evaluations of a product. That is, there existed informal barriers within the Central American Common Market. Consequently, the impediments had prevented the increasing trade volume between the member states. Later, Schooler (1971) cites his own previous work and extends Schooler (1965) by (1) changing the subjects from CACM to American, and (2) testing the result of having the foreign products regionally labeled such as "Made in Asia", "Made in Latin America". By replicating the statistical procedure and method of analysis, the results showed that respondents evidenced bias against products of foreign origin. Unfortunately, American consumers were no less biased against foreign products labelled regionally.

Nakashima (1970) and Nakashima (1977) also studied on the same topic but focused on different regions. Nakashima (1970) included two studies. The first study in 1965 was aimed at measuring U.S. businessmen's attitudes toward products made in the U.S.,

Japan, England, Germany, and Italy. The second survey was carried out in 1967 on Japanese businessmen in Tokyo. It used the same dimensions of countries, except that France replaced Italy. Again, semantic different puter company about the appropriate price and appropriate attributes or product information to be advertised to get highly perceived by target customers.

RESEARCH METHODOLOGY

In this study, tests were carried out twice. A pretest was conducted before proceeding with the actual questionnaire for hypotheses testing. The objectives of the pretest were:

1. to find the means between each of the 25 attributes of a desktop computer which served as test product. According to the results of the means, the product attributes grouped by cue importance could be given.
2. to find a reservation price of the respondents so that 20 percent markup and 20 percent markdown could be determined in the experiment as high and low prices respectively.

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Sample & Questionnaire design (pretest).

Thirty student samples were asked to rate the importance of each of the 25 product attributes in a nine-point scale pretest questionnaire in section A. In the section B, specifications of a desktop computer were provided to the respondents to give their reservation prices. In the last section, demographic questions about gender and age were asked. Besides, we inquired the students about their familiarity with computers in the last question on a 5-point scale ranging from very much to very few (a sample of questionnaire is provided in appendix A).

Research Findings

Product attributes grouped by cue importance based on the pretest are listed as follows (Table 1)

Table1: Pretest result

Feature	Average Importance
Overall Speed	8.19
Memory Size	8.14
Processor/Chip	8.08
Harddisk Capacity	8.00
CD Rom	7.93
Key Board	7.82
CD Rom Speed	7.79
Mouse	7.64
Data Bus Type	7.62
Color/ Graphic Display Card	7.59
Monitor	7.50
Cache Memory Size	7.42
Disk Drive	7.41
Weight (for Notebook)	7.38
Battery (for Notebook)	7.26
OS and Software Preload	7.08
Networking Capacity	6.96
Scanner	6.89
Sound Card	6.85
Expansion Slot	6.77
Built-in Adapter	6.52
Monitor Stand	6.22
Speakers	6.18
Microphone	5.89
Joystick Port	5.85

The method of simple random sampling was used to recruit 30 respondents, and it turned out that 2 respondents failed to complete the questionnaire and thus rendered it unusable. The means of the respondents

were 39,639.29 baht or US\$1,585.57. According to a survey on the present market price of a desktop computer, it was found that the average derived from the means was reasonable.

Phrase 2: The Sample

Eighty undergraduate student sample were asked to complete a questionnaire. A desktop computer was chosen to be the test product because the pretest revealed that approximately 43 percent of the respondents had a moderate knowledge or familiarity with computers, while 40 percent of them claimed a higher level to the highest level of familiarity with the chosen product. The mean was 3.56, while standard deviation was 1.01. Consequently, there was no discrepancy between the selection of the test product and the sample selection.

Questionnaire Test

A pilot test of the questionnaire was conducted on a small group of samples. And we found that a small group of 3 respondents could understand each given condition in the questionnaire thoroughly. However, we did not supply the Thai version of the questionnaire because the samples supposedly had sufficient proficiency in the English language, considering English was used as the language of instruction for this selected sample group.

Questionnaire Design

The price effect or the main effect of price on a computer purchase was investigated. The different price levels are categorized as low, reasonable, and high. The reasonable or moderate price is derived from the pretest. The low price or 23,783 baht or US\$951 and the high price or 49,548 baht or US\$ 1,981 are given by 40% markdown and 20% markup from the reservation price respectively. On a nine-point scale, respondents were told that when they were seeking information in their computer purchase from PC-related magazines or any other publications, they would see an advertisement listing different product information as described in each of the following conditions and they were asked to rate their perceived quality.

The researcher tried to find the interaction of price and the amount of information load so as to get a reasonable point between price and information load. Each question was designed to include different contexts as follows:

- a. the five most important attributes were listed (context 1).
- b. the five least important attributes were listed (context 2).
- c. the ten most important attributes were listed (context 3).
- d. the ten least important attributes were listed (context 4).
- e. all of the 25 attributes were listed (context 5).

