# Measuring Emotions in the Consumption Experience

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Although consumption-related emotions have been studied with increasing frequency in consumer behavior, issues concerning the appropriate way to measure these emotions remain unresolved. This article reviews the emotion measures currently used in consumer research and the theories on which they are based; it concludes that the existing measures are unsuited for the purpose of measuring consumption-related emotions. The article describes six empirical studies that assess the domain of consumption-related emotions, that identify an appropriate set of consumption emotion descriptors (the CES), and that compare the usefulness of this descriptor set with the usefulness of other measures in assessing consumption-related emotions.

The role of affective processes is an important subject of study in consumer behavior (see Cohen and Areni [1991] for a review). Although most studies of consumer affect have focused on consumers' responses to advertising, research concerning emotions that result from consumption itself has appeared with increasing frequency in the literature. Scholars have examined the emotions generated by the use of specific products (Holbrook et al. 1984; Mehrabian and Wixen 1986), by services (Oliver 1994), by one's favorite possessions (Schultz, Kleine, and Kernan 1989), or more generally in a variety of consumption situations (Derbaix and Pham 1991; Havlena and Holbrook 1986; Richins, McKeage, and Najjar 1992). Other research has investigated the relationship between consumption emotions and satisfaction (e.g., Mano and Oliver 1993; Westbrook 1987; Westbrook and Oliver 1991). All of these studies have found emotions to be an important component of consumer response, and the importance of emotions in the sphere of consumer behavior has been firmly established.

In their study of consumption-related emotions, consumer behavior scholars have based much of their work on frameworks of emotion developed in psychology. Although the foundation laid by theorists in this field has provided a useful starting point for investigation, it is not clear that the measures of emotion developed by these theorists are appropriate for consumer behavior applications. At present, consumer behavior scholars have scant information about the nature of emotions in the consumption environment or how best to measure them. Lacking this information, they have tended to rely on precedence when choosing measures rather than being guided by an informed consideration that matches the measurement method to the substantive problem at hand. The present article attempts to help researchers make better choices when assessing consumption emotions by addressing three objectives. The first is to examine in a comprehensive way the emotional states associated with consumption. The second objective is to assess the usefulness of existing emotion measures in assessing consumption-related emotions. Finally, an alternative method for assessing consumption-related emotions is proposed and tested.

## MEASURES OF EMOTION

To assess emotions in the consumption or any other domain, one must be able to characterize emotion and distinguish it from other states. Unfortunately, this has not been an easy problem to solve. Plutchik (1980) reviewed 28 definitions of emotion. He concluded that there was little consistency among the definitions and that many of them were not sufficiently explicit to give a clear idea what an emotion actually is.

Lacking a clear definition, some authors have attempted to enhance understanding of emotions by more completely specifying their characteristics. One of the clearest explications of these characteristics, and one that appears to be gaining acceptance, was proposed by Ortony, Clore, and their colleagues (Clore, Ortony, and Foss 1987; Ortony, Clore, and Collins 1988). According to their framework, an emotion is a valenced affective reaction to perceptions of situations. They exclude from the domain of

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emotion those descriptors that refer to (1) nonvalenced cognitions, such as interest and surprise; (2) bodily states such as sleepy and droopy; and (3) subjective evaluations of people, such as self-confident or "feeling abandoned." This characterization of emotion was adopted for purposes of the research reported here.

When measuring emotional states that arise during consumption, authors most frequently have used measures developed by emotion theorists. The measures most commonly used for this purpose are described below.[1]

## The Basic Emotions and Their Measurement

Some scholars have attempted to order the universe of emotions by identifying a set of basic or fundamental emotions, although there is no widespread agreement concerning the number or the nature of basic emotions. In one approach, basic emotions are viewed as biologically based and universally experienced. The work of two scholars who take a biological perspective has had particular impact in the field of consumer behavior.

Both Plutchik (1980) and Izard (1977) place importance on the role of emotions in enhancing an organism's chances of survival (Darwin [1872] 1979). Plutchik used an evolutionary perspective to identify eight "primary" emotions consisting of fear, anger, joy, sadness, acceptance, disgust, expectancy, and surprise. According to Plutchik (1980, p. 138), these eight emotions have adaptive significance in the struggle for survival and are identifiable in some form at all phylogenetic levels in the animal kingdom. He developed the Emotions Profile Index (Plutchik and Kellerman 1974) to measure these emotions in humans. The index contains 62 forced-choice emotion descriptor pairs; responses are transformed into scales representing each of the eight emotions. Holbrook and Westwood (1989) developed their own shorter measure of Plutchik's primary emotions. Their scale contains three adjectives for each emotion, and respondents report the felt intensity of each of the adjectives (see also Havlena and Holbrook 1986).

Izard examined emotions by focusing on the role facial muscle responses associated with emotion play in enhancing survival. Based in part on the identification of emotions that are universally associated with and recognizable in distinctive facial expressions, the 10 fundamental emotions Izard proposed consist of interest, enjoyment, surprise, distress (sadness), anger, disgust, contempt, fear, shame/shyness, and guilt. Izard's (1977) Differential Emotions Scale (DES) measures these 10 emotions and is available in four forms. The DES-II has been used most frequently in consumption emotion research. It contains 30 adjective items, three to measure each of Izard's 10 fundamental emotions. Several authors have noted the predominance of negative emotions in Izard's scale and the need for a broader sampling of emotions (Laverie, Kleine, and Kleine 1993; Mano and Oliver 1993; Oliver 1992).

Plutchik and Izard have argued that other, more complex emotions are the result of mixtures of their "basic" emotions. However, the mechanisms by which love, hate, envy, relief, pride, and other everyday emotions can be identified through the use of the DES or Plutchik's measure have not been well explained. The reliance on basic emotions has been criticized on other grounds as well; a particularly cogent criticism is offered by Ortony and Turner (1990). After an extensive review of the basic emotions literature, these authors conclude that "there is no coherent nontrivial notion of basic emotions as the elementary psychological primitives in terms of which other emotions can be explained" (p. 315). This calls into question the validity of measures founded on the notion of basic emotions.

## The PAD Measure

The PAD (pleasure-arousal-dominance) scale developed by Mehrabian and Russell (1974) has been used by marketing scholars to assess emotional responses to some types of marketing stimuli. The objective of this scale is quite different from that of measures based on emotion theory, both in terms of context and content. With respect to context, the PAD scale was designed not to capture the entire domain of emotional experience but rather to measure emotional responses to environmental stimuli such as architectural spaces. Although the scale may be suitable to assess consumers' responses to store environments, for instance, its validity in assessing emotional responses to the interpersonal aspects of shopping and consumption cannot be assumed.

A difference in content between the PAD scale and the other measures is even greater than the difference in context. The PAD scale does not purport to measure emotions per se; instead, it assesses the perceived pleasure, arousal, and dominance elicited by a set of environmental stimuli. It contains 18 semantic differential items, six each for pleasure, arousal, and dominance. One cannot unequivocally infer the existence of specific emotion states such as joy, guilt, anger, or fear from a person's PAD scores. Thus, the PAD scale is best used when a researcher is interested in measuring the dimensions underlying emotion states and does not need to know the specific emotions being experienced by study participants.

## Measures of Emotion Responses to Advertising

Emotion responses to advertising have been investigated extensively (see Wiles and Cornwell [1990] for a review of measures). Although research measuring advertising-induced emotions is useful in its own right, its relevance to consumption-induced emotions is tangential be-

[1] This article does not attempt a comprehensive review of the emotions literature. Interested readers are referred to Cohen and Areni (1991), Frijda (1986), and Lewis and Haviland (1993).

cause of two important differences between the emotions induced by advertising and those that occur during consumption. First, many of the emotions elicited by advertising are vicarious rather than directly experienced and thus are likely to be of lower intensity. Aaker, Stayman, and Vezina (1988) have explicitly recognized the low intensity of emotions generated by advertising. Second, many advertising executions are dramatic enactments that are capable of representing and perhaps eliciting the entire range of feelings available to consumers. The range of emotions elicited by consumption is probably more restricted.

Because of the importance of attention and cognitive response in determining advertising effectiveness, advertising measures frequently assess interest, boredom, skepticism, and other cognitive responses. Although highly relevant in the advertising context, these reactions are probably less relevant to consumption. Including such descriptors unnecessarily increases the length and cumbersomeness of a measure when it is used to assess consumption emotions. In addition, many of the advertising response measures were designed for use in a laboratory setting and are not well suited to use in surveys or field studies because of their considerable length. For instance, Aaker et al. (1988) used 180 feeling descriptors.

Two research teams have developed shorter measures. Batra and Holbrook (1990) describe a scale with 34 emotion descriptors that assesses 12 types of affective responses to advertising. These measures showed acceptable levels of reliability and evidence of validity when used to assess responses to advertising. Edell and Burke (1987) found that the feelings elicited by ads could be summarized by three factors: upbeat feelings, negative feelings, and warm feelings. Their 52-item measure is effective in assessing the underlying dimensions of the emotion states elicited by advertising; it is not designed to measure the specific emotion states experienced during consumption.

## Limitations of Existing Measures

Although the emotions measures described above have proved useful in the contexts for which they were developed, several limitations in their application to the study of consumption-related emotions must be recognized. In addition to the limitations associated with each scale, mentioned above, the following considerations limit their usefulness. First, all of the scales ignore some of the emotions that are particularly central in people's lives. None of the measures grounded in emotions theory assess feelings of love, for instance.

Second, most of the measures contain some terms not familiar to many consumers. Words such as "melancholy," "contemptuous," "sheepish," "revulsion," and "brooding" are not part of the everyday vocabulary of most people, yet they appear in the scales described above. Some measures are also confusing. The PAD scale uses semantic differential items in which the two anchor points are not always clear opposites (e.g., bored and relaxed; cared for and in control), potentially causing confusion among respondents. Consumer behavior researchers have routinely revised or adapted existing emotions measures for use in the consumer context, which suggests that they recognize some of these problems.

Finally, the appropriateness of using existing measures to assess emotions elicited in consumption situations is unknown. Emotions are context specific, and the emotions that arise in the context of intimate interpersonal relationships are likely to differ in intensity and quality from the emotions experienced when buying a pair of shoes. At its most intense level, love may cause a father to give his life to rescue his child from a burning building. Intensely experienced anger can result in assault or murder. It is quite unlikely that consumption experiences will result in such extremes of emotional intensity.

