Cognitive, Affective, and Attribute Bases of the Satisfaction Response

RICHARD L. OLIVER*

An attempt to extend current thinking on postpurchase response to include attribute satisfaction and dissatisfaction as separate determinants not fully reflected in either cognitive (i.e., expectancy disconfirmation) or affective paradigms is presented. In separate studies of automobile satisfaction and satisfaction with course instruction, respondents provided the nature of emotional experience, disconfirmation perceptions, and separate attribute satisfaction and dissatisfaction judgments. Analysis confirmed the disconfirmation effect and the effects of separate dimensions of positive and negative affect and also suggested a multidimensional structure to the affect dimensions. Additionally, attribute satisfaction and dissatisfaction were significantly related to positive and negative affect, respectively, and to overall satisfaction. It is suggested that all dimensions tested are needed for a full accounting of postpurchase responses in usage.

The study of postpurchase processes as central to the consumer's decision to repeat-buy products has attracted increasing attention from consumer researchers (e.g., Bearden and Teel 1983; Bolton and Drew 1991; Cadotte, Woodruff, and Jenkins 1987; Churchill and Surprenant 1982; Oliver 1980; Oliver and DeSarbo 1988; Tse and Wilton 1988; Westbrook 1987). Interest in this topic results from the high likelihood that many purchases in any one consumer's routine are second or n-time purchases and not initial decisions.

A satisfactory purchase experience would appear to be one requirement for the type of continued interest in a product that might lead to repeat purchasing. To this end, researchers have turned increasing interest to the study of consumer satisfaction/dissatisfaction (CS/D). Until lately, however, the literature has focused on dissatisfaction, especially complaining behavior, the demographic correlates of satisfied/dissatisfied consumers, or the attribute performance correlates of product satisfaction judgments.

The present article attempts to extend this literature with the following additions to existing work. Drawing on previous conceptualizations of satisfaction in consumption, focus is drawn to the role of attributes as causal agents for affect in this process. Specifically, separate dimensions of positive and negative affect are hypothesized, separated into meaningful subcomponents, and related to summary occurrences of satisfying or dissatisfying attribute experiences, with the goal of expanding perspectives of the satisfaction process to its attribute-determined origins.

To achieve this end, the article first describes the CS/D literature and outlines present knowledge. Next, this current perspective is viewed in light of new developments in affect research. A conceptual attempt is then made to integrate attribute experience with existing frameworks, as represented by the expectancy disconfirmation and performance model with affect augmentation. The proposed framework is then tested in two samples of consumers with a causal modeling approach. Results are then analyzed, and suggestions for future research drawn.

STRUCTURE OF THE SATISFACTION RESPONSE

Cognition in Satisfaction

While personality and attribute correlates of summary satisfaction/dissatisfaction judgments are valuable from a segmentation or diagnostic perspective, they do little to reveal the psychological processes that motivate a satisfaction response. That is, how do consumers process attribute experiences into summary form that later influences satisfaction? Early strides toward answering this question were made when the expectancy disconfirmation model was adopted. In this process (see Oliver 1980, 1981; Tse and Wilton 1988; Yi 1990), consumers are posited to form preconsumption expectancies, observe product (attribute) performance, compare performance with expectations, form disconfirmation per-
exceptions, combine these perceptions with expectation levels, and form satisfaction judgments. According to this view, disconfirmation is the most immediate influence on satisfaction.

Other works show that the process above is more complicated than originally proposed. Churchill and Surprenant (1982), for example, demonstrated that, for the durable product tested in their study (a VCR), performance appears to impact CS/D directly rather than through disconfirmation. This finding has been replicated by Tse and Wilton (1988) for compact disc players and by Bolton and Drew (1991) in the category of consumer telephone services. Moreover, Oliver and Desarbo (1988) conducted an experiment using security transactions and showed that a significant direct performance effect can operate in tandem with the disconfirmation effect. Apparently, performance influences CS/D through two mechanisms, directly via consumer observation of good and bad performance and indirectly as an input to the disconfirmation comparison (Bolton and Drew 1991).

Additional variance in CS/D has been explained by inclusion of a direct effect of expectations or norms. Oliver (1981) suggests that this results from a framing or assimilation effect whereby the expectation level establishes the (high or low) baseline around which satisfaction judgments are made. Other standards of comparison, including ideals and brand-based norms (see, e.g., Cadotte et al. 1987; Tse and Wilton 1988), have also been suggested.

Additional cognitive themes such as that of equity (see, e.g., Oliver and Swan 1989) and attribution (Folkes 1990) have also been proposed as satisfaction determinants but have not generated the same level of interest in CS/D research. Generally, consumers are thought to be more satisfied when they perceive fair (i.e., equitable) treatment and when they attribute favorable outcomes to themselves and unfavorable ones to others. While these perspectives are promising, they are not studied here, although attribution is addressed indirectly. These concepts have been investigated, however, as integral to a multifactor satisfaction design (see Oliver and DeSarbo 1988).

As generally expressed, the processes outlined in the preceding discussion are thought to be primarily cognitive. The expectation formation process, the comparison of performance to expectations, equity judgments, and causal attributions are mostly conscious, overt activities that consumers may or may not perform. Nevertheless, evidence for each of these paradigms is growing in the CS/D literature (see, e.g., Yi 1990).

