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Emotions in consumer behavior: a hierarchical approach

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Abstract

A growing body of consumer research studies emotions evoked by marketing stimuli, products and brands. Yet, there has been a wide divergence in the content and structure of emotions used in these studies. In this paper, we will show that the seemingly diverging research streams can be integrated in a hierarchical consumer emotions model. The superordinate level consists of the frequently encountered general dimensions positive and negative affect. The subordinate level consists of specific emotions, based on Richins' (Richins, Marsha L. Measuring Emotions in the Consumption Experience. J. Consum. Res. 24 (2) (1997) 127–146) Consumption Emotion Set (CES), and as an intermediate level, we propose four negative and four positive basic emotions. We successfully conducted a preliminary test of this second-order model, and compare the superordinate and basic level emotion means for different types of food. The results suggest that basic emotions provide more information about the feelings of the consumer over and above positive and negative affect.

Keywords: Consumer emotions; Hierarchy of emotions; Positive and negative affect; Basic emotions; Specific emotions

1. Introduction

After a long period in which consumers were assumed to make largely rational decisions based on utilitarian product attributes and benefits, in the last two decades, marketing scholars have started to study emotions evoked by marketing stimuli, products and brands (Holbrook and Hirschman, 1982). Many studies involving consumer emotions have focused on consumers' emotional responses to advertising (e.g., Derbaix, 1995), and the mediating role of emotions on the satisfaction of consumers (e.g., Phillips and Baumgartner, 2002). Emotions have been shown to play an important role in other contexts, such as complaining (Stephens and Gwinner, 1998), service failures (Zeelenberg and Pieters, 1999) and product attitudes (Dube et al., 2003). Emotions are often conceptualized as *general* dimensions, like positive and negative affect, but there has also been an interest in more *specific* emotions. Within the latter stream of research, some researchers use a comprehensive set of specific emotions (Richins, 1997; Ruth et al., 2002). Other researchers concentrate on one or several specific emotions, such as surprise (e.g., Derbaix and Vanhamme, 2003), regret (e.g., Inman and Zeelenberg, 2002; Tsiros and Mittal, 2000), sympathy and empathy (Edson Escalas and Stern, 2003), embarrassment (Verbeke and Bagozzi, 2003) and anger (Bougie et al., 2003; Taylor, 1994).

Despite this emerging body of research, progress on the use of emotions in consumer behavior has been hampered by ambiguity about two interrelated issues, viz., the *structure* and *content* of emotions (Bagozzi et al., 1999). First, with regard to *structure*, some researchers examine all emotions at the same level of generality (e.g., Izard, 1977), whereas others specify a hierarchical structure in which specific emotions are particular instances of more general underlying basic emotions (Shaver et al., 1987; Storm and Storm, 1987). Second, and relatedly, there is debate concerning the *content* of emotions. Should emotions be most fruitfully conceived as very broad general factors, such as pleasure/arousal (Russell, 1980) or positive/negative affect (Watson and Tellegen, 1985)? Alternatively, appraisal theorists (see, e.g., Frijda et al., 1989; Roseman et al., 1996; Smith and Lazarus, 1993) argue that specific emotions

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should not be combined in broad emotional factors, because each emotion has a distinct set of appraisals. The confusion concerning structure and content of emotions has hindered the full interpretation and use of emotions in consumer behavior theory and empirical research (Bagozzi et al., 1999).

The purpose of our paper is twofold. First, we integrate seemingly opposing research streams in psychology and consumer behavior by developing a hierarchical model of consumer emotions. We will show that the general dimensions with positive and negative affect are the superordinate and most abstract level at which emotions can be defined. The subordinate level consists of specific consumer emotions. We will develop an intermediate level with basic emotions that links these two levels. Second, we conduct a preliminary test of this proposed structure and compare the means for positive and negative affect with those of the basic emotions for four different food types.

2. Emotions in consumer research

This section will briefly discuss an illustrative set of consumer studies on emotions (see Table 1 for an overview).

