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This study investigates whether value importance or perceived instrumentality is more dominant in determining affect (attitude) toward a brand. The results indicate that perceived instrumentality contributes more toward determining affect than does value importance. In fact, the latter tends to suppress this contribution if included in the analysis.

## Perceived Instrumentality and Value Importance as Determinants of Attitudes

In the extensive investigation of the development of and change in consumers' attitudes, one major approach has been to examine the cognitive structure hypothesized to underlie attitudes [1, 2, 3, 4, 5, 6, 8, 9, 11, 13]. The use of dissonance theory is one example [1, 10]. However, only in the last three to four years has a serious, concerted effort been made by researchers to functionally relate attitudes to cognitive structure [3, 4, 5, 11, 12, 13] by applying Rosenberg's two-factor theory [8]. The theory is formally stated as:

$$(1) \quad A_{ik} = f \sum_{j=1}^n (PI_{ij} \cdot VI_{jk})$$

where:

- $A_{ik}$  = attitude toward an object  $k$  expressed in terms of an individual  $i$ 's degree of like-dislike (affect) of that object
- $PI_{ij}$  = individual  $i$ 's perceived instrumentality of the  $k$ th object toward attaining or blocking the  $j$ th goal or value
- $VI_{jk}$  = value importance to an individual  $i$  of the  $j$ th goal or value.

In other words, attitude toward an object or concept  $k$  is considered to be a function of the weighted sum of beliefs about the object (perceived instrumentality) as to whether it blocks or helps attainment of certain goals.

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Weights are the relative importances of the respective goals (value importance). In consumer behavior, the theory is translated to state that attitude toward a brand is a function of: (1) a buyer's beliefs about the brand's ability (perceived instrumentality) to satisfy or block consumption and usage motives and (2) the relative importance of these motives (value importance) to him.

However, the question of whether perceived instrumentality or value importance is more important in determining a buyer's attitude is unresolved. Rosenberg found perceived instrumentality to be more important, but his results may have been influenced by the measurements employed [21, p. 371]. Because the relationship suggested by Rosenberg is multiplicative, the dominance of one factor over the other cannot be directly determined.

The solution to this problem has significant implications for advertising and promotion. As Howard and Sheth [5, Ch. 9] point out, symbolic communication in advertising and promotion can influence a buyer in two ways, first by providing certain connotative meanings which make the brand seem to be a better instrument for reaching certain goals, as when a commercial shows the ease of preparing an attractive Jell-o dessert. Secondly, a symbolic communication can change a buyer's perceptions of the importance of various goals, as when a cereal's advertising stresses nutritional value rather than taste and convenience. Thus, if perceived instrumentality ( $PI$ ) is more important in determining attitudes, the superiority and appropriateness of a brand's attributes should be emphasized, but if value importance ( $VI$ ) is more important, certain goals should be emphasized in the consumption of a product. In terms of public policy, the first approach suggests offering what the market needs, while the second attempts to reorganize the priority of these needs.

This study attempted, on a large scale, to demonstrate the dominance of  $PI$  or  $VI$  in the determination of attitudes.

### THE DATA

The Consumer Mail Panel of Market Facts, Inc., was the sample for this study [13]; 2,000 female heads of households were selected from the panel for this study. Their distribution according to geographic region, its population density and degree of urbanization, household income, and age was similar to that of the national census.

Of the total, 78.5% responded to the mail questionnaire and 63.6% (1,271) returned questionnaires that were usable for the entire analysis. Socioeconomic segments were represented in approximately the same proportions as in the original panel.

Measures of affect, perceived instrumentality, and value importance were obtained for a representative set of brands for six product categories: frozen orange juice, mouthwash, toothpaste, toilet tissue, lipstick, and brassieres. Five attributes were specified for each product category on the basis of responses in earlier interviews. The study was limited to five brands of each product. Attributes and brands are listed in Table I.

Respondents rated the value importance of each attribute in designing an ideal brand on a 6-point scale from "important" to "unimportant."

A similar scaling method was utilized for perceived instrumentality, on a 6-point scale from "very satisfactory" to "very unsatisfactory." Respondents were also asked to give rank preferences of the five brands in each product category.

### METHODOLOGY AND RESULTS

In order to determine the relative contribution of the perceived instrumentality and value importance factors, 3 simple regressions were performed on each of the 30 brands. The first regression predicted variance in attitude (affect measured by the preference scale) from the weighted sum scores of respondents derived by multiplying each perceived instrumentality ( $PI_{ij}$ ) with the value importance ( $VI_{ij}$ ) of a characteristic  $j$  and then summing across all characteristics as in (1).