Consumption emotions may also differ in character from emotions experienced in other contexts; that is, some emotions experienced in the context of interpersonal relationships may rarely be experienced during consumption. In their desire to represent the full range of emotional experience, emotion scholars usually examine many possible contexts without focusing on any particular one. Whether the measures developed for this larger perspective are efficient and appropriate for the types of emotions experienced in consumption situations has not been systematically investigated. Thus, the validity of the measures for this purpose is unknown.[2]

It is apparent that existing measures of emotions have important shortcomings when used to assess emotions in the consumption context. The empirical work described below was motivated by the desire to identify a more appropriate measurement approach. The following objectives guided measure development. First, the measure should cover the range of emotions most frequently experienced in a wide range of consumption situations, and it should measure these emotions with an acceptable level of reliability. Second, the measure should be brief enough that it could be used in surveys or field studies. In keeping with these objectives, the resulting measure reflects the diversity of consumption emotions typically experienced but does not assess every possible consumption emotion. Finally, the emotion descriptors in the measure should be words that are familiar to and readily understood by consumers.

For purposes of this research, the term "consumption" is used broadly to include anticipatory consumption and product acquisition, as well as postpurchase possession and use of the product. Consumption-related emotions

[2]Havlena and Holbrook (1986) compared two emotion theory frameworks in the consumption context and found that the PAD dimensions identified by Mehrabian and Russell (1974) were better able than Plutchik's (1980) categories of emotions to discriminate among 149 consumption experiences described by consumers. However, the ability of either of these frameworks to adequately characterize the *nature* of the consumption experiences themselves was not studied.

include directly experienced emotions that result from the consumption of products. They exclude vicarious (or "aesthetic") emotions associated with artistic works such as books, plays, and movies or that may be induced by advertising. The arts can invoke the entire range of emotion, and an instrument that covers this broad range would be unwieldy and inefficient in measuring emotions associated with other consumer products.

## STUDY 1

An exploratory study was carried out to identify the emotions consumers experience during consumption and to develop a preliminary set of descriptors for those emotions. Open-ended surveys were used because they allow identification of the emotions experienced in a variety of consumption situations; they also provide information about consumers' own vocabulary for describing emotional experiences.[3]

### Methods

*Questionnaires.* Six different survey forms were developed to elicit reports for six different types of consumption situations: use of a favorite possession, a recent important purchase, or a recent purchase of a clothing item, a food item, a durable good, or a service. For the situations involving purchases, the questionnaire contained items about the nature of the object or service purchased and open-ended questions concerning respondents' emotions when considering making the purchase, when actually making the purchase, and when using the product. At each stage, there were prompts for both positive and negative feelings. The "favorite possession" survey asked about positive and negative feelings when "using or looking at" the possession.

*Respondents.* Surveys were completed by 49 undergraduate business students during class and by 48 of 180 adult consumers who received a questionnaire by mail. Except for student subjects who also reported feelings experienced when disposing of a possession, respondents reported their feelings for one consumption situation only.

*Analysis.* Two coders who had been briefed on the nature of emotions examined written responses to the questionnaire and independently identified the emotion words used by each respondent. Coders independently identified identical emotion terms in the written protocols of 94.8 percent of the respondents. Disagreements were resolved by the author.

### Results

Positive emotions predominated among the feelings described by respondents: happiness, relief, and excitement were mentioned most frequently. Among the negative emotions, worry, sadness, and guilt were most common.

The emotion descriptors from this study were combined with emotion-like terms identified in earlier studies of consumption emotions (Gardner and Rook 1988; Havlena 1985; Havlena, Holbrook, and Lehmann 1989; Richins et al. 1992; Schultz et al. 1989), descriptors from standard emotions measures, and emotion words from Shaver et al.'s (1987) study of emotion concepts, yielding a list of 285 words. In line with Ortony et al.'s (1988) criteria for emotions, this list was reduced by eliminating (1) words that refer to bodily states (e.g., "sleepy"), (2) subjective evaluations that become emotion-like only when juxtaposed with the word "feeling" (e.g., "feeling confident," "feeling stupid"), (3) behaviors (e.g., crying), and (4) action-tendency words (e.g., "hesitant," "tempted"). Descriptors that have been singled out by prior researchers as being largely cognitive in nature (e.g., "interested," "confused")[4] or that have been rated as "not emotions" or were unfamiliar to subjects in prior studies were also eliminated (Clore et al. 1987; Shaver et al. 1987). Emotion descriptors were phrased in their adjective forms.

The reduced list contained 175 emotion words and included descriptors for each major emotion category described by most theorists except for "interest," which many consider a nonvalenced cognitive state rather than an emotion (e.g., Morgan and Heise 1988; Ortony et al. 1988).

## STUDY 2

Study 2 was designed to reduce the set of 175 items by eliminating emotion descriptors that are unfamiliar to or rarely used by respondents and to identify which of several descriptors with similar meanings are least likely to be used by consumers to describe their own feelings.

### Data Collection

The 175 emotion descriptors (plus descriptors for satisfaction and dissatisfaction) were randomly divided into two lists of 88 and 89 descriptors. One hundred twenty undergraduate business students participated in the study; each student responded to only one list of descriptors.

The research was described to respondents as a study to identify the kinds of words that ordinary people use to

[3]Prior to undertaking the surveys, six depth interviews were carried out for the same purpose. While the depth interviews were useful in providing a wealth of detail about specific consumption situations, they were not as useful as had been hoped in identifying a broad range of consumption-related emotions. Even though probes were used, in any one interview only a small number of emotions were spontaneously mentioned by a particular respondent. Thus, the depth interviews were impractical for obtaining information about a large variety of consumption-related emotions.

[4]Consistent with Shaver et al. (1987), however, surprise was retained because it appears in so many taxonomies of emotion.

describe their feelings; they were instructed *not* to report how likely they were to experience a particular feeling on the list but to indicate how likely they would be to use a particular word if they did experience that feeling. Respondents used a four-point scale (0 = not at all likely, 3 = very likely) and were provided the option of indicating that a word was unfamiliar.

## Results

Likelihood of usage ratings, supplemented with information from two word usage lexicons (Francis and Kucera 1982; Hindmarsh 1980), were used to eliminate unsuitable items. Ten words that were rated as unfamiliar by more than 5 percent of the sample or that had mean likelihood ratings less than 0.5 were eliminated.

Before making further deletions, the remaining 165 words were grouped according to the 25 emotion subcategories identified by Shaver et al. (1987, Fig. 2).[5] This was done to preserve the range of emotions represented in the set of descriptors.

Some of the emotion subcategories contained a large number of nearly synonymous words. When descriptors were close in meaning, as revealed by Storm and Storm's (1987) taxonomic study of emotions and by thesauri, and one word had a considerably lower likelihood of usage rating, the word with the lower likelihood rating was eliminated. Altogether, 46 emotion descriptors were eliminated in study 2, leaving 129 for further analysis.

# STUDY 3

The emotion descriptor set covers the range of emotions identified by scholars as well as by consumers. Study 3 examined whether any of the emotions from this broader domain rarely occur in the consumption context. Survey methods were used.

## Data Collection

*Measures.* Separate survey forms were developed to elicit reports for four different consumption situations similar to those used in study 1. Study participants answered several open-ended questions concerning the specific product or possession and its acquisition, then indicated how often they had experienced various emotions concerning the object in question, using the options "never," "rarely," "sometimes," and "often." To avoid fatigue, each participant reported on one-third of the emotions in the set.

*Respondents.* Surveys were mailed to a random sample of 750 households in a northeastern city; a reminder and a second copy of the questionnaire were mailed two weeks later. Usable responses were obtained from 258 adults. Surveys were also completed in class by 203 undergraduate business students.

[5]Fifty-four of the 165 words were not listed in Shaver et al.'s subcategories; judgment and thesauri were used to place them appropriately.

## Results

Respondents' frequency ratings were used to eliminate emotions that rarely occur in consumption contexts. Fewer than 10 percent of respondents reported that they had ever experienced eight of the emotions at some level in the consumption context they described; these emotion descriptors were eliminated. As in study 2, the remaining 121 words were grouped by emotion subcategory. When subcategories contained several descriptors with similar meanings (as judged in study 2), descriptors with markedly lower rates of occurrence were removed from the set. Twenty-four items were eliminated by this procedure, leaving 97 emotion descriptors.

# STUDY 4

Study 4 was carried out primarily to reduce the number of items in the emotion descriptor set so it would be more useful in survey and field research. A second outcome of the study, necessary to satisfactorily accomplish the primary goal, was to describe the multidimensional space of consumption-related emotions.

In studies 2 and 3, redundancy was assessed in terms of meaning similarity. A second way to assess redundancy is by co-occurrence; that is, if one emotion tends to be experienced whenever a second emotion is also experienced, and at the same intensity, the two emotion descriptors are redundant. Study 4 used this form of redundancy to further reduce the emotion descriptor set while still capturing the diversity of emotions experienced during consumption.

## Data Collection

*Measures.* Separate survey forms were developed to elicit reports for four types of consumption situations: a recent important purchase, a recent unsatisfactory purchase, a special possession, or a purchase the respondent hoped to make in the near future. Respondents answered several open-ended questions concerning the specific product or possession and indicated to what extent the specified consumption situation made them feel each of the 97 emotion descriptors. A four-point response scale was used ("not at all," "a little," "moderately," "strongly"). In order to control for possible order effects, two versions of the questionnaire were prepared for each consumption situation: one with emotion descriptors in alphabetical order and one with them in reverse alphabetical order.

*Respondents.* Usable surveys were completed in class or in a laboratory setting by 448 M.B.A. and undergraduate students from a variety of majors.

## Results

*Order Effects.* The possibility of order effects was assessed by two methods: multiple *t*-tests comparing the mean level of responses across the two orders, and analysis of the correlations between the descriptors' sequence number in the survey and mean reported intensity. There was no evidence for a systematic order effect.

*Dimensions of Emotion Experience.* The purpose of study 4 was to reduce the length of the emotion descriptor set while maintaining the diversity of emotion experiences associated with consumption. Although factor analysis is the usual technique for item reduction in scale development, the goal of factor analysis is to find the minimum number of factors that account for observed variance. Consistent with this goal of data reduction, several factor analytic studies of emotions have yielded two major factors of consumption-related emotions—one representing positive and the other representing negative affect (e.g., Oliver 1994; Richins et al. 1992; Westbrook 1987). However, as Westbrook and Oliver (1991), among others, have pointed out, using only the summed positive and negative affect measures does not capture the nuance, diversity, and patterning of emotions needed to fully understand the nature of the consumption experience. The data reduction objective of factor analysis is incompatible with the diversity objective of the present study.