Affect Augmentation in Satisfaction

Not well represented in the cognitive perspectives is consideration of the affective basis of satisfaction. Westbrook (1987; Westbrook and Oliver 1991) has made progress in this area. Westbrook (1987) posited that consumers form two summary affect states, one based on the positive affects in consumption and the other on the negative affects. Using Izard's (1977) Differential Emotions Scale (DES), he showed that the affects of joy and interest load on a factor separate from that of anger, disgust, and contempt, and that these factors are relatively uncorrelated. Moreover, both were significantly related to satisfaction in the expected direction. These relationships held up to the introduction of cognition (i.e., disconfirmation) in the satisfaction equations. Similar results obtained in Westbrook and Oliver (1991) except that interest appeared separate from joy in that analysis.

A theoretical perspective on affect in consumption was presented in Oliver (1989), based on postpurchase causal attributions. Using Weiner's (1986) framework from social psychology, Oliver described how consumer affect can arise as "attribution dependent." Specifically, attributions defined in the context of Weiner's locus-stability-controllability matrix are known to evoke specific affects depending on whether the (purchase) outcome is defined as a success or failure (Weiner, Russell, and Lerman 1979). An example in marketing where an external and controllable failure on the part of a firm results in consumer anger appears in Folkes, Koletsky, and Graham (1987).

On the basis of the CS/D literature reviewed in the preceding discussions of cognitive and affect influences, the satisfaction response is thought to be represented by the constructs shown in Figure 1. The cognitive antecedents include expectations, performance, disconfirmation, attribution, and equity/inequity. Further, the
model shows affect as augmenting these variables in the prediction of satisfaction and, in addition, shows affect as mediating an indirect attribution influence in accordance with Oliver (1989).

The emergence of affect as a proposed component of postpurchase expression is not unusual in light of other emerging work on the consumer area (e.g., Batra and Holbrook 1990; Havlena and Holbrook 1986). Earlier writings on consumer affect, however, can be traced to Bradburn (1969) in the quality-of-life area. Bradburn was, perhaps, the first to propose an “affect balance theory,” which recognized that the positive experiences of life (e.g., excitement, pleasure) are not necessarily inversely correlated with negative experiences (e.g., loneliness, boredom). Generally, positive and negative affect have been found to make independent contributions to life satisfaction/dissatisfaction judgments in the life quality literature (e.g., Horley and Little 1985). This independence argument has taken two forms. In the first, researchers have raised the issue of how the configural structure of affect could accommodate independent positive and negative affect dimensions. A second question relates to the conceptual mechanism that could explain their independent operation.

Configural Structure. With regard to the dimensionality question, theoretical perspectives on affect’s structure have been presented by Russell (1980) and Watson and Tellegen (1985). Russell’s “circumplex model of affect” posits two dimensions of affective structure, pleasure/displeasure and arousal/boredom. If one narrowly defines affect as pleasure, then pleasure (positive affect) and displeasure (negative affect) will be polar opposites on the same continuum and, thus, negatively correlated. In addition, the Russell model assumes that (pure) pleasure and displeasure are independent of (orthogonal to) arousal.

Watson and Tellegen (1985) have provided a second perspective by noting that pleasure is only one component of affect. By rotating the axes of the pleasure-arousal space by 45° (without changing the locations of the affects in the scaling solution), they are able to defend axes of independent positive and negative affect. The resulting axis descriptions are (1) aroused positive affect (e.g., delight) and (2) aroused negative affect (e.g., anger). One conceptual attraction of this interpretation is that affect appears more complex than a simple pleasure explanation would suggest; pleasure is viewed only as moderately aroused positive affect (cf. Diener and Emmons 1984).

Conceptual Mechanism. This dimensional explanation is consistent with theory and data relating to the mechanism by which affect operates in everyday life. Most references on this subject rely on the aforementioned Bradburn (1969) affect-balance theory or the “independence hypothesis,” which maintains that events in life alternate between the positive and negative, and that instances of one do not preclude occurrences of the other. This argument would seem especially relevant to product and service consumption, where numerous and varied attributes exist at different levels of abstraction. Because each attribute is a potential source of pleasure or frustration, the likelihood of positive and negative experience is enhanced, a premise underlying the use of multiattribute models of attitude. This perspective is developed further below.

An Extension of the Affect Perspective

The role of events (e.g., attribute performance experiences) as causal agents for positive and negative affective states has not been well conceptualized in the CS/D literature. Via a mechanism similar to the emergence of attribution-dependent affect, research in the affect literature (e.g., Scherer and Tannenbaum 1986) suggests that various affects are also event specific. That is, different types of everyday experiences may directly trigger different types of affect. For example, a loss (e.g., financial, emotional) would cause sadness while pleasantly surprising product performance would cause delight. This analogy is extended to the summary attribute level, where the sum of positive product experiences (i.e., satisfactory attribute performances) should relate to positive affect, and negative experiences (i.e., dissatisfaction attribute performances) to negative affect. The following discussion elaborates this additional perspective, comparing it to the present literature, and expands the attributional basis of the affect response suggested in Oliver (1989) and Westbrook (1987).