An individual's affect towards a brand is determined by how important the product characteristics are to him and how he evaluates the brand on these characteristics: the more important the characteristics and more favorable the evaluation of a brand, the greater the affect toward that brand, and vice-versa. However, (1) also implies that an individual with greater value importance and less favorable evaluations of a brand will manifest his affect to the same extent as an individual with less value importance and more favorable evaluation of the same brand.

The second regression predicted variance in affect

Table I  
PRODUCT ATTRIBUTES AND BRANDS

<i>Frozen orange juice</i>	<i>Mouthwash</i>	<i>Toothpaste</i>
Taste/Flavor	Kills germs	Decay prevention
Price	Taste/Flavor	Taste/Flavor
Texture	Price	Freshens mouth
Nutritional value	Color	Whitens teeth
Packaging	Effectiveness	Price
<i>Minute Maid</i>	<i>Mioirin</i>	<i>Peppodent</i>
<i>Snow Crop</i>	<i>Cepacol</i>	<i>Crest</i>
<i>Birds Eye</i>	<i>Listerine</i>	<i>Gleem</i>
<i>A &amp; P</i>	<i>Lavris</i>	<i>Colgate</i>
<i>Sunkist</i>	<i>Colgate 100</i>	<i>Maclans</i>
<i>Toilet tissue</i>	<i>Lipstick</i>	<i>Brassieres</i>
Texture	Color	Style
Color	Taste/Flavor	Price
Price	Prestige factor	Comfort
Package size	Container	Pit
Strength	Creaminess	Life
<i>Aurora</i>	<i>Hazel Bishop</i>	<i>Penny's</i>
<i>Delsey</i>	<i>Max Factor</i>	<i>Playtex</i>
<i>Northern</i>	<i>Avon</i>	<i>Lovable</i>
<i>Scott</i>	<i>Coty</i>	<i>Maidenform</i>
<i>Charmio</i>	<i>Revlon</i>	<i>Sears</i>

from just the sum of beliefs ( $PI_{ij}$ ) representing perceived instrumentality:

$$(2) \quad A_{ik} = f\left(\sum_{j=1}^n PI_{ijk}\right).$$

It was assumed that all value importances ( $VI_{ij}$ ) were equal and took the value of one. Without varying value importances, affect can only covary with the sum of the beliefs. Therefore, if both the components determine an individual's affect, the predictive power of (2) should be less than that of (1). Any difference in the two predictive powers can be attributed to value importance.

The third regression predicted variance in affect from the sum of relative importances of characteristics ( $VI_{ij}$ ) of a product class. This sum represents the value importance component:

$$(3) \quad A_{ik} = f\left(\sum_{j=1}^n VI_{ij}\right).$$

The  $PI_{ijk}$  values were held constant, and assumed a value of one. This equation is less meaningful from a conceptual viewpoint, since it suggests that affect toward any brand in a product class is a function of the individual's perception of its value importance. There are, however, several reasons for this type of analysis. First, Rosenberg also attempted to correlate only the value importance component with affect by holding perceived instrumentalities constant [8], and since we were attempting a replication in a marketing situation, this equation was utilized. Second, the equation hypothesizes that an individual attaching greater value importance to a product class will tend to manifest greater affect towards a brand

Table 2  
THREE REGRESSIONS OF ATTITUDE

Product	Sum of perceived instrumentality	Sum of value importance	Sum of perceived instrumentality weighted by its value importance
<i>Frozen orange juice</i>			
Minute Maid	.065	.003	.028
A & P	.189	.007	.008
Snow Crop	.171	.051	.032
Sunkist	.278	.094	.162
Birds Eye	.144	.045	.056
Average $r^2$	.169	.044	.057
<i>Toilet tissue</i>			
Aurora	.190	.033	.104
Delsey	.024	.001	.013
Northern	.209	.045	.083
Scott	.085	.013	.031
Charmin	.267	.043	.067
Average $r^2$	.155	.027	.054
<i>Toothpaste</i>			
Pepsodent	.053	.025	.000
Colgate	.106	.008	.060
Glens	.027	.000	.012
Macleans	.407	.103	.189
Crest	.098	.006	.023
Average $r^2$	.159	.027	.057
<i>Mouthwash</i>			
Micrin	.152	.009	.076
Lavon	.127	.003	.064
Listerine	.094	.000	.030
Colgate 100	.131	.008	.054
Cepacol	.225	.077	.049
Average $r^2$	.158	.019	.055
<i>Lipstick</i>			
Revlon	.062	.026	.002
Coty	.051	.032	.001
Hazel Bishop	.082	.006	.029
Avon	.200	.013	.053
Max Factor	.062	.027	.002
Average $r^2$	.091	.021	.017
<i>Brassieres</i>			
Playtex	.194	.014	.019
Maidenform	.075	.006	.003
Lovable	.149	.072	.000
Sears	.173	.050	.007
Penny's	.304	.062	.038
Average $r^2$	.179	.055	.013

of that product. This hypothesis has been suggested by many researchers who consider perceived risk, ego involvement, commitment, and importance of purchase as determinants of brand preference and loyalty [5]. Finally, and probably most importantly, the equation was used as a statistical barometer to gauge the relative contribution of the two attitude components, even though the conceptual meaning is not fully compatible.

