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EQUIVALENCE OF FISHBEIN AND ROSENBERG THEORIES OF ATTITUDES

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#108

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The study was conducted to examine the equivalence of Fishbein and Rosenberg models of attitude structure as they have been applied in consumer psychology. A total of thirteen beliefs related to Coca-Cola were utilized to measure the two components of each attitude theory. The correlations between the two models both at the aggregate and at the individual belief level were disappointingly low. The intercorrelations among various pairings of the two components of each theory were also extremely low.

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The purpose of this study is to investigate the equivalence of Fishbein (1967) and Rosenberg (1956) models of attitude structure. Recently, both of these models have been extensively applied to explain brand preference and brand choice behavior (Hansen 1972; Sheth & Talarzyk, 1972; Cohen, Fishbein & Ahtola, 1972).

The Fishbein model is often stated in the following notation: $A_o = \Sigma a_i B_i$, where A_o refers to attitude toward an object such as a brand of a product class, a_i refers to the positive-negative evaluation of a belief i about the object and B_i refers to the probability of the existence of a belief i about the object.

The Rosenberg model is often stated in the following notation: $A_o = \Sigma VI_i PI_i$ where A_o refers to affect or attitude toward an object such as a brand, VI_i refers to the value importance attached to a valued state i and PI_i refers to the perceived instrumentality of the object in attaining or blocking a specific value i.

Very recently, considerable controversy has been generated as to whether the two models of attitude structure are equivalent or substantially different (Cohen, Fishbein, & Ahtola, 1972; Sheth, 1972). On one side of the controversy, both models possess a striking similarity because of the specific weighted sum formula utilized in each model to measure the respondent's attitude score from two cognitive components. Second, both are often presumed to belong to a family of expectancy-value

models. Finally, Fishbein (1967) has cemented the similarity between the models by proposing that his evaluation of a belief (a_i) component is same as Rosenberg's value importance (VI_i) component, and his probability of belief (B_i) component is same as Rosenberg's perceived instrumentality (PI_i) component. On the other side of the controversy, this presumed equivalence is questioned on the ground that Rosenberg's perceived instrumentality by definition, must contain both existence of a belief in an object as well as its evaluation because it measures perceived blocking or attaining of valued states or goals. Second, value importance component in Rosenberg's model is not a measure of evaluation of a belief but its salience, relevance or prominence. Unfortunately, there is no empirical research whatsoever to provide insights into this controversy. Hence this study.

METHOD

The product chosen for measuring attitude toward an object was Coca-Cola because of its extreme familiarity and popularity among student respondents. Based on several prior studies on soft drinks, a total of thirteen attributes were chosen as relevant beliefs to measure attitude toward Coca-Cola. A questionnaire was designed in which the thirteen attributes were utilized to measure the a_i and B_i components of Fishbein model. Special assistance was provided by Professor Martin Fishbein to ensure no wording problems in measurements of his model. The a_i component was measured by asking the respondent to rate a belief such as "good buy for the money" or "thirst quenching" on a seven-point

"good-bad" scale. The B_i component was measured by asking the respondent to express his personal belief about how probable or improbable it is for Coca-Cola to possess that belief. Each belief was, therefore, rated on a seven-point "probable-improbable" scale.

The perceived instrumentality component of Rosenberg model was measured for each belief on an eleven-point bipolar scale which ranged from "the condition is completely blocked by Coca-Cola" to "the condition is completely attained by Coca-Cola". The value importance component was measured for each belief on a 21-point bipolar scale ranging from "it gives me maximum dissatisfaction" to "it gives me maximum satisfaction". Considerable care and attention were given to follow the exact wordings of the Rosenberg and Fishbein models because of a recent criticism on past studies (Cohen, Fishbein and Ahtola, 1972), and to ensure proper testing of equivalence of the two models.

The respondents consisted of advanced undergraduate students at the University of Illinois. The total usable sample which gave complete information necessary for this study consisted of 69 respondents. All the data analyses discussed below, therefore, are based on the sample of 69 respondents.

RESULTS

Since both models utilize successive-interval scales for each of their components, the most obvious measure of equivalence of their structure is the product-moment correlation. In Table 1, the first three correlations represent the degree of equivalence between the

Fishbein & Rosenberg models at the aggregate level and at each of the components level. In addition, each model is correlated with an external measure of affect toward Coca-Cola.