In the next section we intended to test the interaction of the main effect of country-of-origin and to determine the interaction of price and country-of-origin.

General demographic questions concerning gender and age and that about computer experiences were also included.

DATA ANALYSIS

Descriptive statistic (Mean) was used to find the quality index of each condition. T-test for pair samples was employed to test the statistical significance for testing the hypotheses indicated above. In this study, among the total number of 80 samples, 43.8 percent of the respondent was male and 56.3 percent was female. The age of the respondents ranged between 18 and 25. Most respondents or 46.3 percent reported that they had 1-3 year experiences with computers. In the "experience with computers" question, coding was scored as: 5 scores for 10 years and over, 4 points for 7-9 years, 3 points for 4-6 years, 2 points for 1-3 years, 1 point for less than a year, and zero point for no experience. The mean of the "experience" is shown at 2.013.

Price vs. Information context. The respondents were asked to rate their quality perception in the following different conditions on a nine-point scale

ranging from very high quality to very low quality. The mean quality indices or QI is summarized in the chart below:

Table 2: Mean Quality Indices (QI) and Price Effects by Information Context

Information context	QI-low Price	QI-Moderate Price	QI-high Price	Price Effect*
Price only (C1)	3.48	5.18	6.61	3.13
Five most Important (C2)	4.73	5.69	6.65	1.92
Five least important (C3)	4.51	5.67	6.38	1.87
Ten most important (C4)	4.81	5.60	6.76	1.95
Ten less important (C5)	4.62	5.56	6.74	2.12
All 25 (C6)	4.50	5.51	6.94	2.44

* QI-High Price - QI-Low Price = Price Effect

In the first condition or C1, only price information was given, price cue is found to be strongly utilized by the respondents (mean = 3.13). When more information was combined with price information, price seemed to have a weaker effect on product quality (C2=1.92, C3=1.87, C4=1.95). However, when excessive product attribute information was provided, the respondents tended to use "price cue" as an indicator of product quality (C5=2.12, C6=2.44).

Table 3: The price effect for the moderately- to low-priced product and the moderately- to high-priced product.

Information context	QI-low Price	QI-Moderate Price	QI-high Price	Price Effect**
Price only (C1)	3.48	5.18	6.61	1.70
Five most Important (C2)	4.73	5.69	6.65	0.96
Five least important (C3)	4.51	5.67	6.38	1.16
Ten most important (C4)	4.81	5.60	6.76	0.79
Ten less important (C5)	4.62	5.56	6.74	0.94
All 25 (C6)	4.50	5.51	6.94	1.01

** QI-High Price - QI-Moderate Price = Price Effect

Information context	QI-low Price	QI-Moderate Price	QI-high Price	Price Effect***
Price only (C1)	3.48	5.18	6.61	1.43
Five most Important (C2)	4.73	5.69	6.65	0.96
Five least important (C3)	4.51	5.67	6.38	0.71
Ten most important (C4)	4.81	5.60	6.76	1.16
Ten less important (C5)	4.62	5.56	6.74	1.18
All 25 (C6)	4.50	5.51	6.94	1.43

***QI-Moderate Price - QI-Low Price = Price Effect

The following table summarizes the country-of-origin effect on product quality. Mean quality indicates that Made-in-Japan products (i.e. computers) seem to be highly perceived in term of quality than those of other two countries as Taiwan and Thailand.

Table 4: Summary Table of the country of origin effect on product quality

Country-of-origin context	Mean Quality Indices
Thailand	4.05
Japan	6.96
Taiwan	5.20

Table 5: The following tables summarize the interaction of price and country-of-origin cues in product quality decision.

Country-of-origin context	QI-low Price	QI-Moderate Price	QI-high Price	Price Effect*
Thailand	3.74	6.96	5.20	1.46
Japan	4.48	5.65	6.53	2.05
Taiwan	3.79	4.94	5.85	2.06

Country-of-origin context	QI-low Price	QI-Moderate Price	QI-high Price	Price Effect**
Thailand	3.74	6.96	5.20	3.22
Japan	4.48	5.65	6.53	1.17
Taiwan	3.79	4.94	5.85	1.15

Country-of-origin context	QI-low Price	QI-Moderate Price	QI-high Price	Price Effect***
Thailand	3.74	6.96	5.20	-1.76
Japan	4.48	5.65	6.53	0.88
Taiwan	3.79	4.94	5.85	0.91

Tests of Hypotheses. Testing the research hypotheses involves comparing price effects over various information contexts and country-of-origin contexts. Because price effects are differences in the mean values of perceived quality between high, moderate, and low price cells, comparing price effects is equivalent to comparing cell means. Accordingly, mean comparisons (t-test) are used to test the hypotheses.