In Table 2, the results of 90 regressions (6 products  $\times$  5 brands  $\times$  3 types) are summarized in terms of the coefficient of determination ( $r^2$ ). There were several consistent findings; since the sample size and the number of

variables were the same across all 30 brands, the predictive aspects are directly comparable.

First, without a single exception, the perceived instrumentality factor had greater predictive power than the value importance factor, which indeed seemed almost uncorrelated with affect (implied by the very small positive correlations in Table 2). The only exception was Macleans toothpaste. The very small correlation between affect and value importance is somewhat surprising, because the five brands in each product class were specifically selected to represent groups of consumers allegedly loyal to particular brands because of their distinctiveness on a single characteristic. Contrary to expectations, we did not obtain significant variations in  $r^2$  across brands and product classes. Finally, we found no variation in the predictive power between private and national brands, although we had hoped that value importance would manifest different predictive powers between them.

Second, the perceived instrumentality factor had a wide range of predictive power within product classes. However, there were no systematic differences between private label and national brands. Similarly, there were no systematic differences in this range between personal and family products or between intimate and nonintimate products.

Third, differences in the average  $r^2$  among the six product classes revealed:

1. The average  $r^2$  of perceived instrumentality tended to covary with that of value importance. For example, the highest averages were for brassieres, the second highest for frozen orange juice, and so on. The only exception was mouthwash.
2. The average  $r^2$  of the weighted perceived instrumentalities did not covary with that of individual components; the lowest average  $r^2$  was for lipstick and brassieres (intimate products), even though they were at the extremes of the individual components. We think these results were caused by the speculative nature of the hypotheses, to be discussed later.

Fourth, the predictive powers of even the simple perceived instrumentalities were small across the 30 brands. For example, the highest  $r^2$  was only .407 (Macleans toothpaste), but the average was only .148. This result may have been caused by the summing of perceived instrumentalities prior to regressing the dependent variable; it may have been better to perform a multiple regression in which each perceived instrumentality is treated as a separate independent variable [11].

The fifth and probably most surprising finding is the consistent lowering of predictive power when the perceived instrumentalities were weighted by the value importances, as observed by comparing the coefficients of determination of the first and the third regressions. There is a clear implication that value importance not only does not contribute toward the determination of the consumer's affect toward a brand but also that it suppresses

the determinant power of the perceived instrumentalities. Rosenberg's results also indicate this suppressing effect, even though his analysis was different: the chi-square values of his first 20 weighted perceived instrumentalities amounted to only 30.82, as compared to 35.51 for those not weighted [8, pp. 368-70].

#### DISCUSSION

Although it was repeatedly found that perceived instrumentality was the dominant factor in determining consumers' affect towards a brand, it is not at all clear why value importance had very small correlations with affect or why it tended to suppress the determinant power of perceived instrumentality in the process of prior weighting. However, it seems plausible that the salience of various characteristics of a product class should be useful discriminators in determining attitudes toward various brands. We speculate that a number of conceptual and methodological factors caused this peculiar interaction.

#### Conceptual Explanations

It is probable that when a respondent rates his perceived instrumentality he implicitly takes the value importance of the scale into consideration. Osgood has argued that the greater the reaction away from the midpoint on a semantic differential scale, the greater the respondent's learning of and involvement with the concept represented [7]; in our data, this relationship was shown by sizable correlations between each perceived instrumentality and its value importance. It would be possible to further test this hypothesis by classifying respondents on the basis of the extremity of their evaluations and then discriminating between these categories of respondents by their profiles on value importances. We are currently engaged in such research.

Second (perhaps a weaker explanation), value importances are not specific to a brand but rather are general for a product class. Why should they predict variances in brand affect? By the same token, if affect were obtained for a product class, we would expect a stronger relationship.

#### Methodological Factors

The generally low correlations can be partly attributed to the procedure of summing the perceived instrumentalities and value importances before regression. (The senior author is currently investigating the nature and magnitude of this effect.) Also, affect was measured by

ordinal ranking of brands in a product class; the use of such ordinal data, with the loss of one degree of freedom, may have confounded the regression results. In addition, any weighting procedure usually tends to cluster the distribution of the sample, and summing the weighted values increases this tendency. Perhaps this resultant distribution of the independent variable tends to covary much less with the dependent variable than it should. Finally, the analysis was performed on the aggregate sample; however, the sample may have been heterogeneous because of factors such as past usage and preference for specific brands and product categories or demographic and socioeconomic differences.

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