CONSUMER SATISFACTION/DISSATISFACTION MODEL EXTENSION

The “Attribute Basis” of Satisfaction

Prior research on affect in consumption (e.g., Westbrook 1987; Westbrook and Oliver 1991) has not elaborated on how consumers could entertain both positive and negative affect toward the same product simultaneously. Yet regressions of satisfaction on positive and negative affect in both of these studies clearly show concurrent effects. The explanation draws on the Bradburn (1969) affect-balance theory, as discussed, which would propose the simultaneous operation of multifaceted product or service attributes, thereby providing differentially valenced product experience. A restaurant dining encounter, for example, evokes both negative and positive affective reactions because of the complexity of this type of service (Derbaix and Pham 1991). It is proposed, therefore, that dual positive and negative affect influences in consumption can arise from dual concurrent positive and negative experiences at the attribute level. That is, a range of multifaceted product features allows for varying experiences with the product or service, some negative, some positive. These expe-
Attribute Satisfaction versus Attribute Performance. Up to this point, the phrase “attribute experience” has been used to refer to the consumer’s perception of a product or service feature. I now address the issue of equating attribute experiences of a widely disparate nature. It is proposed that these experiences can be compared, not at the level of “performance units” (since, for example, the noise level of a car’s interior is not comparable in decibels to the fuel economy in miles per gallon), but at the level of “satisfaction units.” Thus, positive (negative) affect should be a function of the amount of positive (negative) attribute-level units of satisfaction. Attribute satisfaction, then, is the consumer’s subjective satisfaction judgment resulting from observations of attribute performance and can be considered to be the psychological fulfillment response consumers make when assessing performance.

Thus, a distinction is made between attribute performance and attribute satisfaction. As originally expressed by Bettman (1974), attribute satisfaction is a function of a decision heuristic applied to attribute performance and, as such, is a higher-order concept in the consumer’s product judgment. According to Bettman, performance itself is not sufficient to cause attribute satisfaction; rather, consumers are thought to assess performance in the context of its variance and the strength of their beliefs in the performance judgment. Although Bettman did not carry his analysis beyond the formation of attribute satisfactions, he was the first to describe a process by which attribute performance is translated into attribute satisfaction and to distinguish between these concepts. This article extends Bettman’s work by showing how attribute satisfaction may affect still higher-order affective judgments in product or service evaluation.

Crossover Influences. The present framework also allows for the likelihood that “crossover” effects operate between the attribute states and the affect states. In this context, crossover effects would be represented by inverse influences between attribute satisfaction (dissatisfaction) and negative (positive) affect. A crossover effect from attribute dissatisfaction to positive affect is likely if negative product experience at the attribute level has the effect of decreasing positive affect in addition to increasing negative affect. Work in psychology (e.g., Taylor 1991) suggests that negative events detract from one’s ability to experience positive affect. Simi-

larly, positive events, most notably successes, seem to mitigate the occurrence of negative affect, although the symmetry of this effect with that of negative events on positive affect is not presently known. Nonetheless, both crossover effects from attribute experience to affect are specifically hypothesized in the model.

This perspective augments that of Westbrook (1987; Westbrook and Oliver 1991) by explicitly linking positive and negative attribute experience to affective states. Whereas these works did not entertain sources of affective responses, positive and negative affect are explicitly modeled as emerging from consumer reactions to product feature performance. Moreover, the possibility that performance affects satisfaction directly as shown by Churchill and Surprenant (1982), Oliver and DeSarbo (1988), and Tse and Wilton (1988) is tested simultaneously in the model. Thus, the current study models satisfaction as a function of cognition, affect, and direct experience, a three-determinant perspective that has not appeared in the literature to date. In addition, the study suggests the mechanism by which attribute experience can operate through affect to influence satisfaction indirectly. Taken together, these direct and indirect attribute influences comprise the “attribute basis” of satisfaction.

Specification of Affect Dimensions

Attributional Sources of Negative Affect. As noted, Westbrook (1987) examined the contribution of positive and negative affect on satisfaction and showed that both were significantly related to satisfaction when tested against other satisfaction antecedents. The present study extends this work by expanding the components of both positive and negative affect. Specifically, negative affect is expanded to include different attributional sources of causality for dissatisfaction. This draws on the locus-of-causality literature in attribution theory, where the locus dimension is “concerned with the source of causality; that is, either the cause resides in you, in some other people, or in the situation” (Wong and Weiner 1981, p. 655). Generally, the mechanisms by which consumers may assign causality to any of these dimensions are straightforward. In essence, marketer-caused dissatisfaction is thought to be externally attributed, consumer mistakes are apparently internally attributed, while unfortunate environmental effects are expected to be situationally attributed (e.g., Bitner 1990; Folkes 1990). Studies of affect resulting from subject attributions frequently find these distinctions. For example, Smith and Ellsworth (1985) found that emotions could be described as falling on a self-other responsibility continuum and a situational–human-control continuum. Anger, disgust, and contempt were clearly other oriented; shame and guilt were self oriented; and fear and sadness were situationally oriented.

While Westbrook’s (1987) work distinguished between the three different responses among the negative
affects, only the externally attributed affects (anger, disgust, and contempt) were used under the assumption that marketer-caused problems are primary reasons for dissatisfaction. The present model is extended to both the internally and situationally attributed negative affects because it is suggested that dissatisfaction can arise from alternative sources of product frustration. For example, if a buyer understands that s/he is solely responsible for the purchase of an unsuitable or bad product, it is proposed that dissatisfaction would be aggravated by the consumer's guilt. Alternatively, if the product is susceptible to situationally caused failings, dissatisfaction could be worsened by sadness. Thus, all of the negative affects may be necessary for a fuller accounting of consumer responses.