Multidimensional scaling (MDS) is a more appropriate tool to meet study objectives. Redundancy among emotion descriptors can be examined by identifying descriptors with similar coordinates on the dimensions of the MDS solution, while diversity is assessed by examining the distribution of emotion descriptors in the multidimensional solution space. For the following analyses, the sample was randomly split into two subsamples of roughly equal size. MDS was performed separately on the two subsamples so that stability of the solution could be assessed.

Euclidean distance was calculated for each pair of emotion descriptors in the first subsample, and the resulting matrix was subjected to MDS analysis. Stress coefficient and interpretability criteria indicated that the two-dimensional solution was most appropriate. (Stress coefficients for the one-, two-, and three-dimensional solutions were .29, .16, and .12, respectively; variance accounted for by the three solutions was 89.1 percent, 93.8 percent, and 95.6 percent, respectively. The third dimension in the three-dimensional solution was not interpretable.)

Stability of the MDS solution was assessed by performing an MDS analysis on the second subsample and correlating the coordinates obtained in the two solutions across the 97 emotion descriptors. The solution showed remarkable stability: correlations were .99 and .95 for dimensions 1 and 2, respectively.

Figure 1 shows a plot of selected MDS weights obtained in the initial analysis. Some synonymous descriptors that occupy the same area of the MDS solution and others that occur in the most crowded areas of the MDS space have been excluded. The emotion space revealed in Figure 1 is a flattened circumplex, or ellipsis, showing greater differentiation among emotions on the first dimension than on the second. Although a number of studies have identified a circumplex representation of emotions (e.g., Larsen and Diener 1992; Russell 1980), findings of circumplex affect structure seem to depend on the presence of descriptors of physical states to yield a true circumplex shape (Scherer 1984; Shaver et al. 1987). In such studies, descriptors such as "sleepy" or "drowsy" usually constitute the extreme negative pole of the second dimension; descriptors such as "active" or "aroused" appear at the positive pole (see, e.g., Russell 1980; Watson and Tellegen 1985). The flattening of the circumplex when physical states are omitted is not surprising and is apparent in the results of other studies (e.g., MacKinnon and Keating 1989; Morgan and Heise 1988).

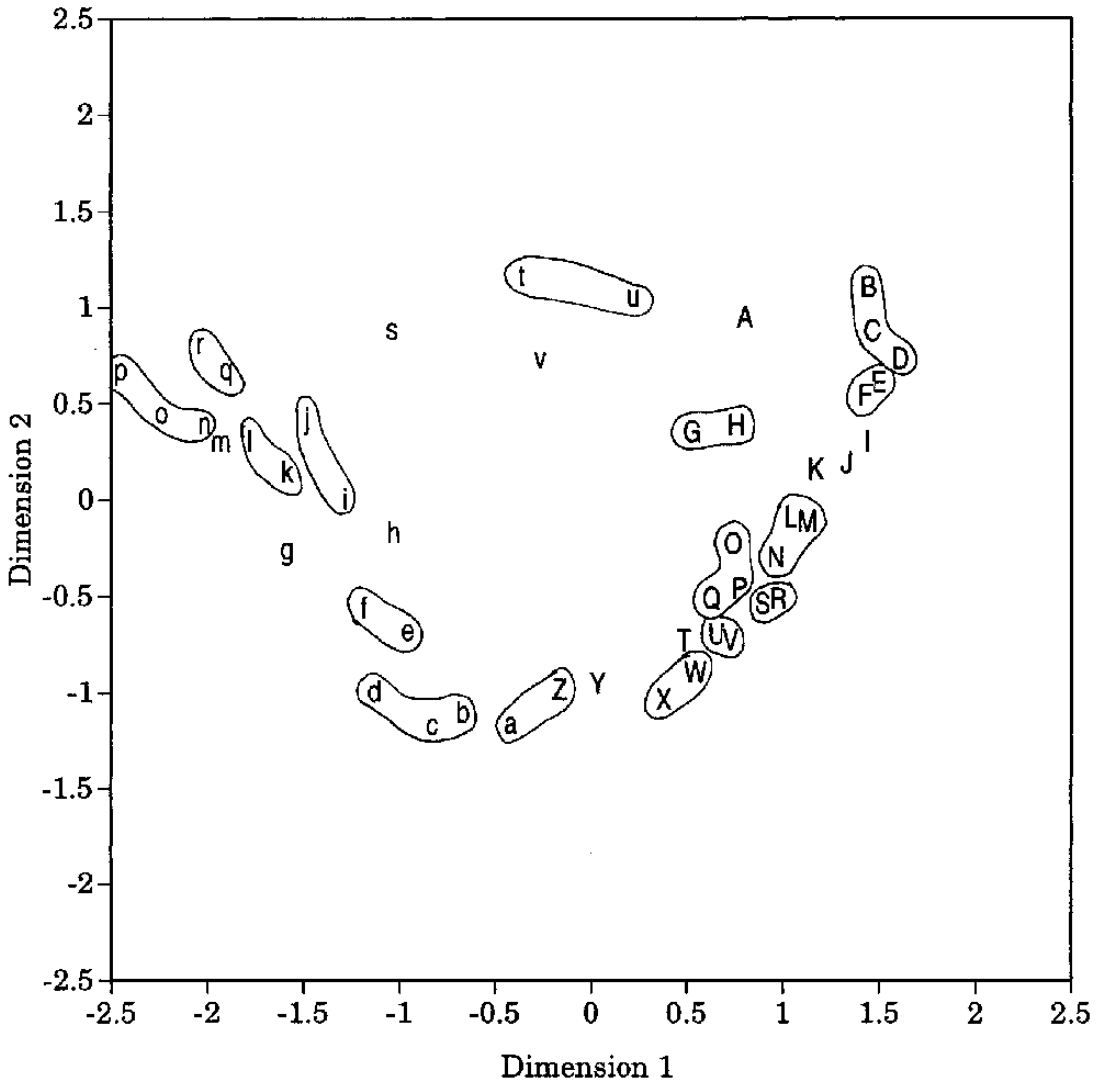
Consistent with earlier research, the first dimension of the MDS solution represented positivity-negativity of the emotion experienced. Descriptors with extreme coordinate values on the poles of the first dimension were "happy," "pleased," and "glad" (−2.53, −2.45, and −2.24, respectively) versus "disappointed," "displeased," and "angry" (1.73, 1.73, and 1.61, respectively).

Because the emotion descriptor set did not include physical states, the second dimension differs somewhat from that obtained in some earlier studies that included such descriptors. It is, however, similar to the second dimension obtained by Shaver et al. (1987), one of the few prior MDS studies that excluded measures of physical states. In the present study, emotion descriptors with extreme coordinate values on the poles of the second dimension were "sentimental," "caring," and "romantic" (−1.18, −1.18, and −1.17, respectively) versus "amazed," "annoyed," and "surprised" (1.15, 1.09, and 1.06, respectively). These descriptors are similar to those that anchored the poles of the second dimension of the two-dimensional solution obtained by Shaver et al. (sympathy, compassion, and sentimentality vs. astonishment, surprise, and amazement). Although these authors called their second dimension "intensity," perhaps a better description of the second dimension obtained in both studies is "receptivity" or "activity." When experiencing love, tenderness, or sentimentality (emotions that dominate the negative pole of dimension 2 in both studies), a person is open and receptive to others. Surprise, anger, and excitement are more outward and active states. Dimension 2 also bears resemblance to the "relatedness" dimension of emotion meaning identified by Davitz (1969).

*Descriptor Clusters.* A goal of study 4 was to identify redundant terms for purposes of reducing the set of emotion descriptors. Two criteria were examined in assessing redundancy: similarity of location in the multidimensional emotion space and semantic similarity, as assessed in studies 2 and 3.

**FIGURE 1**

PLOT OF MULTIDIMENSIONAL SCALING COORDINATES OF SELECTED EMOTION DESCRIPTORS, STUDY 4




NOTE.—Starting at the upper middle portion of the figure and continuing in a clockwise direction, letters in Figure 1 are defined as follows: *A*, impatient; *B*, frustrated; *C*, irritated; *D*, angry; *E*, unfulfilled; *F*, discontented; *G*, worried; *H*, tense; *I*, disgusted; *J*, furious; *K*, grouchy; *L*, depressed; *M*, miserable; *N*, sad; *O*, panicky; *P*, threatened; *Q*, afraid; *R*, ashamed; *S*, embarrassed; *T*, guilty; *U*, envious; *V*, jealous; *W*, lonely; *X*, homesick; *Y*, tender; *Z*, sexy; *a*, romantic; *b*, loving; *c*, sentimental; *d*, warmhearted; *e*, calm; *f*, peaceful; *g*, comforted; *h*, relieved; *i*, hopeful; *j*, optimistic; *k*, contented; *l*, fulfilled; *m*, proud; *n*, joyful; *o*, glad; *p*, pleased; *q*, enthusiastic; *r*, excited; *s*, eager; *t*, amazed; *u*, surprised; *v*, overwhelmed.

Examination of the MDS space revealed 16 clusters of emotion descriptors that occupied similar locations and shared similar meanings (see Table 1). Sample descriptors from these clusters are circumscribed in Figure 1 to show their position in the MDS space. The elliptical pattern of emotion descriptors in Figure 1 has some sparse areas, consistent with other studies that excluded physical states and other nonemotion descriptors (e.g., MacKinnon and Keating 1989; Morgan and Heise 1988). This is particularly true if the surprise descriptors are eliminated from the map, as recommended by several scholars (e.g., Mandler 1984; Ortony et al. 1988), in which case the emotion descriptors make a U-shaped pattern in the space. The upper-right extremity of the U consists of active negative emotions such as anger; the upper left extremity of the U includes active positive emotions such as joy and excitement; the bottom of the U is composed of "soft" or receptive emotions such as love, peacefulness, and loneliness.

