

DIAGNOSING CUSTOMER SATISFACTION/DISSATISFACTION AND BEHAVIORAL INTENTION: EXPECTANCY VALUE THEORY VERSUS EQUITY THEORY

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ABSTRACT

This paper reports the results of a study where expectancy value theory and equity theory were compared relative to the prediction of satisfaction/dissatisfaction and behavioral intention. The results indicate that the expectancy value model performed better than the equity theory formulation in terms of predicting both satisfaction/dissatisfaction and behavioral intention.

INTRODUCTION

The purpose of this paper is to compare expectancy value theory and equity theory in terms of predicting satisfaction/dissatisfaction and purchase intention. In referencing Day (1977), Swan and Martin (1981) say that "most of the recent models of satisfaction have been oriented towards a paradigm relating initial expectations to perceived performance of the product (or service) ..." Further, Summers and Granbois (1977) state "The notion that consumer dissatisfaction is a function of the comparative levels of consumers' expectations and their actual experiences with goods and services is a potentially powerful source of exploration for several kinds of variability in actual dissatisfaction." Expectancy value theory has not been explored that much in connection with satisfaction/dissatisfaction research. According to LaTour and Peat (1979) "Perhaps one of the major reasons for lack of integration of the two areas is that attitude researchers have focused largely on the pre-decisional evaluations of products while satisfaction researchers have focused largely on post-consumption evaluative responses." Equity theory has also been investigated to a limited extent in satisfaction/dissatisfaction research even through as Adams (1965), the originator of the theory, says "... there can be little doubt that inequity results in dissatisfaction, be it anger or guilt ..."

THEORY

The work of Rosenberg (1956) and Fishbein (1967) would be examples of expectancy value models of attitude. In this study, Fishbein's (1976) interpretation of expectancy value theory is used. Fishbein's model reads:

$$A_B = \sum_{i=1}^n b_i e_i \quad (1)$$

where:  $A_B$  = attitude toward performing behavior B  
 $b_i$  = belief that performing behavior B (i.e., buying a brand or product) leader to consequence or outcome i.  
 $e_i$  = e in the person's evaluation of outcome i.  
 $i$  = number of salient beliefs about performing behavior B.

In 1973, Wilkie and Pessemier stated that "In general, results have been consistent across products; the multi-attribute model yields attitude scores which are significantly related to measures of purchase or purchase predisposition [i.e., behavioral intention]." Since 1973, a number of studies have been conducted on the

expectancy value models and basically all of them have produced acceptable results when undertaken properly. Ajzen and Fishbein (1980) state that the expectancy value model is popular in marketing because "... it formalizes the widely held view that the consumer's satisfaction with a product (and hence purchase of that product) is determined by her beliefs that the product fulfills certain functions and that is satisfies some of her needs."

In terms of expectancy value theory, one may say that satisfaction is a function of belief strength and the evaluation of those beliefs. According to Ajzen and Fishbein (1980), satisfaction is an alternative measure for attitude toward a given brand or product.

The conceptual background for equity theory lies in the work of Thibaut and Kelley (1959), Homans (1961) and Jaques (1961), however, it was formally developed by Adams (1963, 1965). Equity theory is based on dissonance theory and social comparison theory (Campbell and Pritchard 1976) and, as such, "... an individual evaluates his 'inputs into' versus 'outputs derived from a given [buying] situation relative to those of another, where this other may be another person, a class of people, an organization, or the individual relative to his experiences from an earlier point in time" (Jacoby 1976). Inputs are what the decision maker perceives are put into the exchange process. Homans (1961) calls them "investments." Inputs essentially refer to the contributions of the individual to the transaction. An example of input would be the perceived low price that was paid or the large amount of time spent in searching for the product. Outcomes refer to consequences or what is derived from a purchasing decision. An example of an outcome would be perceived product durability. In terms of the Adams (1965) formulation, and algebraically, equity may be stated as:  $O_a/I_a = O_b/I_b$ , where  $O_a$  and  $I_a$  are outcomes and inputs of Person a and  $O_b$  and  $I_b$  are outcomes and inputs of Person b (Adams 1965). In other words, an individual perceives equity when the two ratios are equal. If the two ratios are unequal (i.e.,  $O_a/I_a \neq O_b/I_b$ ), the individual will experience inequity. When inequity exists the individual will experience dissatisfaction and be motivated to restore equity (Jacoby 1976). The strength of the motivation to restore equity is based on "... the magnitude of the perceived difference between the two ratios" (Campbell and Pritchard 1976). Equity restoration will not be addressed in this paper.