Several studies focused on the emotional responses to ads. Holbrook and Batra (1987) developed their own emotional scale based on an in-depth review of the literature. They uncovered a pleasure, arousal and domination dimension in their data, and showed that these emotions mediate consumer responses to advertising. Edell and Burke (1987) also created their own emotion list and found that feelings play an important role in the prediction of the ad's effectiveness. They proposed three factors: an upbeat, negative, and warmth factor. Olney et al. (1991) showed that the emotional dimensions pleasure and arousal mediate the relation between ad content and attitudinal components, and consequently viewing time of an ad. They used part of Mehrabian and Russell's (1974) scale. Derbaix (1995) replicated the research of Edell and Burke (1987) in a natural setting. His emotion words were based on a prestudy, and uncovered a positive and negative factor. Steenkamp et al. (1996) investigated the relations between arousal potential, arousal, and ad evaluation, with need for stimulation as a moderator. They based their arousal dimension on the scale of Mehrabian and Russell (1974).

In the satisfaction literature, Westbrook (1987) was one of the first to investigate consumer emotional responses to product/consumption experiences and their relationship to several central aspects of postpurchase processes. Oliver (1993) extended this work by showing that emotional responses mediate the effects of product attributes on satisfaction. Both studies relied on Izard's (1977) taxonomy of fundamental affects, and found positive and negative affect as underlying emotion dimensions. Mano and Oliver (1993) investigated the structural interrelationship among evaluations, feelings, and satisfaction in the postconsumption experience. They combined Watson et al.'s (1988) PANAS scale and Mano's (1991) circumplex scale. Both three dimensions—similar to the upbeat, negative, and warmth factors of Edell and Burke (1987)—and two dimensions—positive and negative affect—were uncovered, but only the latter dimensions were used in the studies. Dube and Morgan (1998) modeled trends in consumption emotions and satisfaction in order to predict retrospective global judgments of services. They used the PANAS scale (Watson et al., 1988) and uncovered positive and negative affect. Phillips and Baumgartner (2002) confirmed the

Table 1
Overview of consumer research using emotions as a main variable

Reference	Emotion measure used	Resulting structure
Edell and Burke (1987)	Edell and Burke (1987)	Upbeat, negative, and warm
Holbrook and Batra (1987)	Holbrook and Batra (1987)	Pleasure, arousal, and domination
Westbrook (1987)	Izard (1977)	Positive and negative affect
Olney et al. (1991)	Mehrabian and Russell (1974)	Pleasure and arousal
Holbrook and Gardner (1993)	Russell et al. (1989)	Pleasure and arousal
Mano and Oliver (1993)	Watson et al. (1988); Mano (1991)	Upbeat, negative and warm Positive and negative
Oliver (1993)	Izard (1977)	Positive and negative affect
Derbaix (1995)	Derbaix (1995)	Positive and negative affect
Steenkamp et al. (1996)	Mehrabian and Russell (1974)	Arousal
Nyer (1997)	Shaver et al. (1987)	Anger, joy/satisfaction, and sadness
Richins (1997)	Richins (1997)	Anger, discontent, worry, sadness, fear, shame, envy, loneliness, romantic love, love, peacefulness, contentment, optimism, joy, excitement, and surprise
Dube and Morgan (1998)	Watson et al. (1988)	Positive and negative affect
Phillips and Baumgartner (2002)	Edell and Burke (1987)	Positive and negative affect
Ruth et al. (2002)	Shaver et al. (1987)	Love, happiness, pride, gratitude, fear, anger, sadness, guilt, uneasiness, and embarrassment
Smith and Bolton (2002)	Smith and Bolton (2002)	Anger, discontent, disappointment, self-pity, and anxiety

importance of including positive and negative affect in explaining satisfaction. Smith and Bolton (2002) investigated the role of consumer emotions in the context of service failure and recovery encounters. They used content analysis for the responses of the participants and grouped the (negative) emotion words of consumers in five categories.

Holbrook and Gardner (1993) investigated the relation between the emotional dimensions pleasure and arousal and the duration of a consumption experience, which was in their case, listening to music. They used Russell et al.'s (1989) Affect Grid to measure pleasure and arousal of the musical stimuli.

Nyer (1997) and Ruth et al. (2002) focused on defining the antecedents rather than the consequences of emotions. Nyer (1997) showed that the appraisals of goal relevance, goal congruence, and coping potential are determinants of several basic consumption emotions. These emotions were mainly based on Shaver et al. (1987). Ruth et al. (2002) explored the cognitive appraisals of situations and their correspondence to 10 experienced emotions. They also used emotions based on the hierarchical structure of Shaver et al. (1987).