The locations of emotion descriptor clusters in the MDS space are generally consistent with those obtained in other studies that have used similar criteria in choosing emotion descriptors, with one exception. In the present analysis, the cluster of variables relating to fear is closer

**TABLE 1**

CLUSTERS OF EMOTION DESCRIPTORS, STUDY 4

| Cluster and descriptors | Usage ratings, study 2 | Percent occurrence, study 3 | Percent occurrence, study 4 | Average *r* |
|---|---|---|---|---|
| Anger: | | | | |
| Frustrated[a] | 2.80 | 45.3 | 46.7 | .74 |
| Angry[a] | 2.70 | 31.7 | 38.0 | .80 |
| Irritated[a] | 2.55 | 26.5 | 43.5 | .78 |
| Annoyed | 2.71 | 41.7 | 45.5 | .77 |
| Aggravated | 2.27 | 35.1 | 44.6 | .76 |
| Upset | 2.79 | 27.3 | 38.2 | .73 |
| Mad | 2.75 | 24.5 | 37.1 | .79 |
| Furious | 2.07 | 20.1 | 27.2 | .73 |
| Discontent: | | | | |
| Unfulfilled[a] | 1.02 | 18.7 | 34.8 | .73 |
| Discontented[a] | .90 | 18.7 | 37.1 | .73 |
| Worry: | | | | |
| Nervous[a] | 2.88 | 34.5 | 41.3 | .45 |
| Worried[a] | 2.73 | 27.2 | 47.8 | .48 |
| Tense[a] | 2.58 | 30.9 | 46.7 | .48 |
| Concerned | 2.67 | 43.3 | 50.0 | .36 |
| Uneasy | 1.80 | 29.2 | 43.8 | .43 |
| Sadness: | | | | |
| Depressed[a] | 2.75 | 26.5 | 28.4 | .56 |
| Sad[a] | 2.67 | 26.5 | 26.3 | .53 |
| Miserable[a] | 2.48 | 15.2 | 20.5 | .57 |
| Bad | 2.80 | 21.1 | 25.9 | .57 |
| Hopeless | 1.93 | 13.9 | 14.5 | .53 |
| Defeated | 1.00 | 16.6 | 22.5 | .49 |
| Fear: | | | | |
| Scared[a] | 2.77 | 18.7 | 24.3 | .50 |
| Afraid[a] | 2.48 | 21.2 | 23.9 | .52 |
| Panicky[a] | 1.17 | 23.0 | 27.2 | .48 |
| Threatened | 2.32 | 12.9 | 17.4 | .44 |
| Frightened | 2.23 | 23.7 | 23.7 | .45 |
| Alarmed | 1.28 | 21.6 | 25.9 | .33 |
| Shame: | | | | |
| Embarrassed[a] | 2.85 | 15.8 | 19.0 | .64 |
| Ashamed[a] | 1.73 | 10.1 | 15.9 | .61 |
| Humiliated[a] | 2.17 | 10.0 | 14.7 | .58 |
| Envy: | | | | |
| Envious[a] | 1.65 | 23.7 | 20.5 | .39 |
| Jealous[a] | 2.52 | 15.9 | 13.4 | .39 |
| Loneliness: | | | | |
| Lonely[a] | 2.55 | 11.5 | 15.9 | .55 |
| Homesick[a] | 2.03 | 27.2 | 17.0 | .55 |
| Romantic love: | | | | |
| Sexy[a] | 2.62 | 40.3 | 31.3 | .56 |
| Romantic[a] | 2.44 | 40.3 | 33.9 | .64 |
| Passionate[a] | 1.95 | 37.4 | 34.6 | .63 |
| Love: | | | | |
| Loving[a] | 2.38 | 48.2 | 38.6 | .69 |
| Sentimental[a] | 2.05 | 47.5 | 41.1 | .60 |
| Warm hearted[a] | .92 | 55.4 | 46.7 | .63 |
| Caring | 2.28 | 63.3 | 37.5 | .63 |
| Compassionate | 1.34 | 42.4 | 30.1 | .60 |
| Tender | 1.17 | 38.9 | 28.6 | .64 |
| Peacefulness: | | | | |
| Calm[a] | 2.65 | 73.4 | 56.3 | .55 |
| Peaceful[a] | 1.95 | 67.8 | 52.5 | .55 |
| Contentment: | | | | |
| Contented[a] | 1.30 | 85.4 | 64.1 | .60 |
| Fulfilled[a] | 1.53 | 80.6 | 61.2 | .60 |
| Optimism: | | | | |
| Optimistic[a] | 2.58 | 66.2 | 61.2 | .64 |
| Encouraged[a] | 2.35 | 63.7 | 61.6 | .59 |
| Hopeful[a] | 2.13 | 53.0 | 55.8 | .61 |
| Joy: | | | | |
| Happy[a] | 2.82 | 92.8 | 77.7 | .80 |
| Pleased[a] | 2.25 | 91.4 | 74.6 | .75 |
| Joyful[a] | 1.20 | 73.7 | 68.5 | .76 |
| Good | 2.80 | 89.4 | 76.3 | .80 |
| Glad | 2.17 | 87.4 | 73.0 | .81 |
| Delighted | 1.48 | 92.1 | 69.4 | .77 |
| Cheerful | 1.47 | 83.4 | 70.8 | .77 |
| Excitement: | | | | |
| Excited[a] | 2.88 | 70.9 | 73.2 | .74 |
| Thrilled[a] | 2.33 | 64.2 | 65.6 | .67 |
| Enthusiastic[a] | 2.32 | 82.0 | 70.3 | .73 |
| Surprise: | | | | |
| Surprised[a] | 2.85 | 37.4 | 49.3 | .30 |
| Amazed[a] | 1.98 | 50.9 | 55.8 | .30 |
| Astonished[a] | 1.57 | 33.9 | 40.6[b] | .46[b] |

[a]Descriptors included in the Consumption Emotion Set.
[b]From study 5.

to the sadness descriptors than it is to more active emotions such as anger or worry. One generally thinks of fear as an active state: an individual is threatened in some way, perhaps with bodily harm, and fight or flight responses are activated to minimize that harm. However, it is important to keep in mind the context of emotion examined in this study. The fear a consumer experiences because s/he might make a suboptimal purchase or become confused when using a newly purchased computer is very different in kind and intensity from what one might experience when facing a mugger in a lonely alley or driving an unfamiliar car over icy, treacherous roads in the dark.

## Reducing the Emotion Descriptor Set

The MDS solution was used to reduce the emotion descriptor set to a more useful size. This involved two activities: determining which descriptors within a cluster should be retained and determining which emotion descriptors that were not part of a cluster should be retained.

*Emotion Clusters.* The number of descriptors in a cluster ranges from two to eight (see Table 1). Although reducing each cluster to a single representative emotion descriptor would provide a usefully short instrument, maintaining two or three descriptors per cluster results in less measurement error. The following criteria were used to determine which descriptors would be retained in each cluster. Items retained in each cluster after application of these criteria are noted by a superscript "a" in Table 1.

1. Descriptors with higher likelihoods of usage (study 2) and higher frequencies of occurrence (studies 3 and 4) were favored over those with lower usage and occurrence rates.
2. Descriptors with clear meanings were favored

over those that are vague or that refer to multiple emotional states (e.g., bad, upset).
3. Clusters should reflect the diversity of experience within the emotion category. When two descriptors within a cluster were extremely similar—in meaning, in proximity within MDS space, and as measured by the correlation between the two descriptors—one was eliminated.
4. Two factors concerning placement within multidimensional space were considered: the descriptors within a cluster should possess spatial coherence, and each cluster should maintain some separation in the multidimensional space from clusters with different semantic meanings.
5. Correlations among descriptors within a cluster should be sufficiently high that they can be summed to form a single variable to represent that cluster (see Table 1).

*Extracluster Descriptors.* Although it is desirable to have at least two descriptors for each emotion measured, many of the descriptors in study 4 did not fall into a cluster. A single descriptor emotion was kept if it has an unambiguous meaning and met one of the following criteria.

A. The emotion was reported as being experienced by at least one-third of the respondents in both studies 3 and 4, *and* the descriptor occupies an otherwise sparse area of the MDS space.
B. At least one-third of respondents reported they had experienced the emotion, and the variance in consumers' responses to the descriptor cannot be well explained statistically by other emotion descriptors retained in the set. In applying this criterion, an emotion was retained if the other descriptors accounted for less than 40.0 percent of the variance in that emotion term.

The Appendix shows the final set of clustered and individual emotion descriptors that met the above criteria. This descriptor set, referred to as the Consumption Emotion Set (CES), is expected to adequately represent consumers' emotional reactions to most consumption experiences. Researchers desiring a slightly shorter measurement instrument may choose to use only two descriptors from those clusters that contain three. Researchers desiring a somewhat more comprehensive measurement instrument may choose to add descriptors. Accordingly, a footnote to the Appendix shows the descriptors that would be added to the list if criterion B was relaxed to include emotions experienced by only one-quarter of respondents and for which the variance explained by other emotion descriptors is less than 50 percent.

Cronbach's alpha is reported in parentheses for clusters in the Appendix that contain three descriptors; correlation coefficients are reported for two-descriptor clusters. All three-descriptor clusters possessed a reliability coefficient greater than .75. The correlations between items in the two-descriptor clusters were .55 or greater except for the envious-jealous cluster ($r$ = .39).

## STUDY 5

Studies 1–4 culminated in the CES, a set of emotion descriptors that represents the range of emotions commonly experienced in the consumption context. Study 5 compares the efficacy of the CES with that of other emotion measures in representing the range of consumption-related emotions.

### Data Collection

Two surveys were carried out through similar methods. In survey 1, the questionnaires included the CES and several measures that have been used in prior research to measure consumption-related emotions. In survey 2, the questionnaire included the CES measure and two measures of affective responses to advertising.

*Measures.* Separate survey forms were developed to elicit reports for five different types of consumption situations. Respondents completed a survey based on how they had felt during one of the following situations: while shopping for a recent important purchase, while using an important product they had recently purchased, in response to a recent unsatisfactory purchase, in response to a special possession, or when thinking about a purchase they hoped to make in the near future. Respondents answered several open-ended questions concerning the specific product or possession, then indicated how much the specified consumption situation made them feel various emotions. A four-point response scale was used ("not at all," "a little," "moderately," "strongly").

In survey 1, the emotion descriptors included items from the CES, Izard's (1977) DES-II measure, and Havlena and Holbrook's (1986) adaptation of Plutchik's measures. There was some overlap in the items among the three lists; subjects completed 89 emotion descriptors. Two versions of the questionnaire were prepared for each consumption situation: one with emotion descriptors in alphabetical order by third letter of the descriptor and one with them in reverse alphabetical order by third letter. After completing the emotion items, respondents completed Mehrabian and Russell's (1974) PAD measure for the consumption situation.

The 107 emotion descriptors in survey 2 included items from the CES, Batra and Holbrook's (1990) scales measuring affective responses to advertising, and Edell and Burke's (1987) measures of feelings induced by advertising.

*Respondents.* In survey 1, usable surveys were completed in class or in a laboratory setting by 256 undergrad-

uate and M.B.A. students; there were 194 student respondents in survey 2.

## Preliminary Analyses

*Order Effects.* Order effects for both data collections were assessed as in study 4. There was no evidence of a systematic order effect.

*Reliability.* Cronbach's alpha was calculated for the subscales of the various emotion measures. Reliabilities for the existing scales were generally comparable to those reported in the literature, although in some cases they were considerably lower, possibly because scale items were intermixed rather than grouped by subscale, which lowers reliability coefficients (Allen, Machleit, and Marine 1988). Reliabilities for the CES in the two data collections were about the same as those obtained in study 4 (see the Appendix).