In this study equity was operationalized as follows:

$$EQ_B = \left| \frac{O_x}{I_x} - \frac{O_s}{I_s} \right| \quad (2)$$

where  $EQ_B$  equals equity towards the behavior B. A zero or low value of  $EQ_B$  represents equity; a high value of  $EQ_B$  indicates a condition of inequity.

The  $O_x$  component is deemed a function of the probability of improbability that the outcomes or consequences exist and  $x$ 's evaluation of these consequences. Specifically,

$$O_x = \sum_{c=1}^n b_{cx} e_{cx} \quad (3)$$

where  $O_x$  equals attitude toward outcome for person  $x$ ,  $b_{cx}$  is the subjective probability that behavior  $B$  has consequence or outcomes as perceived by person  $x$ ,  $e_{cx}$  refers to  $x$ 's evaluation of consequence  $c$  and  $n$  in  $O_x$  the number of salient outcomes or consequences relative to performing behavior  $B$ .

The component,  $I_x$ , is a function of the perceived probability that selected inputs exist relative to performing behavior  $B$  and  $x$ 's evaluation of these inputs. That is,

$$I_x = \sum_{p=1}^n b_{px} e_{px} \quad (4)$$

where  $I_x$  equals attitude toward inputs for person  $x$ ,  $b_{px}$  is the subjective probability that performing behavior  $B$  leads to inputs  $p$  as perceived by person  $x$ ,  $e_{px}$  refers to the evaluation of  $p$  by person  $x$ , and  $n$  is the number of inputs relative to performing behavior  $B$ .

The  $O_s$  and  $I_s$  components of the  $EQ_B$  model take into consideration the perceptions of significant others. In this study, outcomes and inputs were assessed by person  $x$  "relative to those of another" (see Jacoby 1976).

The outcome component,  $O_s$ , is deemed to be a function of significant other expectations relative to the perceived consequences of performing behavior  $B$  and significant other evaluative perceptions of these consequences. Specifically,  $O_s$  reads:

$$O_s = \sum_{c=1}^n b_{cs} e_{cs} \quad (5)$$

where  $O_s$  equals attitude toward outcome relative to the expectations of significant other  $s$ ,  $b_{cs}$  pertains to the probabilities that performing behavior  $B$  has consequence or outcome  $c$  as perceived by  $x$  relative to  $s$ ,  $e_{cs}$  refers to the evaluation of the consequences by  $x$  relative to the perceived expectations of  $s$  and  $n$  equals the number of outcomes.

The  $I_s$  component may be viewed as a function of significant other expectations relative to the inputs in terms of performing behavior  $B$  and significant other evaluative perceptions of these inputs. Algebraically,

$$I_s = \sum_{p=1}^n b_{ps} e_{ps} \quad (6)$$

where  $I_s$  equals the attitude towards input relative to the expectations of significant others  $s$ , and  $b_{ps}$  equals a probability measure that performing behavior  $B$  has input  $p$  as perceived in terms of significant others  $s$ .  $e_{ps}$  pertains to the evaluation of these inputs by  $x$  relative to the perceived expectations of  $s$ , and  $n$  refers to the number of inputs considered in performing behavior  $B$ .

It is assumed that the equity formulation will provide more insights into explaining and predicting satisfaction and purchase intention than the expectancy value structure. The equity model, as operationalized in this study, includes outcomes and inputs from the deci-

sion maker per se plus it includes outcomes and inputs from a perceived significant other. The expectancy value model only includes outcomes or consequences as perceived by the decision-maker - no decision-maker inputs or significant other outcomes/inputs. Therefore, as stated perviously, the purpose of this study was to compare the predictive validity of the expectancy value model and the equity model in terms of satisfaction/dissatisfaction and behavioral intention. To the author's knowledge, the complete equity model has not previously been investigated in a marketing context, previous studies involving equity theory have tended to measure the concept on a unidimensional or indirect basis (e.g., Huppertz, Arenson and Evans, 1978).