In summary, this overview shows that there is wide divergence in the content of emotions studied in consumer research. Studies often use different scales to measure emotions and focus on different emotions. In spite of this, consumer researchers frequently use, or exploratory data analysis yields, a small number of dimensions (Bagozzi et al., 1999). Among these, the classification of emotions in

Table 2
Emotion words

Negative emotion words	Positive emotion words
Aggravation[a,b,c], Agitation[a,b,c], Agony[b,c], Alarm[b,c,d], Alienation[b], *Anger*[a,b,c,d,e,f,g], Anguish[a,b,c], Annoyance[a,b,c,d,e,f,h], Anxiety[a,b,c,e], Apologetic[c], Apprehension[a,b,c], Aversion[e], Awful[c], Bad[c], Bashful[c], Betrayal[c], Bitterness[a,b,c], Blue[a,c,i], Bothered[c], Cheerless[a], Confused[h], Consternation[c], Contempt[b,c,e,g], Cranky[c], Cross[c], Crushed[h], Cry[c], Defeat[b], Deflated[a,b], Defensive[c], Dejection[a,b,c], Demoralized[c], *Depression*[a,b,c,d,h], Despair[b,c], Devastation[c], Different[c], Disappointment[a,b,c,e,f], Discomfort[c], *Discontent*[a,c], Discouraged[c], Disenchantment[c], Disgust[a,b,c,e,g,h], Dislike[b,c,g], Dismay[b,c], Displeasure[a,b,c], Dissatisfied[a,c], Distress[a,b,c,d,g,i,j], Distrust[c,e], Disturbed[c], Down[a,c], Dread[b,c], Dumb[c], Edgy[c], *Embarrassment*[a,b,c], Empty[a,c], *Envy*[a,b,c], Exasperation[b], *Fear*[b,c,d,e,f,g,h,i,j], Fed-up[a], Ferocity[b], Flustered[a], Forlorn[c], Foolish[c], Frantic[c], Fright[a,b,c,h], *Frustration*[a,b,c,d,f,g], Fury[a,b,c], Gloom[b,c,d,h], Glumness[b], Grief[a,b,c,f], Grouchiness[b,c,i], Grumpiness[b,c,i], *Guilt*[b,c,e,g,j], Heart-broken[a,c], Hate[b,c],Hollow[c], *Homesickness*[a,b,c], Hopelessness[b,c], Horrible[c], Horror[a,b,c,f], *Hostility*[b,c,h,i,j], *Humiliation*[b,c], Hurt[a,b,c], Hysteria[b], Impatient[a,c], Indignant[c], Inferior[c], Insecurity[b], Insult[b,c], Intimidated[h], Irate[a,c], Irked[a], *Irritation*[a,b,c,h,j], Isolation[b,c], *Jealousy*[a,b,c,e], Jittery[i,j], Joyless[a], Jumpy[c], Loathing[b], *Loneliness*[a,b,c,i], Longing[c], Loss[c], Lovesick[a], Low[a,c], Mad[a,c], Melancholy[b,c], *Misery*[a,b,c,d], Misunderstood[c], Moping[c], Mortification[a,b], Mournful[c], Neglect[b,c], *Nervousness*[a,b,c,i,j], Nostalgia[c], Offended[h], Oppressed[c], Outrage[a,b,c], Overwhelmed[a], Pain[c], *Panic*[b,c], Petrified[a,c], Pity[a,b,c], Puzzled[h], Rage[b,c,e], Regret[a,b,c,e,g], Rejection[b,c], Remorse[a,b,c], Reproachful[c], Resentment[a,b,c], Revulsion[b], Ridiculous[c], Rotten[c], *Sadness*[a,b,c,d,e,f,g,h,i], *Scared*[a,c,h,j], Scorn[b,c,i], Self-conscious[c], *Shame*[a,b,c,e,g,j], Sheepish[c], Shock[a,b,c], Shy[c], Sickened[a,c], Small[c], Sorrow[a,b,c,e,i], Spite[b], Startled[e,h], Strained[c], Stupid[c], Subdued[c], Suffering[b,c], Suspense[c], Sympathy[b], *Tenseness*[b,c,h], Terrible[c], Terror[a,b,c], Threatened[h], Torment[a,b,c], Troubled[c], Tremulous[c], Ugly[c], Uneasiness[a,b,c], *Unfulfilled,* Unhappiness[a,b,c,i], Unpleasant[h], Unsatisfied[c], Unwanted[c], Upset[a,c,e,j], Vengefulness[b,c], Want[c], Wistful[c], Woe[b,c], *Worry*[b,c], Wrath[b,c], Yearning[c]	Acceptance[c,h], Accomplished[c], Active[i,j], Admiration[c], Adoration[b,c], Affection[b,c], Agreement[c], Alert[h,j], Amazement[b,] Amusement[a,b,c], Anticipation[b,c], Appreciation[c], Ardent[c], Arousal[a,b,d], Astonishment[b,d,i], At ease[a,d], Attentive[h,j], Attraction[b,c], Avid[c], Bliss[b], Brave[c], *Calm*[a,d], Caring[b,c], Charmed[a], Cheerfulness[a,b,c,h], Comfortable[c], Compassion[b,c], Considerate[c], Concern[c], *Contentment*[a,b,c,d,I], Courageous[c], Curious[h], Delight[a,b,c,d,h], Desire[b,c], Determined[j], Devotion[c], Eagerness[b,c], Ecstasy[a,b,c], Elation[a,b,c,i], Empathy[c], Enchanted[c], *Encouraging*[c], Energetic[f], Enjoyment[b,c,f], Entertained[c], Enthrallment[b], *Enthusiasm*[b,c,e,f,i,j], Euphoria[b,c], Excellent[c], *Excitement*[a,b,c,d,f,i,j], Exhilaration[b,f] Expectant[c], Exuberant[c], Fantastic[c], Fascinated[e], Fine[c], Fondness[b,c], Forgiving[c], Friendly[c], *Fulfillment*[c], Gaiety[b,c], Generous[c], Giggly[c], Giving[c], Gladness[a,b,c,d], Glee[b,c], Good[c], Gratitude[c], Great[c], *Happiness*[a,b,c,d,e,f,h,i], Harmony[c], Helpful[c,h], High[c], *Hope*[b,c,g], Horny[c], Impressed[c], Incredible[c], Infatuation[b,c], Inspired[j], Interested[f,j], Jolliness[b], Joviality[b], *Joy*[a,b,c,e,f,g], Jubilation[b,c], Kindly[c,i], Lighthearted[c], Liking[b,c,g], Longing[b], *Love*[a,b,c,e], Lust[b,c], Merriment[c], Moved[a], Nice[c], *Optimism*[b], Overjoyed[a,c], *Passion*[a,b,c], *Peaceful*[c,f], Peppy[i], Perfect[c], Pity[c], Playful[c], *Pleasure*[a,c,d,f,i], Pride[a,b,c,e,f,g,j], Protective[c], Rapture[b], Reassured[c], Regard[c], Rejoice[c], Relaxed[c,d,f], Release[c], *Relief*[a,b,c,e,f,g], Respect[c], Reverence[c], *Romantic*[c], Satisfaction[a,b,c,d,f,i], Secure[c], Sensational[c], Sensitive[c], Sensual[c], *Sentimentality*[b,c], Serene[d,c], *Sexy*[c], Sincere[c], Strong[i,j], Super[c], Surprise[b,e,f,i], Tenderness[b,c], Terrific[c], Thoughtful[c], *Thrill*[a,b,c], Touched[a], Tranquility[c], Triumph[b], Trust[c,h], Victorious[c], *Warm-hearted*[c,i], Wonderful[c], Worship[c], Zeal[b], Zest[b]