Hypothesis 1. Hypothesis 1 states that price has a decreasing influence on perceived quality as the

number of nonprice information cues increases. This hypothesis is tested by comparing the price effect for contexts with lower number of cues to the price effect for contexts with higher number of cues.

The value for price effects for 0 (price only), 5, 10, and 25 cues are 3.13, 1.92, 1.95, and 2.44. To test the hypothesis, t-test for paired samples were used to find statistical significance between zero cue vs. 5 cues, 10 cues vs. 25 cues. Comparison of price effects for no cue and five cues show significant results as follows:

Table 6: Research Result

Variables	df	mean differences	2-tail significant	t-value
C11-C21	79	-1.25	.001	-6.65
C12-C22	79	-.5125	.001	-3.44
C13-C23	79	-.0375	.876	-.16
C11-C31	79	-1.0375	.000	-6.10
C12-C32	79	-.50	.005	-2.88
C13-C33	79	.2375	.265	1.12
C41-C61	79	.3125	.029	2.22
C42-C62	79	.0875	.550	.60
C43-C63	79	-.1750	.346	-.95
C51-C61	79	.1250	.496	.68
C52-C62	79	.0500	.754	.31
C53-C63	79	-.2000	.196	-1.3

Note:

C11 signifies as: C=context, 1= the first context, and 1=low price

C12 signifies as: C=context, 1=the first context, and 2=moderate price

C13 signifies as: C=context, 1=the first context, and 3=high price

The above results support Hypothesis 1, because when the critical value is referred, the shown t-values are falling in the accepted area in each category.

Hypothesis 2. Hypothesis 2 states that when the price is paired with less important cues, its (price) influence on perceived quality is greater than when paired with more important cues. From the first table, the price effect in context 5 (mean=2.12) is greater than the price effect in context 4 (mean=1.95). The result supports the hypothesis.

Hypothesis 3. Hypothesis 3 states that products manufactured in developed countries will be perceived more highly than those products originated in less developed countries in term of quality. In this study, Japan is used as a representative of more developed countries and Thailand is used as a less developed country. The mean differences are compared by t-tests

in the following pairs as:

When Thailand-made product is compared with Japan-made product, the mean differences are -2.9125. It is statistically significant at the level of .000 (t-value = -11.84, df = 79). The second pair is Thailand and Taiwan. The mean differences are -1.1500. It is also statistically significant at the level of .000 (t-value = -6.46, df = 79). The third pair of comparison is Japan and Taiwan products. The mean differences are 1.7625.

However, it is discovered that when the respondents tend to rely less on price cue for a high-priced product from a less developed country. In contrary, the price cue will be strongly used as they rate a low-priced product originating from a less developed country.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Study findings indicate that utilization of price in product evaluation is moderated by the quantity and quality of intrinsic attribute information. Specific findings are as follows:

1. Price has its greatest effect on perceived quality when there is only information cue available.
2. As the quantity of information is increasing, the utilization of price cue will decrease.
3. When the quality of information is available, the utilization of price cue will decrease.
4. Country-of-origin cue is used to measure product quality.
5. Similar to the utilization of price cue, the utilization of country-of-origin cue will decrease if the product is priced very high.

The main purpose of this study is to give a firm that plans to launch a new desktop computer model an answer about pricing, information load for advertising, and selected country of origin.

This study suggests the following options for any responsible individuals to make the final decision.

Option 1: If the price level of computer is moderate to low, it is recommended you highlight five most important product attributes.

Option 2: If the price is high to moderate, it is recommended you include either five most important or five least important attributes in advertising.

Option 3: If the product attribute or information is not very distinct from other competitors, it is recommended you set a very high price.

Option 4: It is beneficial for the product to be marked "Made in Japan," because it adds high quality in the trade mark.

Option 5, if the option 4 is impossible, the company is suggested to set a very high price for a locally made product.

In conclusion, these findings have an implication for management of product information. Marketing managers are concerned with providing appropriate information for consumers, as well as designing information, which should be consistent with the overall product strategy. Sometimes, it will be easier to convey the intrinsic information of the product than to craft an extrinsic cue.