Study of a greater variety of negative affect is potentially important because of an innate positive hedonic bias on the part of the consumer. Generally, individuals are thought to attempt to maximize positive affective states and minimize negative affective states. Negative experiences are thought to be more salient, are perceived with greater intensity, and are expressed with greater variety (Derbaix and Pham 1991). This perhaps explains why emotional typologies typically have a greater number of negative affects. The Izard (1977) DES scale, for example, has seven negative and two positive affects, reflecting Izard's view of "fundamental" emotions.

Interest and Joy as Separate Positive Affects. The positive affect dimension tested by Westbrook (1987) is decomposed to separate interest from joy, the two positive affects in the Izard (1977) scheme. Recent taxonomic research in the affect literature now distinguishes the dimension of pleasure (including joy) from that of arousal, attention, or interest (Daly, Lancee, and Polivy 1983; Watson and Tellegen 1985). Moreover, discussions of the content of positive affect either do not include interest (de Rivera et al. 1989) or specifically separate states of arousal and joy (Storm and Storm 1987). Apparently interest is a low-intensity but directed state of arousal or activation while joy is a somewhat intense form of pleasure. Although Izard's typology includes interest in the categories of discrete emotions, others do not (e.g., Plutchik 1980). This argues for treating interest and joy in the Izard scheme as separate affects in the same way that the categories of attribution-specific negative affect are analyzed separately.2

The Model to Be Tested

The model to be tested here is the subsystem shown in boldface in Figure 1 with the attribute extension augmenting the affect sequence. The subsystem includes (overall) disconfirmation to provide a partial replication of Westbrook and Oliver (1991). Note that the effects of expectation and equity are not tested. Prior expectation measures were not available and equity considerations were not thought to operate in the research contexts investigated here.3 In addition, and as discussed, attribution influences are manifested within the categories of (negative) affect.

Figure 2 shows the expanded model, as tested, with the following modifications to Figure 1. First, attribute influences are expressed as attribute satisfaction units, which are posited to arise from summary episodes of net attribute satisfaction and net attribute dissatisfaction. Second, attribute satisfaction and dissatisfaction are shown as antecedent to both positive and negative affect. Third, positive affect is now represented by the two affect states of interest and joy while negative affect is portrayed by the three attribution-dependent states of external, internal, and situational affect. Finally, overall disconfirmation is shown as directly influencing satisfaction to represent a cognitive source of CS/D response.

Hypotheses

The preceding discussion suggests the study hypotheses as follows:

H1: Affective response in usage processes can be described by a positive affective dimension

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2 Attribution-based categorizations of positive affect have not been forthcoming. Weiner et al. (1979) do describe different discrete positive affects resulting from different attributions. However, these distinctions are not applicable to the two positive affects suggested by Izard (1977) and used here. As the list of consumption-related positive affect is studied further, attribution categorizations of positive affect will likely appear.

3 The omission of expectations may constitute a limitation if bias is introduced in the estimates of the remaining variables. However, other research suggests that expectations may not operate for certain durables (Churchill and Surprenant 1982) and continuing services (Bolton and Drew 1991).
ATTRIBUTE BASES OF SATISFACTION

consisting of interest and joy and, separately, by three negative dimensions defined on the basis of the causal agent.

H2: Attribute satisfaction experiences will influence the degree of positive affect and will have inverse effects on negative affect. Conversely, attribute dissatisfaction experiences will influence negative affect and also inversely affect positive affect.

H3: Attribute satisfaction and dissatisfaction will have direct effects on overall product or service satisfaction judgments.

H4: Positive and negative affect will directly influence overall product or service satisfaction judgments.

H5: Disconfirmation will be significantly related to satisfaction.

METHOD

Sample and Procedure

Two field studies were performed to sample affective response in ongoing consumption settings to insure that consumers would experience actual usage situations (see, e.g., Scherer and Tannenbaum 1986). Also, to provide a "bridge" from Westbrook's (1987) study, one product category was used that was common to his study (autos) and one was used that was not. Whereas Westbrook used cable television for his second product, student evaluations of a required course in principles of marketing are used here. Automobiles were selected because the high level of variation in involvement in this product category (Bloch 1981) affords similar variation in affect. The course evaluation was chosen because of similar variation in involvement and because much of the work on affect, particularly with regard to attribution-generated affect, has been done in academic contexts (e.g., Smith and Ellsworth 1987; Weiner et al. 1979).

As an additional consideration, inclusion of a service category is important in light of emerging research on satisfaction in the delivery of service quality. A number of studies specifically address the role of satisfaction in service contexts. These include Bolton and Drew (1991), Cadotte et al. (1987), Oliver (1980), Oliver and DeSarbo (1988), Oliver and Swan (1989), and Swan and Trawick (1981). In these studies, those parts of the expectancy disconfirmation model that were included were generally supported, as shown in Figure 1. Thus, this framework provides an encouraging perspective for application to service contexts.