Note: The emotion words of Richins' CES (1997) are in italics.

[a] Morgan and Heise (1988).
[b] Shaver et al. (1987).
[c] Storm and Storm (1987).
[d] Russell (1980).
[e] Frijda et al. (1989).
[f] Havlena et al. (1989).
[g] Roseman et al. (1996).
[h] Plutchik (1980).
[i] Watson and Tellegen (1985).
[j] Watson et al. (1988).

positive and negative affect appears to be the most popular conceptualization (see Table 1).

3. Positive and negative affect

Many papers acknowledge that positive and negative affect are "ever present in the experience of emotions" (Diener, 1999, p. 804; see also Berkowitz, 2000; Watson et al., 1999). We have content-analyzed 10 seminal studies in psychology on emotions and emotion words (Frijda et al., 1989; Havlena et al., 1989; Morgan and Heise, 1988; Plutchik, 1980; Roseman et al., 1996; Russell, 1980; Shaver et al., 1987; Storm and Storm, 1987; Watson and Tellegen, 1985; Watson et al., 1988). We were able to classify all emotion words as either a positive or negative emotion (see Table 2). Table 2 shows the emotion words and indicates which studies included a particular word as a positive or negative emotion word in their structure. The number of references for each emotion word illustrates to what degree researchers agree that this is an emotion word. For example, the emotion words fear, sadness, and happiness appear almost in every emotion structure, whereas others, like mournful, forlorn, and zeal, are only mentioned occasionally. In addition, Table 2 supports the notion that there are more negative than positive emotion words (Morgan and Heise, 1988).

Yet, which of these many emotion words should be used to measure *consumer* emotions? To address this issue, we can use the important study by Richins (1997). Based on extensive research, she constructed the Consumption Emotion Set (CES). This scale includes most, if not all, emotions that can emerge in consumption situations and was developed to distinguish the varieties of emotion associated with different product classes. Table 2 reveals that the words included in the CES (in italics) are among the most frequently encountered words in the psychological emotion literature, and can be easily divided in positive and negative affect.

Advantages of the division in positive and negative affect are that (1) the model can be kept simple and (2) the combination of a person's positive and negative affect is indicative of his/her attitude. The disadvantage is that important distinctions among different positive and negative emotions disappear (Lerner and Keltner, 2000; 2001). Thus, more precise information about the feelings of the consumer is lost (Bagozzi et al., 1999). Because different emotions can have different behavioral consequences, it is important to know, for example, whether a failure in a product or service elicits feelings of anger or sadness. Both angry and sad people feel that something wrong has been done to them, but whereas sad people become inactive and withdrawn, the angry person becomes more energized to fight against the cause of anger (Shaver et al., 1987). Several studies have shown how important it is to take into account differences across emotions of the same valence (Lerner and Keltner, 2000; 2001; Zeelenberg and Pieters, 1999).

4. A hierarchy of consumer emotions

The research streams supporting the different emotion structures (positive/negative vs. specific emotions) seem opposing, but can in fact be seen as complementing. Shaver et al. (1987) and Storm and Storm (1987) have suggested that emotions can be grouped into clusters, yielding a hierarchical structure. The most general, superordinate, level consists of positive and negative affect. The next level is considered as the basic emotion level, and the lowest, subordinate, level consists of groups of individual emotions that form a category named after the most typical emotion of that category. Along the lines of the hierarchical structures of Shaver et al. (1987) and Storm and Storm (1987), we thus propose that consumer emotions can be considered at different levels of abstractness.

Our hierarchy of consumer emotions distinguishes between positive and negative affect at the superordinate level. The specific consumer emotions based on Richins' (1997) CES encompass the subordinate level. Which basic emotions should constitute the intermediate level, however, is less clear. Basic emotions are believed to be innate and universal, but because there are different ways to conceive emotions (facial, e.g., Ekman, 1992; biosocial, e.g., Izard, 1992; brain, e.g., Panksepp, 1992), there is also disagreement about which emotions are basic (Turner and Ortony, 1992). Ortony and Turner (1990) have shown that 14 different emotion theorists proposed 14 different sets of basic emotions. Table 3 shows the usage frequency of the basic emotions in the different structures reviewed by Ortony and Turner (1990). With few exceptions, the basic

Table 3
Basic emotions in the psychological literature (adapted from Ortony and Turner, 1990)