## METHODOLOGY

### Subjects and Stimulus Objects

The sampling frame consisted of six sections of an undergraduate management course at Syracuse University. Three sections were chosen on a random basis and the students in those sections served as the experimental subjects. One hundred six students were involved.

The test products or stimulus objects were selected on the basis that they meet certain specifications. The products has to vary in price. The selected products must have been researched previously in order to have previous product information and in order to provide research continuity. It was also felt that students must be able to provide informed judgments on the selected products. Products that everyone bought or no one bought were eliminated. This specification was desired so that the satisfaction/dissatisfaction and behavioral intention measure would have a suitable variance so that relative predictiveness between the two models (expectancy value and equity) could be ascertained. The stimulus objects that were selected were Crest toothpaste, dining out and spending more than \$10 per person and buying a sweater costing more than \$30.

The outcome attributes for Crest toothpaste were obtained from a prior study (i.e., Mazis, Ahtola and Kuppel 1975). The input attributes for Crest toothpaste were obtained from two earlier studies - Mazis, Ahtola and Kuppel, 1975 and Huppertz, 1978. To select the salient outcome/input attributes for dining out and spending more than \$10 per person and buying a sweater costing more than \$30, a pre-experimental survey was conducted. The experimental subjects were 63 students in two convenience sampled undergraduate management classes. None of these students participated in the subsequent experiment. The elicitation technique recommended by Fishbein (1967) was employed to obtain the attributes.<sup>1</sup> However, only outcome or consequence variables were obtained using the elicitation technique. The elicitation procedure did not produce input variables. As the input variables were not produced in the elicitation procedure for dining out and spending more than \$10 or for buying a sweater costing more than \$30, they were obtained from a study by

<sup>1</sup> Following the procedure outlines by Fishbein 1967b (developed by Maltzman, Bogartz and Breger 1958) the most frequent responses given by the subjects were selected. The interested reader should also consult Ajzen and Fishbein, 1980, p. 152.

Huppertz (1978). Relative to dining out and buying a sweater, price was more or less a given - \$10 and \$30, respectively, and this is a possible reason it was not mentioned in the elicitation procedure. Table 1 shows the products and product attributes that were analyzed in the study.

#### Measures of Behavioral Intention, Satisfaction, Attitude and Equity

##### Behavioral Intention (BI)

Behavioral intention was measured using a question such as "Indicate the likelihood of you buying \_\_\_\_\_ sometime during the next year" with a seven-point scale labeled "definitely will" and "definitely will not" at the endpoints.

##### Satisfaction (SAT)

Overall satisfaction or dissatisfaction with an object. This concept was operationalized using a five-point scale labeled, as an example, "In general, I like Crest toothpaste" and "In general, I dislike Crest toothpaste" at the endpoints. The like-dislike measure was used as it was believed that it tends to measure satisfaction-dissatisfaction. If a subject is satisfied with a product (before or after purchase) they will normally like the product, if they are dissatisfied, they will normally dislike the product. On an evaluative dimension, satisfaction leads to favorable feeling and dissatisfaction leads to unfavorable feelings (Day and Landon, 1977). According to Fishbein and Ajzen (1975), the evaluative dimension may be measured in terms of like-dislike, favorable-unfavorable, approve-disapprove and good-bad scales. Westbrook and Newman (1978) use the term "dislike" in their composite measure of dissatisfaction.

##### Attitude ( $A_B$ )

$b_i$  - the probability that  $i$  is associated with performing behavior  $B$ . The concept "Crest toothpaste prevents decay ...," as an example, was rated on a seven point scale with endpoints labeled "probable" and "improbable."

$e_i$  - the evaluation of belief  $i$ . A representative measure of  $e_i$  would be "In terms of buying Crest toothpaste, decay prevention is ..." with a seven point scale with "good" and "bad" at the endpoints.

##### Equity ( $EQ_B$ )

$O_x$  - output attitude toward the act by person  $x$ . The concepts, such as, "I would dine out and spend more than \$10 per person if the following existed - right atmosphere" and "In terms of dining out and spending more than \$10 per person, a right atmosphere is ..." were rated on seven-point scales labeled "probable - improbable" and "good - bad," respectively.