## Emotion Measures in Multidimensional Space

To assess the distribution of the emotion measures in multidimensional space, the items composing each measure were separately subjected to a multidimensional scaling analysis.

*The DES-II Measure.* An examination of stress values suggested that a two-dimensional MDS solution was appropriate for the DES (stress values for the one-, two-, and three-dimensional solutions were .24, .12, and .09, respectively; $R^2$ values were 95.2 percent, 97.7 percent, and 98.4 percent, respectively). The solution is shown in Figure 2. The first dimension represents positive versus negative affect. The swath of variables at the left side of the plot suggests an interpretation of the second dimension as reflecting receptivity or activity. However, the extremes of this dimension, represented by variables measuring "interest" at the positive pole and "surprise" at the negative pole, do not readily fit this interpretation.

Other scholars have noted that the DES is dominated by negative emotions, and this is illustrated by the configuration of variables in multidimensional space. Although the DES measures enjoyment, it provides no nuance or discrimination among positive emotions along the activity dimension. It does not, for instance, assess positive emotions of low activity such as contentment or love, nor does it measure positive emotions with high activity levels such as excitement.

*Measures Based on Plutchik's Work.* A two-dimensional solution was also deemed appropriate for the MDS analysis of the descriptors used to measure the basic emotions described by Plutchik (stress values for the one-, two-, and three-dimensional solutions were .24, .14, and .10, respectively; $R^2$ values were 93.6 percent, 97.0 percent, and 97.9 percent, respectively). The first dimension represents positivity of affect; the second dimension, again, appears to represent activity or receptivity (see Fig. 3).

The MDS plots of Izard's DES and the items based on Plutchik's set of emotions are remarkably similar. The two plots differ in the location of the cluster of variables measuring surprise (which is operationalized quite differently in the two measures) and in the larger number of negative emotions measured by the DES. Beyond this, however, the plots are almost identical (allowing for the reversal of poles for both dimensions). Measures based on Plutchik's work, like the DES, do not identify or discriminate among the various forms of positive emotions, and the plots for both measures contain large empty areas in the MDS space.

*Batra and Holbrook's Measure.* A two-dimensional MDS solution was also used for the Batra and Holbrook measure (stress values for the one-, two-, and three-dimensional solutions were .26, .15, and .11, respectively; $R^2$ values were 90.8 percent, 94.5 percent, and 96.0 percent, respectively). The solution is shown in Figure 4. The first dimension again represents positive versus negative affect. The positive end of the second dimension was represented by variables composing the desire scale and the descriptors "active" and "entertained." The negative end was represented by the descriptors "loving," "affectionate," and "restful."

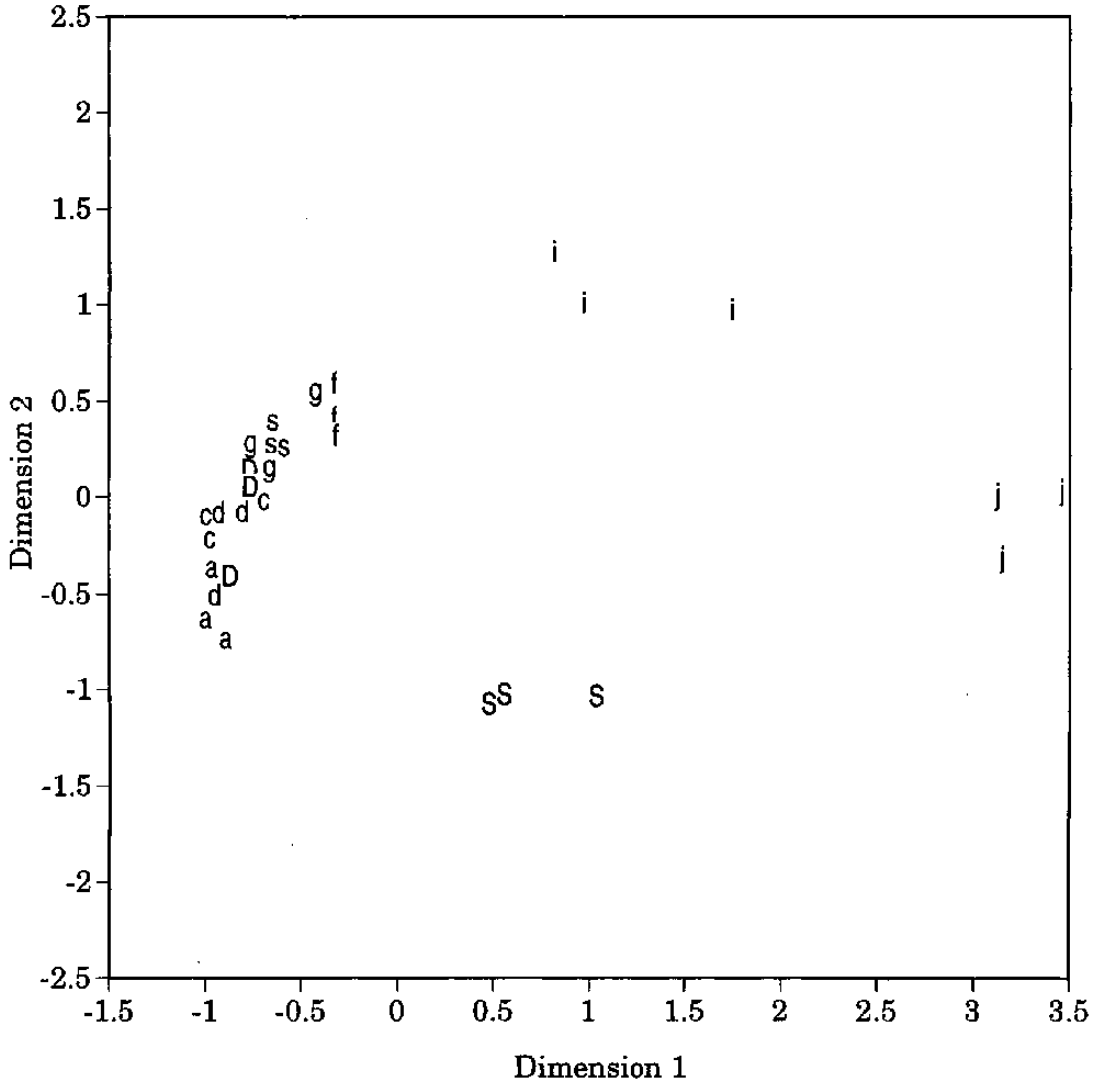
Batra and Holbrook's descriptors provided moderately good coverage of the multidimensional space, although there were some empty spaces. One undesirable characteristic of the MDS plot for these descriptors is that some of the items that constitute a subscale were not adjacent to one another on the plot. This was true for the items composing the activation and surgency subscales. Although this suggests the possible need for a third dimension to represent the multidimensional space, the third dimension of the three-dimensional solution was not interpretable.

*Edell and Burke's Measure.* The two-dimensional MDS solution for the Edell and Burke Feeling Scales is shown in Figure 5 (stress values for the one-, two-, and three-dimensional solutions were .31, .19, and .14, respectively; $R^2$ values were 87.9 percent, 88.9 percent, and 92.9 percent, respectively). The third dimension was not interpretable. Again, the first dimension represents positive versus negative affect. The extremes of the second dimension are represented by the variables "industrious," "independent," and "creative" at the negative end and "peaceful," "attractive," and "sentimental" at the positive end. Although this dimension might be interpreted as representing active (negative pole) versus inactive (positive pole) feelings, the values on this dimension for some variables are not consistent with that interpretation (e.g., contemplative = −.66, elated = .88).

The Edell and Burke measure provided rather comprehensive coverage of the multidimensional space. However, because it does not have subscales to repre-

**FIGURE 2**

PLOT OF MDS COORDINATES FOR DES, STUDY 5




NOTE.—Starting at the upper middle portion of the figure and continuing in a clockwise direction, letters in Figure 2 are defined as follows: *i*, interest; *j*, enjoyment; *S*, surprise; *a*, anger; *c*, contempt; *d*, disgust; *D*, distress; *g*, guilt; *s*, shame/shyness; *f*, fear.

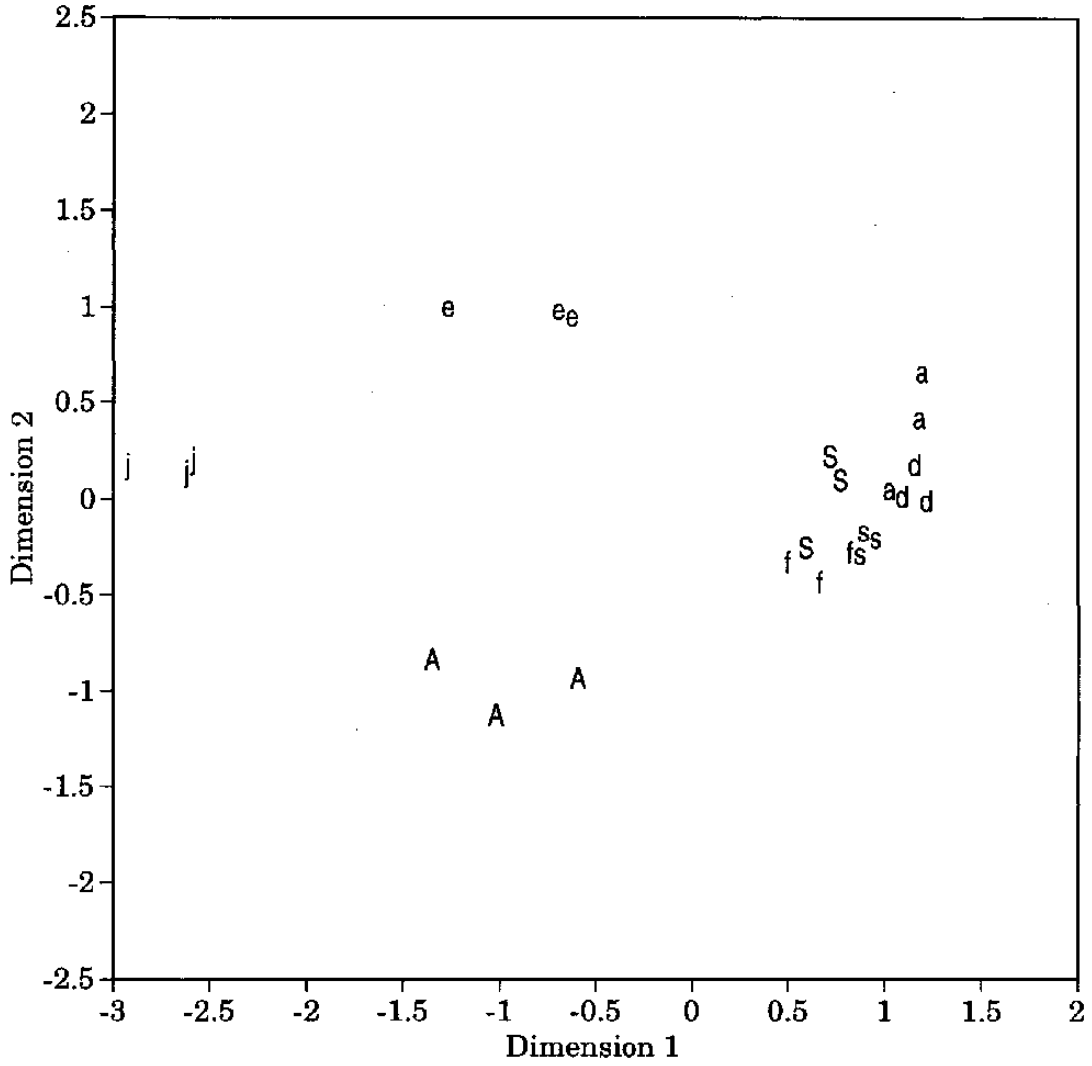
sent specific feeling states, the measure can be used to represent only the dimensions underlying the emotions experienced. Most of the descriptors on the upbeat factor have positive values on the first dimension and are thus located in the right half of the plot. All the descriptors on the negative factor are clustered at the left side of the plot. The descriptors for the "warm" factor occupy primarily the top center position in the plot but are also present elsewhere. One descriptor on the warm factor, "pensive," appeared in the midst of the negative descriptors. This is not a commonly used word, and confusion about its meaning may have caused this anomaly.