Separate samples were surveyed for the two usage situations. As in Westbrook (1987), the auto sample was drawn according to an area-based judgmental sampling plan. This resulted in 125 usable subject surveys. The student sample was drawn from nine sections of a required marketing principles class. Section instructors were asked to solicit 20 volunteers from each section to provide a representative cross section of the entire class. Responding anonymously, the students provided 178 usable surveys.4

Measures

Affect. In accord with Westbrook (1987), Izard's (1977) DES was chosen for the affect scale because extensive developmental work has produced validity and reliability data on this instrument (e.g., Boyle 1984). Moreover, Westbrook has shown this scale to be valid in consumption settings and useful in explaining the role of affect in consumption; its use here will provide for comparisons across the Westbrook and current studies.

The DES contains 10 subscales representing the intensity with which subjects experience the 10 fundamental emotions in Izard's (1977) theory. These include the positive affects of interest and joy, the negative affects of anger, disgust, contempt, shame, guilt, sadness, and fear, and the additional affect of surprise. Note that surprise is not used in the present framework. Surprise is a bivalent affect, having positive (e.g., delight), negative (shock), and neutral (amazement) interpretations (Charlesworth 1969). Because the surprise scale in the Izard scheme does not reveal the subject's intended valence, it was not used here as a measure of affect. See Westbrook (1987) for elaboration of the content of the Izard scales.

Descriptive statistics and reliability estimates for the nine DES subscales used for the auto and course samples are reported in Table 1. Generally, the respondents experienced greater levels of the positive affects. The same pattern was also observed in Westbrook (1987), where the auto results are very similar to those found here.

Identical sets of the summary measures were used in both studies (with the exception of the satisfaction scale; see below) as follows:

Affects. The negative affect subscales were formed on the basis of the attribution agency proposed in

4Note that, although students are able to select specific sections of a marketing principles course, they are not able to make a choice about whether to take it or not. Thus, while differences in the causal relationships in the suggested framework over the two sample domains are not predicted, certain indicators may not emerge as anticipated. One likely example is that of internally attributed affect. Because the "consumption experience" was mandatory for the course sample, little self-blame would be expected for this group.

5It should be noted that other emotion typologies are available to consumer researchers. In fact, Havlena and Holbrook (1986) have performed various tests on paradigms suggested by Mehrabian and Russell (1974) and Plutchik (1980). However, it appears that neither of these have been used in the CS/D literature, which motivates the use of Izard's (1977) typology. It is hoped that validation work for the Plutchik and Mehrabian-Russell frameworks in a CS/D context will be forthcoming.
Smith and Ellsworth (1985). Externally attributed negative affect was composed of a summated index of the anger, disgust, and contempt DES subscales. Internally attributed negative affect was based on the shame and guilt DES subscales, while situationally attributed affect was based on the fear and sadness DES subscales. The positive affect subscales were represented by the interest and enjoyment scales of the DES.

**Attribute Satisfaction.** For the auto data, 19 attributes were selected as representative of automobile features. These were determined from informal focus group discussions, salient features typically reviewed by consumer product magazines (e.g., Consumer Reports), and features prominently displayed in automobile advertising. Subjects were asked to state their level of satisfaction and dissatisfaction with each feature on separate satisfaction and dissatisfaction six-point scales ranging from "not at all" to "a great deal." Respondents could indicate levels of both satisfaction and dissatisfaction for the same attribute, as would occur for "mixed experience," although many did not. For the course study, the literature on course evaluation (e.g., Marsh 1984) was studied for generally agreed upon dimensions of educational experience. Selected items in each of the major categories (e.g., instructor, work load, evaluation) were culled from this literature and used to construct an 18-item list. The attribute (dis)satisfaction indices were created by summing over the 19 (auto) or 18 (course) attributes.6

**Disconfirmation.** Disconfirmation was measured on a disconfirmation scale reported in Oliver (1980). It contains three “better-worse than expected” items sampling benefits, problems, and overall performance.

**Satisfaction.** A 12-item Likert-type scale expanded from one originally reported in Oliver (1980) and tested in Oliver and Westbrook (1982) was used in its entirety for the automobile sample. Reliabilities in the 0.9 range are reported in these tests as well as in other studies where this scale or abbreviations of it have been used (Bearden and Teel 1983; Oliver and Bearden 1985; Oliver and Swan 1989). This scale differs from the attribute satisfaction scales in that it measures domains of satisfaction (e.g., right decision, enjoyment, good experience) and not product features per se.

Modification of this scale was required for the course sample. Because the class was a required marketing principles course and students did not have the option of selecting it (see n. 4), items in the global satisfaction scale regarding course selection (e.g., "My decision to