$I_x$  - input attitude toward the act by person  $x$ . The concepts, such as, "I would dine out and spend more than \$10 per person if the following existed - the right search time" and "In terms of dining out and spending more than \$10 per person - the right search time is ..." were rated on seven-point scale labeled "probable-improbable" and "good-bad," respectively.

$O_s$  - output attitude toward the act by person  $s$ . The concepts, such as, "Most people who are important to me believe that Crest toothpaste prevents decay" and "Most people who are important to me believe that in terms of Crest toothpaste decay prevention is ..." were rated on seven-point scales labeled "probable-improbable" and "good-bad," respectively.

$I_s$  - input attitude toward the act by person  $s$ . The concepts, such as, "Most people who are important to me believe that Crest toothpaste involves searching time" and "Most people who are important to me believe that in terms of Crest toothpaste searching time is ..." were rated on seven-point scales labeled "probable-improbable" and "good-bad," respectively.

The above measures were considered for the three stimulus objects or products involved. Each product was measured with eight constructs - two dealing with attitude ( $b_i, e_i$ ), four pertaining to equity ( $O_x, I_x, O_s, I_s$ ), one focusing on satisfaction (SAT) and one investigating BI.

##### Analysis

The expectancy value model and the equity model were coded using the bipolar coding rule (e.g., -3 to +3). This coding procedure follows the recommendations of researchers such as Ryan and Bonfield (1975) and Bertman, Capon and Lutz (1975). The subjects' responses were standardized. Standardization improves the preciseness of the results when different measures are involved (e.g., BI and  $A_B$ ). Predictive effectiveness was measured by correlating attitude (expectancy value theory) and equity theory with SAT and BI. It was assumed that the attitude and equity formation would explain and predict SAT and BI. Pearson correlation coefficients were used to compare the predictive effectiveness of each model. All correlation coefficient findings presented in their paper are based on responses which have been normalized. The data were also checked in terms of reliability using Cronbach's alpha measure.

## RESULTS

As the objective of this study was to determine which model (expectancy value or equity) best predicted satisfaction (satisfaction/dissatisfaction) and behavioral intention, the following relationships were investigated<sup>2</sup>.

- (1)  $BI = A_B$
- (2)  $SAT = A_B$
- (3)  $BI = EQ_B$
- (4)  $SAT = EQ_B$

<sup>3</sup> Using a normalization procedure suggested by Bass and Wilkie (1973), Wilson, Mathews and Harvey (1975) found that normalization increased  $R^2$ 's relative to the Fishbein Behavioral Intention Model.

<sup>2</sup> Note that  $A_B = O_x$

TABLE 1  
PRODUCTS AND PRODUCT ATTRIBUTES

Crest Toothpaste		Dining Out (Spending over \$10/Person)		Sweater (Spending over \$30)	
Outcomes	Inputs	Outcomes	Inputs	Outcomes	Inputs
Prevents Decay	Competitive Price	Good Atmosphere	Right Price	Right Color	Right Price
Freshens Mouth	Right Search Time	Quality Food	Right Search Time	Right Quality	Right Search Time
Appropriate Taste	Right Search Effort	Good Service	Right Search Effort	Right Style	Right Search Effort
Whitens Teeth		Right Type of food			
		Right Type of Persons Present			

TABLE 2  
CORRELATION COEFFICIENTS<sup>5</sup>  
n = 106

Model	Crest Toothpaste	Dining Out and Spending More than \$10 per Person	Buying a Sweater and Spending More than \$30
1. BI = A <sub>B</sub>	.3445 (p=.0004)	.3366 (p=.0008)	.6387 (p=.0001)
2. SAT = EQ <sub>B</sub>	.4968 (p=.0001)	.5269 (p=.0001)	.5344 (p=.0001)
3. BI = EQ <sub>B1</sub>	.0471 (p=.6464)	-.1684 (p=.1104)	.1789 (p=.0993)
4. SAT = EQ <sub>B1</sub>	.1922 (p=.0606)	-.1128 (p=.2871)	.1682 (p=.1216)
5. BI = EQ <sub>B2</sub>	.0559 (p=.5863)	-.1671 (p=.1132)	.0710 (p=.5159)
6. SAT = EQ <sub>B2</sub>	.1185 (p=.2500)	-.2333 (p=.0260)	.1059 (p=.3317)