*CES Measure.* The MDS analysis of the CES descriptors was performed separately for the two data collections. In both solutions, the distribution of emotion descriptors over multidimensional space was similar to that obtained in study 4.

Compared with the DES and the Plutchik-based measures, the CES provides more comprehensive coverage of the MDS space. In addition, its assessment of a larger number of positive emotions allows discrimination among positive affect states. The CES provides somewhat better coverage of the MDS space than does the Batra and Holbrook measure. The Edell and Burke scales have the largest number of descriptors and provide the best cover-

**FIGURE 3**

PLOT OF MDS COORDINATES FOR PLUTCHIK-BASED MEASURES, STUDY 5




NOTE.—Starting at the upper middle portion of the figure and continuing in a clockwise direction, letters in Figure 3 are defined as follows: *e*, expectation; *a*, anger; *d*, disgust; *S*, surprise; *s*, sadness; *f*, fear; *A*, acceptance; *j*, joy.

age. However, these scales are not designed to measure the individual emotions a consumer may have experienced.

## Representing the Variance of Emotion Experiences

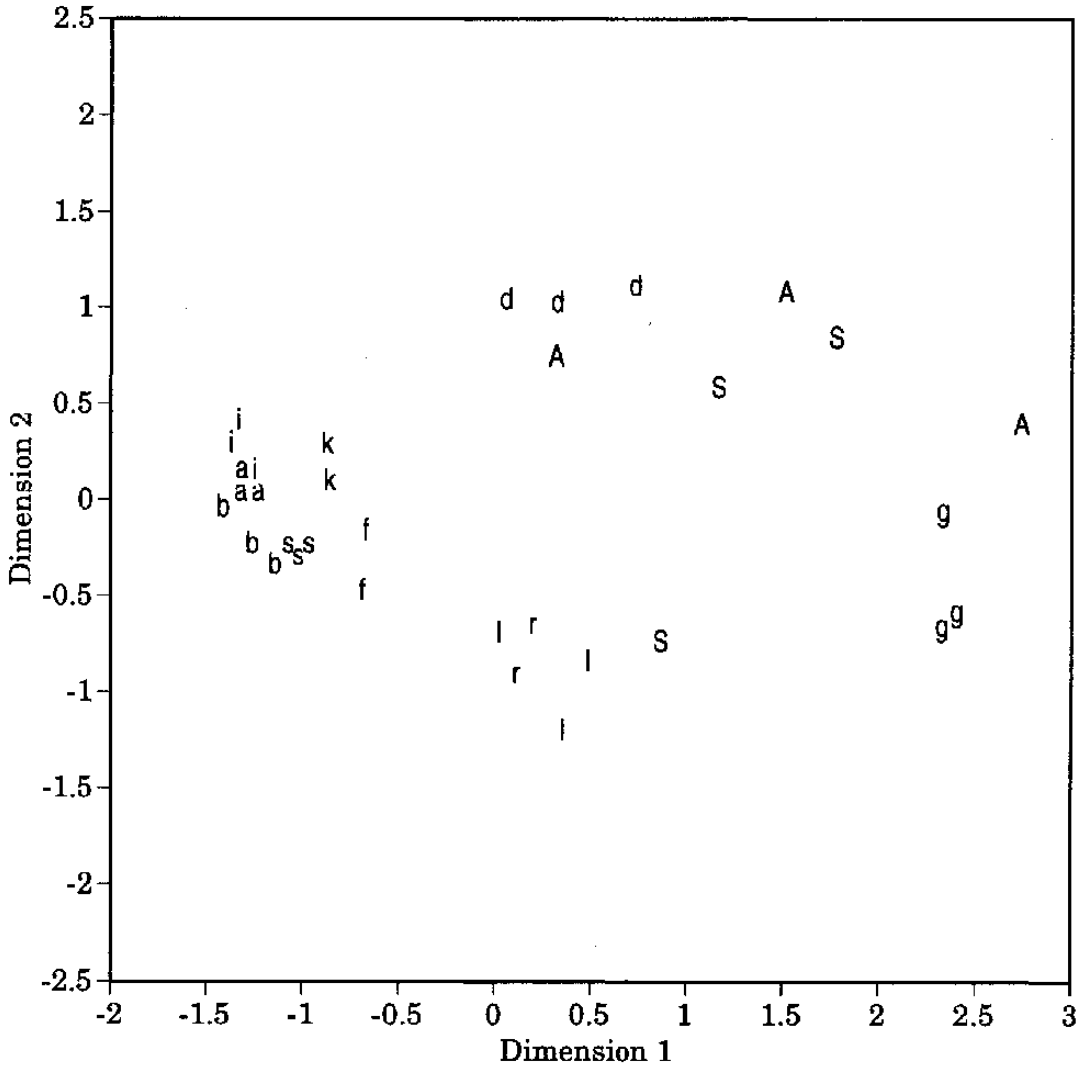
Although the CES more completely represents the variety of emotions experienced in the consumption context than do the DES, Plutchik-based, and Batra and Holbrook measures, it is a longer and thus less convenient scale. Analyses were carried out to determine whether these shorter measures can adequately represent the variance in the broader set of emotions measured by the CES.

Following Havlena and Holbrook (1986), canonical correlation analysis was performed to determine the extent to which these scales capture the variance in the more diverse set of emotions in the CES. In separate analysis for each scale, the variables of the CES (summed within clusters, where appropriate) composed the dependent variable set; the subscales of the preexisting measures formed the predictor variable set. Redundancy coefficients indicate the extent to which each of the scales accounted for the variance in the CES.

Consistent with Havlena and Holbrook's (1986) findings, in each analysis the first two canonical variates accounted for the major portion of the shared variance; accordingly, redundancies were calculated with only these two variates. Of the five scales, Edell and Burke's measure captured the most variance in the set of emotions

**FIGURE 4**

PLOT OF MDS COORDINATES FOR BATRA AND HOLBROOK'S MEASURE, STUDY 5




NOTE.—Starting at the upper middle portion of the figure and continuing in a clockwise direction, symbols in Figure 4 are defined as follows: *d*, desire; *A*,. activation; *S*, surgency; *g*, gratitude; *l*, social affection; *r*, restful; *f*, fear; *b*, bored; a, anger; *i*, irritation; *k*, skepticism.

measured by the CES (83.0 percent), with the PAD measure a distant second (58.6 percent). Redundancy was lowest for the DES (47.9 percent).

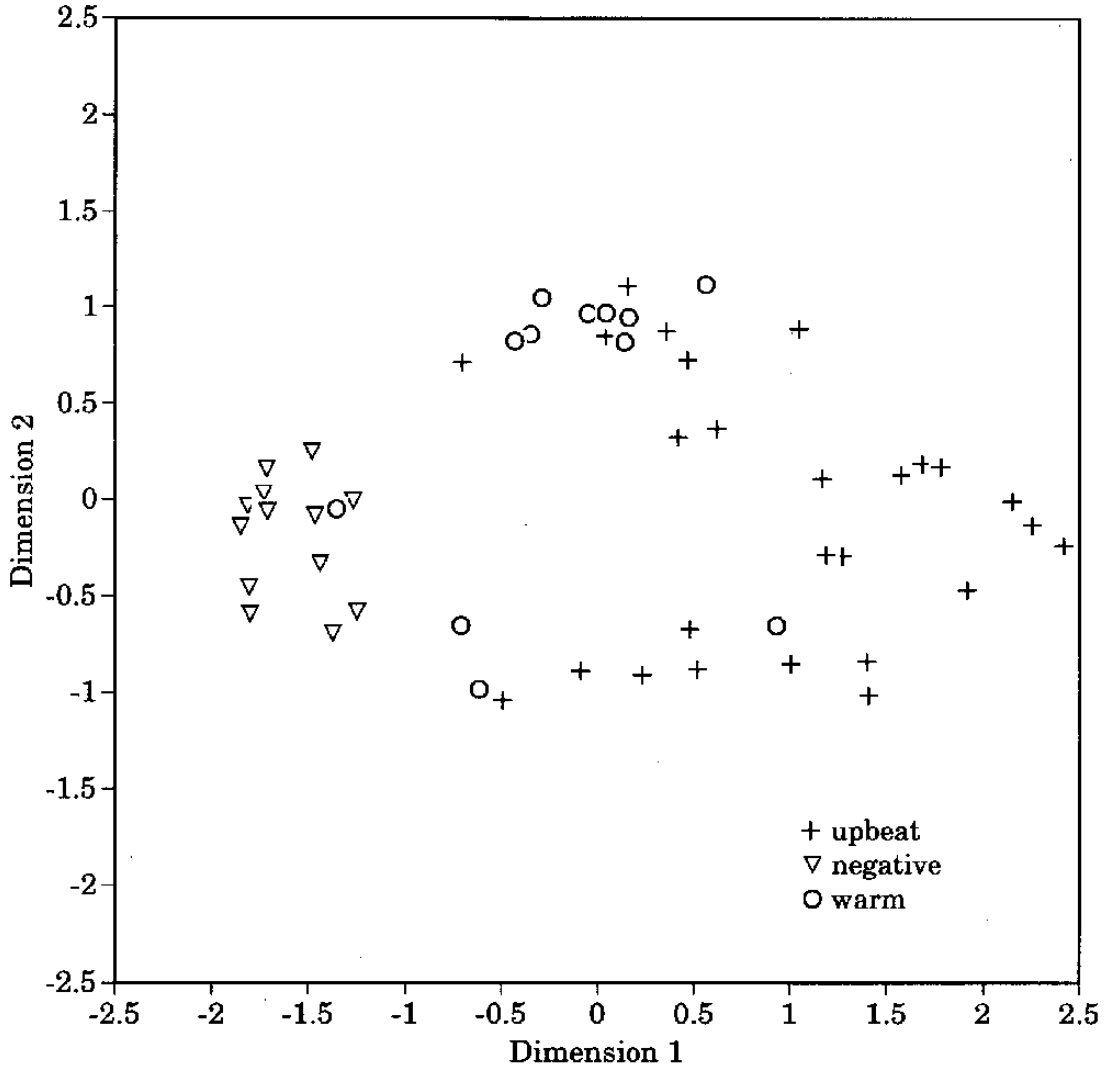
This analysis shows the relative abilities of the five measures to account for the variance in consumption-related emotions generally, but it provides no information about their ability to reflect the individual and specific emotions assessed by the CES. This was tested by a series of regression analyses. Each of the emotion variables in the CES was regressed on the summed subscales of each of the other five measures. The resulting $R^2$ values for the five scales are shown in Table 2.