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**TABLE 1**

DESCRIPTIVE STATISTICS FOR STUDY MEASURES

<table>
<thead>
<tr>
<th>Measure</th>
<th>Autos (n = 125)</th>
<th>Course (n = 178)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length</td>
<td>$\bar{x}$</td>
</tr>
<tr>
<td><strong>Affects:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>5</td>
<td>3.31</td>
</tr>
<tr>
<td>Joy</td>
<td>5</td>
<td>3.41</td>
</tr>
<tr>
<td>Anger</td>
<td>5</td>
<td>1.58</td>
</tr>
<tr>
<td>Disgust</td>
<td>5</td>
<td>1.55</td>
</tr>
<tr>
<td>Contempt</td>
<td>5</td>
<td>1.49</td>
</tr>
<tr>
<td>Shame</td>
<td>5</td>
<td>1.38</td>
</tr>
<tr>
<td>Guilt</td>
<td>5</td>
<td>1.49</td>
</tr>
<tr>
<td>Sadness</td>
<td>5</td>
<td>1.79</td>
</tr>
<tr>
<td>Fear</td>
<td>5</td>
<td>1.37</td>
</tr>
<tr>
<td><strong>Model variables:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute satisfaction</td>
<td>6</td>
<td>3.91</td>
</tr>
<tr>
<td>Attribute dissatisfaction</td>
<td>6</td>
<td>1.47</td>
</tr>
<tr>
<td><strong>Positive affect (see text)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative affect:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External</td>
<td>5</td>
<td>1.54</td>
</tr>
<tr>
<td>Internal</td>
<td>5</td>
<td>1.44</td>
</tr>
<tr>
<td>Situation</td>
<td>5</td>
<td>1.58</td>
</tr>
<tr>
<td>Disconfirmation</td>
<td>7</td>
<td>4.87</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>5</td>
<td>3.96</td>
</tr>
</tbody>
</table>

*Not intended to be an internally consistent scale.

*Dimensional (e.g., factor) analysis was not used because of the nature of attribute experience, which is cumulative over discrete events. Two highly correlated attributes, which would load on a single dimension, could have singular, additive impacts on (dis)satisfaction. This additivity would be obscured if dimensions were used.
take this course was a wise one") were eliminated, which resulted in a six-item scale for the course sample.

Alpha reliability coefficients for all scales are shown in Table 1. For Izard’s (1977) affects, all values equaled or exceeded 0.7, a level considered acceptable for basic research. Generally the results were comparable across samples. Results from the other study variables showed that all coefficients were in excess of 0.8 in the auto sample. In the course evaluation study, coefficients in the 0.6 range appeared for internally and situationally attributed negative affect and for disconfirmation. While these values are lower than one might prefer, they were thought to be sufficient for model comparison purposes. Finally, no reliabilities are reported for the positive affect construct as interest and joy are used here as separate indicators and the reliabilities for these scales appear in the upper part of the table.

Analysis

The system of equations represented by the model in Figure 2 is as follows:

\[
\text{satisfaction} = \beta (\text{positive affect, negative affect, attribute satisfaction, attribute dissatisfaction, disconfirmation})
\]

\[
\text{positive affect} = \beta (\text{attribute satisfaction, attribute dissatisfaction})
\]

\[
\text{negative affect} = \beta (\text{attribute dissatisfaction, attribute satisfaction})
\]

where the following items are used to represent each of the constructs above: satisfaction: the 12 (auto) or six (course) satisfaction scale items; positive affect: the interest and joy scales; negative affect: the negative internal, external, and situational scales; attribute satisfaction: the net attribute satisfaction index; attribute dissatisfaction: the net attribute dissatisfaction index; disconfirmation: the three disconfirmation scale items.

The model in Figure 2 is recursive and includes sequential relations where some variables (e.g., the affects) are both dependent and independent. Thus, ordinary least squares analysis will not give consistent or unbiased estimates because of the fact that the nondependent endogenous variables in an estimated equation will be correlated with the disturbance term. In this situation, a procedure such as two-stage least squares (TSLS) is required. Two-stage least squares analysis is often preferred over other instrumental variable techniques for its simplicity and applicability to a variety of models (Johnston 1984). Bolton and Drew (1991) have previously used TSLS in a satisfaction investigation where they modeled satisfaction as a function of performance and quality as a function of satisfaction.

The specific TSLS estimation procedure used is from Jöreskog and Sörbom (1987), who employ a measurement model for latent variables with multiple indicators (i.e., positive affect, negative affect, satisfaction, and disconfirmation as modeled here). The procedure uses the TSLS instrumental variable technique for both the measurement and structural models and produces standard error estimates for the model parameters. Model estimates were calculated for each data set separately.

RESULTS

Measurement Model and the Structure of Affect

The top part of Table 2 shows the measurement model for the two latent affect constructs. (Significant \(t\)-statistics, all \(p < .01\), were obtained for all indicators for disconfirmation and satisfaction over both samples and are not shown here for brevity.) The summary affects were represented by interest and joy for positive affect, and external, internal, and situational affect for negative affect. The significance of the standardized loadings for these five affect categories is used to test Hypothesis 1, which proposes the affect structure of the modified Izard (1977) scheme tested here.

The findings in Table 2 show that the negative affect dimensions of external, internal, and situational affect are supported. All nonfixed loadings over both samples were highly significant (the fixed parameter having the highest loading). This same pattern was also true for positive affect in the course sample, where both interest and joy attained high loadings. In the auto sample, however, joy did not load significantly on the positive affect dimension, which was represented primarily by interest. Thus, Hypothesis 1 was not supported for positive affect in the auto sample, which suggests that interest and joy may be separate constructs for this product category.