REFERENCES

- Jacoby, J., Speller, E. D. & Berning, A. C. (1974). Brand choice behavior as a function of information load: Replication and extension. *Journal of Consumer Research*, 1, 33-42.
- Scammon, L. D. (1977). Information load and consumers. *Journal of Consumer Research*, 4, 148-155.
- Malhotra, K. N., Jain, K. A. & Lagakos, W. S. (1982). The information overload controversy: An alternative viewpoint. *Journal of Marketing*, 46, 27-37.
- Malhotra, K. N. (1982). Information load and consumer decision making. *Journal of Consumer Research*, 8, 419-430.
- Leavitt, H. (1954). A note on some experimental findings about the meaning of price. *Journal of Business*, 27, 205-210.
- Tull, D., Boring, A. R. & Gonsier, H. M. (1964). A note on the relationship of price and imputed quality. *Journal of Business*, 37, 186-191.

- McCornell, J. D. (1968).
An experimental examination of price-quality relationship. *Journal of Business*, 41, 439-444.
- Shapiro, B. (1968).
The psychology of pricing.
Harvard Business Review, 46, 160.
- Lambert, Z. (1972).
Price and choice behavior.
Journal of Marketing Research, 9, 35-40.
- Enis, B., Stafford, J. (1969).
The price-quality relationship: An extension.
Journal of Marketing Research, 6, 256-258.
- Jacoby, J., Olson, J., & Haddock, R. (1971).
Price, brand name, and product composition characteristics as determinants of perceived quality.
Journal of Applied Psychology, 55, 470-479.
- Gardner, D. (1971).
An experimental investigation of the price-quality relationship.
Journal of Retailing, 46, 25-41.
- Rao, R. A., Monroe, B. K. (1989).
The effect of price, brand name, and store name on buyers' perceptions of product quality: An integrative review.
Journal of Marketing Research, 24, 351-157.
- Monroe, B. K. (1973).
Buyers' subjective perceptions of price.
Journal of Marketing Research, 10, 70-80.
- Anderson, W. T., & Cunningham, W. H. (1972).
Gauging foreign product promotion.
Journal of Advertising Research, 29-34.
- Beckwith, N. E., & Lehmann, D. R. (1975).
The importance of halo effects in multi-attribute attitude models.
Journal of Marketing Research, 12, 265-275.
- Bilkey, J. W., & Nes, E. (1982).
Country-of-origin effects on product evaluations.
Journal of International Business Studies, 89-99.
- Etzel, J. M., & Walker, J. B. (1974).
Advertising strategy for foreign products.
Journal of Advertising Research, 14, 41-44.
- Fishbein, M., & Ajzen, I. (1975).
Belief, attitude, intention and behavior: An introduction to theory and research.
Manila, Philippines: Addison-Wesley Publishing Co.
- Gaedeke, R. (1973). Consumer attitudes toward product 'made in' developing countries.
Journal of Retailing, 49, 12-24.
- Hastak, M., & Hong, S. (1991).
Country-of-origin effects on product quality judgments: An information integration perspective.
Psychology & Marketing, 8(2), 129-143.
- Johansson, K. J., Douglas, P. S., & Nonaka, I. (1985).
Assessing the impact of country of origin on product evaluations: A new methodological perspective.
Journal of Marketing Research, 22, 388-396.
- Levitt, T. (1983). The globalization of markets.
Harvard Business Reviews, May-June.
- Lillis, M. C., & Narayana, L. C. (1974). Analysis of 'made in' product images: An exploratory study.
Journal of International Business Studies, 119-127.

Nakashima, A. (1970). A comparison of U.S. attitudes toward foreign products. *Journal of Marketing*, 34, 68-74.

Nakashima, A. (1977). A comparative 'made in' product image survey among Japanese businessmen. *Journal of Marketing*, 95-100.

Troutman, C. M., & Shanteau, J. (1976). Do consumers evaluate products by adding or averaging attribute information?. *Journal of Consumer Research*, 3, 101-106.

Reiersen, C. C. (1967). Attitude changes toward foreign products. *Journal of Marketing Research*, 4, 385-387.

Schooler, D. R. (1965). Product bias in the Central American Common Market. *Journal of Marketing Research*, 2, 394-397.

Schooler, D. R. (1971). Bias phenomena attendant to the marketing of foreign goods in the U.S. *Journal of International Business Studies*, 2, 71-80.

White, D. P. (1979). Attitude of U.S. purchasing managers toward industrial products manufactured in selected Western European nations. *Journal of International Business Studies*, 81-90.

White, D. P., & Cundiff, W. E. (1978). Assessing the quality of industrial products. *Journal of Marketing*, 80-86.

Zinkhan, M. G., & Hirschheim, R. (1992). Truth in marketing theory and research: An alternative perspective. *Journal of Marketing*, 56, 80-88.