The PAD measure was least able to represent the variance of the individual emotions measured by the CES. It was unable to explain even 20 percent of the variance in seven of the descriptors and explained more than 60 percent of the variance for only two of the 20 specific emotions. Edell and Burke's measure was able to explain more than 60 percent of the variance for only six of the 20 CES emotions. These findings, combined with those from the canonical correlation analysis, suggest that the PAD and Edell and Burke's measure are better able than the other measures to capture the underlying dimensions of emotion experience, the purpose for which these measures were designed. They do not do an acceptable job, however, of representing specific consumption emotion states.

Of the measures studied here, the DES best captures the variance of the individual emotions. It accounts for more than 20 percent of the variance in each of the CES emotions and more than 60 percent of the variance in

**FIGURE 5**

PLOT OF MDS COORDINATES FOR EDELL AND BURKE'S MEASURE, STUDY 5




more than half of them. As noted earlier, however, the DES measures only one positive emotion, enjoyment, and thus does not discriminate among positive emotion states. The variance in the positive emotions in Table 2 explained by the DES is due almost solely to these variables' correlations with the enjoyment subscale.

All of the scales were inadequate in representing the variance of some of the specific emotions in the CES. None of the measures accounted for at least 50 percent of the variance in five emotions (shame, envy, loneliness, eagerness, and relief).

## STUDY 6

Study 5 demonstrates the superiority of the CES to other measurement instruments in assessing the variety of emotions present in consumption situations. Study 6 examines the predictive validity of the CES relative to the other measures. The CES is designed to measure consumption-related emotions, and it should be superior to other emotion measures in differentiating among the complex sets of feelings that occur in different consumption situations.

There are many ways to classify consumption situations. For purposes of this study, a consumption situation is defined by type of product consumed. Study 6 assesses the ability of the CES, compared with other emotion measures, to discriminate among different consumption situations on the basis of emotions experienced. Since emotions are likely to be strongest when a product or consumption situation is important to a consumer, this

**TABLE 2**

ABILITY OF FIVE EMOTION MEASURES TO ACCOUNT FOR VARIANCE IN CONSUMPTION-RELATED EMOTIONS ($R^2$), STUDY 5

| Emotion | DES | Plutchik | PAD | Batra and Holbrook | Edell and Burke |
|---|---|---|---|---|---|
| Anger | .83 | .87 | .57 | .89 | .56 |
| Discontent | .69 | .69 | .58 | .74 | .58 |
| Worry | .60 | .47 | .16 | .57 | .27 |
| Sadness | .66 | .83 | .26 | .81 | .66 |
| Fear | .86 | .42 | .06 | .76 | .24 |
| Shame | .49 | .40 | .16 | .48 | .40 |
| Envy | .22 | .21 | .05 | .32 | .23 |
| Loneliness | .25 | .27 | .02 | .28 | .24 |
| Romantic love | .43 | .40 | .29 | .61 | .51 |
| Love | .43 | .45 | .28 | .83 | .76 |
| Peacefulness | .39 | .54 | .30 | .55 | .55 |
| Contentment | .69 | .70 | .58 | .59 | .66 |
| Optimism | .63 | .66 | .47 | .61 | .70 |
| Joy | .94 | .88 | .75 | .67 | .77 |
| Excitement | .78 | .77 | .67 | .75 | .76 |
| Surprise | 1.00[a] | .49 | .15 | .46 | .42 |
| Guilt | .71 | .18 | .03 | .26 | .22 |
| Pride | .70 | .68 | .54 | .52 | .59 |
| Eagerness | .34 | .37 | .34 | .45 | .44 |
| Relief | .38 | .41 | .24 | .36 | .30 |

[a]The DES and CES measures for surprise contain identical items.

**TABLE 3**

ABILITY OF FIVE EMOTION MEASURES TO DISCRIMINATE AMONG CONSUMPTION SITUATIONS, STUDY 6

| Predictor variables | Number of significant discriminant functions* | Canonical $R^2$ | Classification accuracy[a] |
|---|---|---|---|
| Sample 1: | | | |
| DES | 1 | .40 | 59.7 (64.5) |
| Plutchik-based items | 1 | .46 | 61.3 (65.3) |
| PAD | 1 | .40 | 59.7 (60.5) |
| CES | 2 | .65 | |
| | | .28 | 79.8 (79.8) |
| Sample 2: | | | |
| Batra and Holbrook | 1 | .62 | 55.1 (70.1) |
| Edell and Burke | 1 | .55 | 59.8 (55.1) |
| CES | 2 | .68 | |
| | | .30 | 86.0 (86.0) |

[a]The first number represents the percentage of cases correctly classified when significant discriminant functions are used in the classification analysis; the number in parentheses is the percentage of cases correctly classified when both functions, significant and nonsignificant, are used in classification.
*$p < .05$.

study dealt with consumption situations that involved possessions respondents considered to be important or special in some way.

## Data Collection

Data were collected as in study 5, except that respondents completed emotion measures only for possessions that they identified as special. Two versions of the questionnaire, identical to those used to measure emotions elicited by special possessions in surveys 1 and 2 of study 5, were used. Questionnaires containing the DES, Plutchik-based measures, PAD measure, and CES were completed by 89 respondents; 80 respondents completed questionnaires containing the Holbrook and Batra, Burke and Edell, and CES measures. Data from respondents in study 5 who completed the special possessions questionnaire were combined with study 6 data to provide samples of 139 respondents (sample 1, who completed questionnaires containing the DES and related measures) and 117 respondents (sample 2, who completed questionnaires containing advertising response measures).

## Results

Although there was considerable variety in the types of possessions respondents considered important, most could be grouped into three major categories—sentimental objects (e.g., heirloom jewelry, mementos, gifts), recreational products (e.g., stereo equipment, mountain bike), and vehicles. Data from the 124 (sample 1) and 107 (sample 2) respondents who described one of these three types of possessions were used in the following analyses.

Because consumption activities involving these categories of objects differ, emotional experiences associated with them will also differ. For instance, use or contemplation of sentimental objects is likely to result in feelings of love and nostalgia; strong negative feelings such as anger are unlikely to be experienced. The use of recreational objects is usually pleasurable. And because of the singular role of automobiles in society, automobiles are likely to invoke strong positive feelings, such as joy and excitement, and strong negative feelings, such as frustration and worry.

The CES, because it was developed to assess the specific kinds of emotions experienced in consumption situations, should be better able to distinguish the varieties of emotion associated with the different product classes than are emotion measures developed for other purposes. This premise was tested by discriminant analysis in which product class was the group identification variable and the various emotion scales served as predictor variables. Separate discriminant analyses were performed for each of the emotion scales. Results are shown in Table 3.

In both samples, use of the CES resulted in two significant ($p < .05$) discriminant functions. Analyses using the other emotion scales yielded a single significant function. The first-function squared canonical correlation was higher for the CES than for the other emotion measures, although the Batra and Holbrook measure performed nearly as well on this criterion. In classification analysis, the classification function based on the CES predictors yielded superior prediction. This superiority held whether

the classification analysis was based on significant variates only or on both variates regardless of statistical significance.

In the discriminant analysis using the CES measures, the first discriminant function had high positive loadings for the emotions worry, anger, and excitement and a strong negative loading for love. This function served to separate consumption experiences associated with sentimental objects from experiences associated with cars and recreational possessions. The second discriminant function had strong negative loadings for guilt and worry and positive loadings for eagerness and optimism. This function discriminated among all three product-related consumption experiences. Respondents describing their emotional experiences involving recreational objects were most likely to report experiencing eagerness and optimism and were less likely than the automobile group to report feelings of guilt and worry.

The means for the three consumption situations (samples 1 and 2 combined) are graphed in Figure 6. Means have been corrected for differences in subscale length. As expected, sentimental objects were the least likely to evoke negative feelings such as anger and fear and most likely to evoke feelings of love (Scheffé posterior contrasts, $p < .01$). They were also most likely to create feelings of loneliness ($p < .01$). In all three consumption situations, the positive emotions of joy, pride, and contentment were strongly experienced; consumption situations involving automobiles and recreational objects also were accompanied by significantly higher feelings of excitement ($p < .01$). Few negative emotions were reported by respondents, but moderate levels of anger and worry were reported for both automobiles and recreational objects. Consumption situations involving automobiles were the most likely to evoke guilt ($p < .05$). These findings are in line with the expectation that consumption situations involving automobiles would involve both positive and negative emotions to a greater extent than the other consumption situations.

## DISCUSSION

The studies reported in this article culminated in the CES, a set of descriptors that represents the range of emotions consumers most frequently experience in consumption situations. The measures most commonly used for this purpose in prior research—the DES, the PAD, and Plutchik-based measures—do not represent the diversity of these emotions and thus may be inadequate for some research purposes. These earlier measures may be particularly inappropriate when the researcher desires a broad assessment of the emotions a consumer might be experiencing or when theory offers little a priori information about the kinds of emotional states that may be relevant to the behavior under investigation.