To test for the dependence or independence of positive and negative affect, the estimated correlation between the positive and negative affect latent constructs was determined. For the course sample, this value was 0.092 (not significant), which supports the independence argument. However, for the auto sample, this correlation was 0.264 (\(p < .01\)), suggesting a positive correlation. Analysis showed that this finding was due to the positive correlation between interest and negative affect (\(r = 0.288, p < .01\)) in the auto sample. The correlation between joy and negative affect was \(-0.328 (p < .01)\). This latter set of findings in the auto sample

\(^{A}\text{A likely explanation for these low attribution dimension reliabilities in the course sample is the possibility that little self-blame and fear or sadness would be expected for this group because of the lack of choice addressed in n. 4. The item contributing to the low disconfirmation reliability is that of problem disconfirmation. No explanation for this is immediately apparent.}
adds further to the argument that interest and joy may be separate and distinct dimensions for the durable goods category investigated here.

Model Relationships

Table 2 also tests for the effect of attribute satisfaction/dissatisfaction influences on the affects (Hypothesis 2) over both samples separately. Generally, positive affect was strongly related to attribute satisfaction, as hypothesized. Contrary to Hypothesis 2, however, attribute dissatisfaction did not reduce the expression of positive affect. Both coefficients were nonsignificant. In like manner, negative affect was related to attribute dissatisfaction in the expected direction in both samples. In addition, negative affect was inversely related to attribute satisfaction in the auto sample, a hypothesized crossover effect.

The satisfaction relationships are also shown in Table 2, where the results for both samples are found to be similar. Satisfaction was a positive function of attribute satisfaction and a negative function of attribute dissatisfaction, although only the auto sample generated a significant coefficient in this latter case. Thus, Hypothesis 3 was fully supported for the auto sample and partially supported for the course sample. The affects, in turn, contributed further to the satisfaction equation, with positive affect and negative affect displaying significant coefficients of the correct sign in both samples. Thus, Hypothesis 4 was supported. Finally, the disconfirmation coefficient is highly significant in both samples, indicating that cognition remains as a necessary component of satisfaction. Thus, Hypothesis 5 is also supported.

Generally, the coefficients of determination for the satisfaction relationships were large and highly significant ($p < .001$). Those for the affect relationships were very adequate ($p < .01$), the exception being negative affect in the course sample, which, nonetheless, was significant at the .01 level.

For comparative purposes, various subsets of the full model in Figure 2 were tested. These included satisfaction variance estimates as caused by (a) attribute satisfaction/dissatisfaction only, (b) affect only, (c) disconfirmation only, (d) affect and attribute (dis)satisfaction, and (e) affect and disconfirmation; model (f) is the full model variance estimate. These results are shown in Table 3; all are significant at $p < .01$.

Note that attribute satisfaction correlates more highly with satisfaction in the auto sample while affect is more highly correlated in the course sample and that disconfirmation is the best predictor in the auto sample while affect remains a better predictor in the course sample. Moreover, the combination of affect and disconfirmation is more predictive of satisfaction than is the combination of affect and attribute satisfaction/dissatisfaction. The full model integrates the variance explained over all subsets in both samples.
Because interest and joy did not appear to be equally representative of positive affect in the auto sample, the possibility that these discrete emotions contribute to satisfaction separately was entertained in a separate analysis of the auto sample, shown in Table 4. These findings show that attribute satisfaction has a greater effect on joy than on interest, although both relations are significant. Attribute dissatisfaction was unrelated to either emotion, as was true in the combined analysis in Table 2. Whereas the coefficient of determination in the joy equation was highly significant, the $R^2$ value for the interest equation attained significance at only the .05 level. The negative affect relations were not affected by the separation of interest and joy in the analysis.

The prediction of satisfaction for this new analysis showed some divergence from that in Table 2. Attribute satisfaction and dissatisfaction had direct effects in the hypothesized direction as before. However, joy appeared as the only affect influence on satisfaction. Neither the interest nor negative affect influences were significant. Disconfirmation emerged as a major satisfaction influence as before. Apparently, interest does not appear as a component of positive affect for automobile satisfaction, which explains the divergence of positive affect loadings in Table 2.

DISCUSSION

The discussion addresses four major issues. First, the structure of affect in the consumption process is discussed as it relates to the framework tested here. Second, the role of attribute satisfaction/dissatisfaction is introduced as possibly instrumental in generating these feelings. Third, the degree to which attribute satisfaction and affective states complement one another and add to disconfirmation in explaining satisfaction is discussed. Fourth, the theoretical implications of this expanded theory are explored with reference to existing views of satisfaction.

Structure of Affect

This study suggests that the structure of affect in consumption may have two dimensions relating to a positive affect factor and three negative factors based on the locus-of-causality attributional dimension (Smith and Ellsworth 1985; Weiner 1986). The first of the negative causal ascriptions appears to be externally targeted at the provider of the product or service, the second apparently is directed inward at the user him/herself, while the third may be situational in nature.

The positive dimension findings did not appear consistently across the two product and service categories investigated here. For the course instruction sample, both interest and joy were representative of positive affect with similar loadings. However, the automobile sample findings suggested that these two affects are processed separately and cannot be assumed to be correlated. When analyzed separately, only joy was found to be related to satisfaction. Apparently interest is a state of arousal or activation that, in the case of automobiles, may pertain to positive or negative events, while joy is a somewhat intense form of pleasure (Daly et al. 1983; Storm and Storm 1987; Watson and Tellegen 1985). Further research is needed to determine when, and for what product and service categories, interest and joy are correlated and when they are not.