- (5) BI = EQ<sub>B</sub><sup>4</sup>  
(6) SAT = EQ<sub>B2</sub>

As shown in Table 2, the A<sub>B</sub> model predicted behavioral intention and satisfaction/dissatisfaction (SAT) best across all three brands. The two interpretations of the equity model did not differ that much in terms of prediction with both interpretations of EQ<sub>B</sub> producing results below expectations. At a minimum, the A<sub>B</sub> model predicted behavioral intention and satisfaction two times better, on the average, than the EQ<sub>B</sub> model.

The A<sub>B</sub> Cronbach alpha measures equalled .86, .97, and .97, respectively, for Crest toothpaste, dining out and spending more than \$10 per person, and buying a sweater and spending more than \$30. For the EQ<sub>B</sub> model, the

<sup>4</sup>EQ<sub>B1</sub> refers to the equity formula shown earlier. EQ<sub>B2</sub> pertains to a weighted average alternative equity model advanced by Anderson (1976). It reads:

$$O_A / (O_A + O_B) = I_B / (I_A + I_B) \text{ or } O_S / (O_X + O_S) = I_S / (I_X + I_S).$$

Mathematically, the alternative equity model is equivalent to  $O_A / I_A = O_B / I_B$  (Anderson 1976). However, psychologically, they are different in that the Anderson model involves comparisons between input and outcomes and then between the interpersonal ratios whereas the original Adam's formula (1965) involved outcome and input evaluation for each person separately and then between persons on the two outcome/input ratios (Anderson 1976).

<sup>5</sup>The correlation coefficient between BI and AFF equalled .8409 (p=.0001), .5782 (p=.0001) and .7579 (p=.0001), respectively for Crest toothpaste, Dining Out and Spending more than \$10 per Person and Buying a Sweater and spending more than \$30.

Cronbach alpha measures ranged from .51 to .86, .83 to .97, and .91 to .99, respectively for Crest toothpaste, dining out and spending more than \$10 per person, and buying a sweater and spending more than \$30. With one exception, the EQ<sub>B</sub> alpha values were all in the eighties and nineties relative to the four components. Results from this analysis support the internal consistency of the research data.

#### SUMMARY AND CONCLUSIONS

The present study was conducted to compare expectancy value theory and equity theory in terms of predicting satisfaction/dissatisfaction and behavioral intention. Cross sectional correlation analysis was used to analyze the data. It was expected that the equity theory model would predict better than the expectancy value model, however, this turned out not to be the case. The expectancy value model produced significantly better results than the equity theory formulation. In terms of reliability, both models (expectancy and equity) produced acceptable results.

Why did the equity model not produce results equal to or above those of the expectancy value model relative to prediction? Perhaps one of the reasons is that non-determinant beliefs were used. The equity model involves four components (O<sub>x</sub>, I<sub>x</sub>, O<sub>s</sub> and I<sub>s</sub>) and the possibility exists that at least in one or more of the components non-determinant beliefs were involved. As an example, the assumption was made in this study that O<sub>x</sub> and O<sub>s</sub> plus I<sub>x</sub> and I<sub>s</sub> had the same beliefs.

Further, the inputs were obtained from a prior study i.e., Huppertz (1978). In addition, in this study, the beliefs were obtained in terms of x, not x and s. Another reason the equity model performed poorly may have been in the selection of the significant other. Perhaps an actual significant other should have been used rather than the perceived expectations of a significant other. Further, the components in the equity

model were calculated on the basis of belief probabilities and belief evaluations. Perhaps predictive results would have been better in terms of equity theory if the components had been measured in terms of attribute importance (see Campbell and Pritchard 1976) or perceived attribute evaluation (see Samuel 1976).<sup>6</sup> In summary, the equity model has a great deal of inductive appeal, however, more research is needed to make it a useful measure for explaining and predicting satisfaction/dissatisfaction and purchase intention.

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