Two measures of emotions elicited by advertising were also studied. The Batra and Holbrook measure was nearly as comprehensive as the CES in assessing consumption-related emotions. However, it omits some emotions that are important in some consumption situations. Guilt, worry, eagerness, and optimism were feeling states important for distinguishing the three consumption situations analyzed in study 6. The Batra and Holbrook measure does not assess any of these feelings. The Edell and Burke measure is also less suited to study consumption-evoked emotions. Although this measure represents the multidimensional space of emotions well, the scale makes no provision for differentiating among specific emotions. It is also the longest of the measures tested but did no better than the other, shorter measures in discriminating among the consumption situations examined in study 6. Both advertising-oriented measures contain several items that are more relevant to assessing reactions to advertisements than to consumption experiences. Such feelings as suspicious, bored, uninvolved, and dull were rarely reported by respondents in studies 5 and 6.

The CES described in this article is not intended to be a definitive assessment tool. Rather, it should be considered as the starting point in determining the proper assessment of consumption-related emotions. It aims for a relatively broad, but not exhaustive, coverage of consumption emotion states. Future research may reveal that some emotion states not present in the set of descriptors are important to some aspect of consumer behavior, and some emotion states in the CES are probably irrelevant to some of the phenomena studied in consumer behavior research. Future research that examines the applicability of the CES in different contexts or with respect to different facets of behavior may, and should, suggest revisions to the CES.

Neither is it expected that researchers will necessarily use the CES in its entirety for a particular study. For some contexts, theory or common sense may suggest that certain emotions are unlikely to be experienced; in these cases, the researcher may choose to omit the descriptors for those emotions from their measuring instrument. In studies of emotion, researchers may routinely choose to omit the descriptors measuring surprise, as many emotion scholars consider it an unvalenced cognitive state rather than an emotion. For some purposes, however (in satisfaction research, for instance), surprise might be considered a useful variable in its own right.

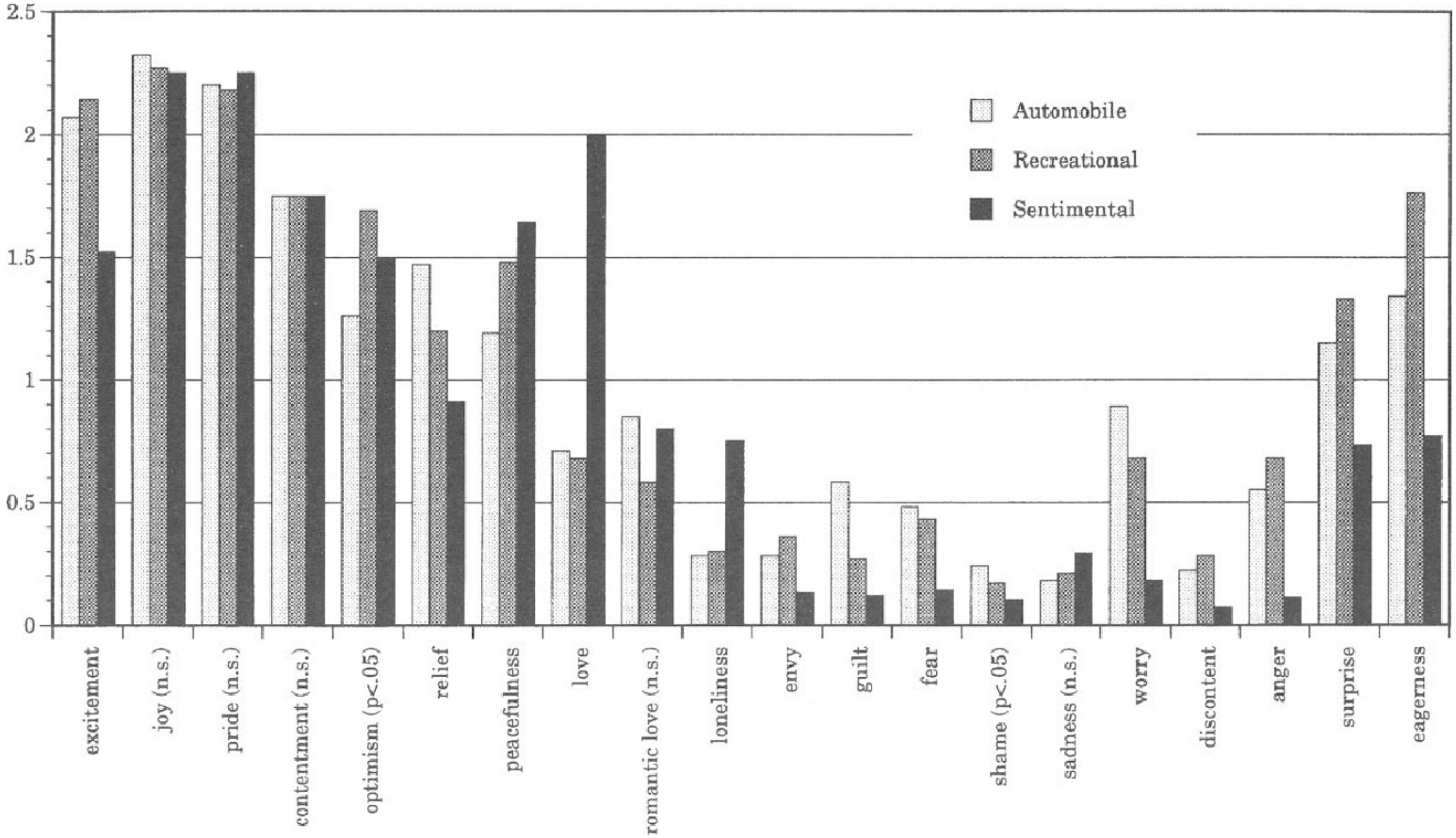
In the data collections reported here, four-point response scales were used for the CES. A four-point scale was chosen because subjects were responding to rather lengthy lists of descriptors and the task was less burdensome with a small number of scale points. Other studies not reported here have successfully used a five-point scale for the CES and a six-point scale may be feasible for some populations.

Although scholars have shown an interest in studying the emotional aspects of consumer behavior, limitations of the existing measures have hampered progress. The present research was undertaken to help stimulate additional research in this regard. Some of the topics to which the CES might be applied are described in Exhibit 1.

Future research might also continue the validation

**FIGURE 6**

EMOTIONS EXPERIENCED IN THREE CONSUMPTION SITUATIONS, STUDY 6




NOTE.—All one-way ANOVA tests for group differences were significant at $p < .01$ except as noted; selected contrasts are discussed in the text.

**EXHIBIT 1**

RESEARCH TOPICS ON EMOTION AND CONSUMPTION

- Analysis of emotional responses to marketing stimuli, such as:
  - Product trial and use
  - Store environments and shopping
  - Consumer/salesperson interaction
- Effects of emotions on other consumer responses such as:
  - Satisfaction and dissatisfaction
  - Word-of-mouth
  - Repurchase
  - Attitude toward the brand or retailer
- Temporal shifts in emotional responses to consumption:
  - How do product-related emotions change during the course of product ownership?
  - What individual, product, or situational factors influence product-related emotions over time?
- Emotional correlates of differing consumption styles—what are the relationships between emotions and the following?
  - Impulsive buying
  - Compulsive buying
  - Materialism
- Influence of product-related emotion experiences on product disposition choices
- Relationships between consumption emotions and general well-being or life satisfaction

assessment of the CES. In particular, scholars might investigate the ability of the CES, relative to other emotion measures, to explain downstream variables such as satisfaction, word-of-mouth, and other variables described in Exhibit 1. The validity and usefulness of the CES could also be assessed by examining its sensitivity as a dependent variable. Such analyses might assess whether the CES (compared with alternative measures) provides richer description and reveals more differences among consumers in varying antecedent states. For instance, research might determine whether predictable differences in emotional states occur for consumers who are low versus high in product involvement, who are novice versus experienced product users, or who have completed a planned versus an impulsive purchase.

Also of interest would be research that examines, in depth, the character of individual consumption-related emotions and that identifies their antecedent states. It would be useful to know, for instance, exactly what it means to feel pride in product ownership, the conditions that create feelings of pride, and the effects of these feelings on other consumer variables such as brand loyalty and word of mouth. Joy, fear, and guilt associated with consumption are other emotions worthy of such attention. Research by emotion theorists who have studied specific emotions in clinical settings or other contexts may serve as useful starting points for such investigations (see, e.g., Lewis and Haviland 1993), and interpretive and phenomenological approaches may be particularly useful in deepening our knowledge of these facets of consumption experience.

# APPENDIX

## The Consumption Emotions Set[6]

- Anger ($\alpha$ = .91, .87):
  - Frustrated
  - Angry
  - Irritated
- Discontent ($r$ = .73, .67):
  - Unfulfilled
  - Discontented
- Worry ($\alpha$ = .77, .77):
  - Nervous
  - Worried
  - Tense
- Sadness ($\alpha$ = .83, .72):
  - Depressed
  - Sad
  - Miserable
- Fear ($\alpha$ = .82, .74):
  - Scared
  - Afraid
  - Panicky
- Shame ($\alpha$ = .82, .85):
  - Embarrassed
  - Ashamed
  - Humiliated
- Envy ($r$ = .39, .46):
  - Envious
  - Jealous
- Loneliness ($r$ = .55, .59):
  - Lonely
  - Homesick
- Romantic love ($\alpha$ = .82, .82):
  - Sexy
  - Romantic
  - Passionate
- Love ($\alpha$ = .86, .86):
  - Loving
  - Sentimental
  - Warm hearted
- Peacefulness ($r$ = .55, .68):
  - Calm
  - Peaceful
- Contentment ($r$ = .60, .58):
  - Contented
  - Fulfilled
- Optimism ($\alpha$ = .82, .86):
  - Optimistic
  - Encouraged
  - Hopeful

[6]Values in parentheses represent the Pearson correlation for two-item scales and Cronbach's alpha for scales with more than two items. Values from study 4 and study 5 are reported. The expanded CES includes the following additional emotion descriptors: awed, carefree, comforted, helpless, impatient, longing, nostalgic, protective, and wishful.

Joy (α = .91, .88):
- Happy
- Pleased
- Joyful

Excitement (α = .88, .89):
- Excited
- Thrilled
- Enthusiastic

Surprise (N.A., α = .81):
- Surprised
- Amazed
- Astonished

Other items:
- Guilty
- Proud
- Eager
- Relieved

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