Role of Attribute Experience

The possibility that satisfaction with the functional elements of the product could have some relation to the affects experienced by the consumer was investigated. This phenomenon was referred to as the attribute basis of satisfaction and provides an analogue to most commercial surveys where attribute ratings of one sort or another are correlated with overall satisfaction judgments. The role that the affects play in this process was also studied, and a likely mechanism (i.e., whether this is a mediating role in a true causal sequence) was also tested.

The results from the two samples suggest quite strongly that (a) attribute satisfaction affects overall satisfaction directly, (b) attribute satisfaction influences positive affect, (c) attribute dissatisfaction affects negative affect, and (d) positive and negative affect are positive and negative influences, respectively, on satisfaction. In addition, for the auto sample only, attribute
satisfaction decreases negative affect while attribute dissatisfaction decreases satisfaction.

Thus, of the five hypothesized predictors of satisfaction in Figure 2, all were supported for the automobile sample with interest and joy as joint indicators (although the influences of negative affect and interest were not supported with joy and interest separated). In the course sample, all hypothesized predictors except attribute dissatisfaction were supported. In addition, positive affect was a function of attribute satisfaction and negative affect was a function of attribute dissatisfaction in both samples. However, only one of the two hypothesized crossover effects was observed in the auto sample where attribute satisfaction was found to decrease negative affect. Finally, attribute dissatisfaction had no effect on positive affect in either sample.

Relation to Disconfirmation Influences

As suggested in Oliver (1980), the expectancy disconfirmation paradigm is primarily cognitive in nature because the comparison process in disconfirmation judgments requires the deliberate processing of information. In contrast, the affective process is thought to be, at least in part, not under conscious control. Thus, the cognitive and affective responses in postpurchase judgments may be seen as distinct components in response to environmental events, and each would appear to introduce its own influence on the consumption process.

The relative effects of affect and cognition pose another issue. It appears from the findings that disconfirmation is the more influential of the variables tested here. It had the greatest effect, as measured by the structural coefficient, in both the auto and course satisfaction equations. Whether this suggests that disconfirmation is the most important antecedent in a group of independent effects or is an artifact of the present data is unknown. It is noted, however, that the dominating effect of disconfirmation over affective response was also found in Westbrook (1987), and the present study now corroborates this result.

Theoretical Implications

The theoretical implications exist primarily in the domain of discovery of the underlying structure of the satisfaction response. As noted, an attribute-only satisfaction analysis provides little insight as to the mechanism by which consumers process attribute outcomes into satisfaction. The expectancy disconfirmation paradigm filled some of this void, but did not seem capable of explaining more than 35 percent of the variance in satisfaction (e.g., Oliver 1980). By merging affect, disconfirmation, and attribute-based satisfaction judgments, explained variance values of 85 percent (autos) and 81 percent (course) were obtained here. And, without the benefit of attribute judgments, Westbrook (1987) reported $R^2$ values of 59 percent (autos) and 37 percent (cable television). Thus, the three sets of variables studied here appear to capture more variance in satisfaction than has been obtained elsewhere.

Awaiting further development is a better theoretical specification of the satisfaction and postpurchase process. Insights available from this study revolve around the separate roles played by the positive and negative affects and their relation to satisfying and dissatisfying attribute experiences. The data show that positive affect is mostly influenced by attribute satisfaction and not dissatisfaction. In contrast, negative affect appears to respond to both positive and negative attribute experiences in the auto sample. This implies that, for durable goods products, negative affect may respond to attribute dissatisfaction as one would expect and may be reduced by generally positive attribute experiences. Thus, attribute satisfaction may have dual beneficial effects, while attribute dissatisfaction may work primarily to cause increased levels of negative affect.

Another theoretical implication concerns the direct effects of attribute satisfaction/dissatisfaction on overall satisfaction. This is one mechanism contained in the attribute basis of satisfaction whereby satisfaction is seen partly as a function of direct attribute experiences. However, the data show clear mediating linkages through the affects, which then affect satisfaction. This implies that attribute experiences may have both direct and indirect effects on product satisfaction.

Limitations

As with cross-sectional studies generally, the findings here may have been affected by common method vari-
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ance. This is a particularly troublesome issue in satisfaction research because the consumption experience itself may generate a primarily positive or negative feeling state that will obviously correlate with other responses in consumption. This same difficulty can also pose problems in obtaining accurate estimates of the model coefficients.

A second concern is that the affect process in the satisfaction response varies over product and service categories and populations. To some extent, this issue was addressed with the use of two consumption settings and two samples of respondents. However, the data show that, despite differences in the magnitude of some relations, the structural equation results were fairly consistent across both sets of data tested here. Differences were most apparent in the auto sample, where interest and joy appeared to be separable affects and where more of the hypothesized relations were significant. Nevertheless, further testing on more varied product categories is needed.

Summary

This study both extends and departs from prior work on the role of affect in the consumption experience in a number of ways. It confirms the existence of positive and negative affect in consumption, corroborates the degree to which affect appears to be a response separate from disconfirmation, and supports the indirect mechanism of the attribute basis of satisfaction, which suggests a mechanism by which affective response mediates the effects of the attributes on satisfaction. Thus, the attribute influences, the influence of positive and negative affect, and the disconfirmation coefficients point to complexity in the satisfaction formation process not yet fully understood; additional work in the area is needed to address this complexity.

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