Insert Table 1 Here

The correlation between Fishbein & Rosenberg attitude scores is disappointingly small (r=0.268). This is not improved when each component of each of the two models is correlated. Finally, the prediction of affect toward Coca-Cola is considerably less with the Rosenberg model (r=0.121) than with the Fishbein model (r=0.605).

It is obvious from the above results that there seems very little correlation between Fishbein and Rosenberg models at least as they are applied to the brand preference area. However, as Sheth (1970, 1973) has pointed out earlier, there exists an inherent problem of aggregation in utilizing expectancy-value models due to the prior summation of weighted beliefs in calculating attitude scores. It is, therefore, quite possible that the surprisingly low correlation between Fishbein and Rosenberg models can be, at least partly, due to this aggregation problem even though the two models explicitly specify the prior summation of weighted beliefs. In Table 2, therefore, we present correlations of the beliefs. The results are still disappointingly poor. Even at the individual belief level, there is lack of strong positive correlation between the two models. The range of correlations between Fishbein and

Table 1

Correlations Among Attitude Components

Correlation Between	r
$\Sigma a_i B_i$ & $\Sigma PI_i VI_i$	0.268
ΣB_i & ΣPI_i	0.144
Σa_i & ΣVI_i	0.252
$\Sigma a_i B_i$ & ΣPI_i	0.179
$\Sigma a_i B_i$ & Affect	0.605
$\Sigma PI_i VI_i$ & Affect	0.121

Insert Table 2 Here

Rosenberg attitude score for each belief is between 0.010 and 0.360. Similarly, the range of correlations between a_i and VI_i components is -0.154 and 0.404. Finally, the range of correlations between B_i and PI_i is -0.050 to 0.365. In short, the lack of correlation cannot be attributed to the problem of aggregation.

DISCUSSION

The results of this study are puzzling to say the least. While they show a general lack of equivalence between Fishbein and Rosenberg models, we did not anticipate such small correlations especially at the individual belief level. A number of explanations other than the hypothesis that the two models are different in structure immediately come to our mind for the disappointing results. The first and foremost is the disproportionate measurement errors. Even though the data were collected at the same time period and from the same subjects, we suspect greater measurement error in the Rosenberg model because a number of subjects complained, in a post-study informal interview, that the widths of Rosenberg scales (eleven point and twenty-one point scales) were unnecessarily wide which increased the difficulty in giving more calibrated response judgments. Sheth (1972) has pointed out this problem in testing the Rosenberg model. Unfortunately, we would have been criticized once again if any changes were made from the explicit

Table 2

Correlations for Each Belief

Belief Description	Correlations Between		
	a_iB_i & VI_iPI_i	B_i & PI_i	a_i & VI_i
Good buy	0.044	-0.055	0.184
Syrupy	0.207	0.262	0.197
Natural taste	-0.012	-0.115	0.345
Popular brand	0.311	0.365	0.358
Thirst-quenching	0.192	0.076	0.188
Refreshing taste	0.300	0.209	0.184
Real flavor	0.146	-0.001	0.426
Strong after-taste	-0.058	0.070	-0.154
High carbonation	0.188	0.154	0.063
Useful package	0.300	0.297	0.175
Sweetness	0.222	0.165	0.097
Appealing color	0.361	0.174	0.403
Heavy	0.029	0.105	-0.048

instructions and procedures utilized by Rosenberg. We do believe, however, that Rosenberg scales need to be reduced in category width to either seven or nine points scale.

A second explanation may be the utilization of correlation coefficient as an index of equivalence between the two models. We find, however, that the linear correlation coefficient is perfectly appropriate when the scales in both models presume and explicitly utilize a successive-interval scale. Since our objective was to simply compare the two models rather than refine their measurement scales, we think the statistical procedures utilized in this study are legitimate and adequate.

A final explanation is more fundamental. The lack of equivalence between the Fishbein and Rosenberg models may be strictly at the measurement level and not at the conceptual level. In other words, each author has failed to utilize scaling procedures to define and measure his constructs so that often we may discard the theory in the process of discarding the data.

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