Acceptance[a], Anger[a,b,c,d,e,f,g,h,i], Anticipation[a], Anxiety[f,h,j], Aversion[b], Contempt[d,i], Contentment[h], Courage[b], Dejection[b], Desire[b,k], Despair[b], Disgust[a,c,d,e,f,h,i], Distress[d,i], Elation[e], Expectancy[l], Fear[a,b,c,d,e,g,h,i,l,m,n], Grief[m], Guilt[d], Happiness[f,h,k,o], Hate[b], Hope[b], Hostility[h], Interest[d,k], Joy[a,c,d,g,i,j], Liking[h], Love[b,g,h,m,n], Pain[h,p], Panic[l], Pleasure[p], Pride[h], Rage[j,l,m,n], Sadness[a,b,c,f,g,h,o], Shame[d,h,i], Sorrow[k], Subjection[e], Surprise[a,c,d,i,k], Tender[e], Wonder[e,k]

[a] Plutchik (1980).
[b] Arnold (1960).
[c] Ekman et al. (1982).
[d] Izard (1971).
[e] McDougal (1926).
[f] Oatley and Johnson-Laird (1987)
[g] Shaver et al. (1987).
[h] Storm and Storm (1987).
[i] Tomkins (1984).
[j] Gray (1982).
[k] Frijda (1986).
[l] Panksepp (1982).
[m] James (1884).
[n] Watson (1930).
[o] Weiner and Graham (1984).
[p] Mowrer (1960).

emotions from Table 3 are among the most frequently mentioned emotion words in Table 2.

To develop a set of basic consumer emotions, we draw on the hierarchical structures of Shaver et al. (1987) and Storm and Storm (1987), and Table 3. Some basic emotion words are mentioned in most of the structures (see Table 3). These are anger, fear, love, sadness, disgust, joy, and surprise. Anger, fear, love and sadness are basic emotions in both the structures of Shaver et al. (1987) and Storm and Storm (1987), and will be retained in our structure. Disgust is not included in the structure of Richins (1997) and therefore excluded as a basic consumption emotion.

Surprise was excluded for several reasons. First, it is a neutral emotion (Storm and Storm, 1987) and therefore impossible to classify as a positive or negative emotion. Second, when participants were required to list emotions, surprise was hardly mentioned (Fehr and Russell, 1984).

Following Storm and Storm (1987), we added the emotion shame to the basic negative emotions. Anger, sadness, and fear are all emotions elicited by situations caused by others or circumstances, whereas shame is caused by a negative action of consumers themselves (Roseman et al., 1996).

The positive emotions can be roughly divided in interpersonal emotions and emotions without interpersonal reference (Storm and Storm, 1987). The interpersonal emotions are covered by love and its specific emotion words, but there are distinct differences between the emotions that are not interpersonal. Following Storm and Storm (1987), we therefore replaced the more general term joy by the basic emotions contentment, happiness, and pride. Contentment is low in arousal and passive, whereas happiness is higher in activity and a reactive positive emotion. Pride, on the other hand, concerns feelings of superiority. Due to these differences, we argue that it is better to include these basic emotions separately rather than all under one large basic emotion of joy.

Our proposed hierarchy thus consists of three levels: the superordinate level with positive and negative affect, the basic level with four positive and four negative emotions, and the subordinate level with specific emotions. The final result can be seen in Fig. 1. Next, we will conduct a preliminary test of our hypothesized structure.

5. Method

5.1. Sample and procedure

Data were collected in a nationally representative sample among 645 Dutch consumers using a questionnaire. The market research agency GfK carried out the data collection. Of the respondents, 53.6% were women, 58.3% were responsible for the daily grocery shopping, and 69.1% were the main wage earner of the household. The average household size was 2.39 persons and all levels of education and income were represented. The average age was 48 years and ranged between 16 and 91 with a fairly normal spread.

Respondents were asked to indicate to what extent they experience 33 specific emotions for one (randomly assigned) type of food (genetically modified food, functional food, organic food, or regular food). Thus, we measure emotions at a general, product-type level of categorization. In The Netherlands, these types of foods are widely known, the exception being functional foods (this was confirmed in discussions with industry experts). Therefore, respondents who rated their emotions for functional foods received additional explanation: “Functional foods are food products that have been enriched or modified. The reason for this is to make the product healthier or to prevent diseases (e.g., milk with extra calcium, margarine with additives to lower the cholesterol level)”.

5.2. Measures

With some exceptions, the emotion words shown in Fig. 1 were used. Emotions were rated on a five-point Likert scale ranging from *I feel this emotion not at all* (1) to *I feel this emotion very strongly* (5). In our empirical test, we omitted the basic emotions “love” and “pride”, and the

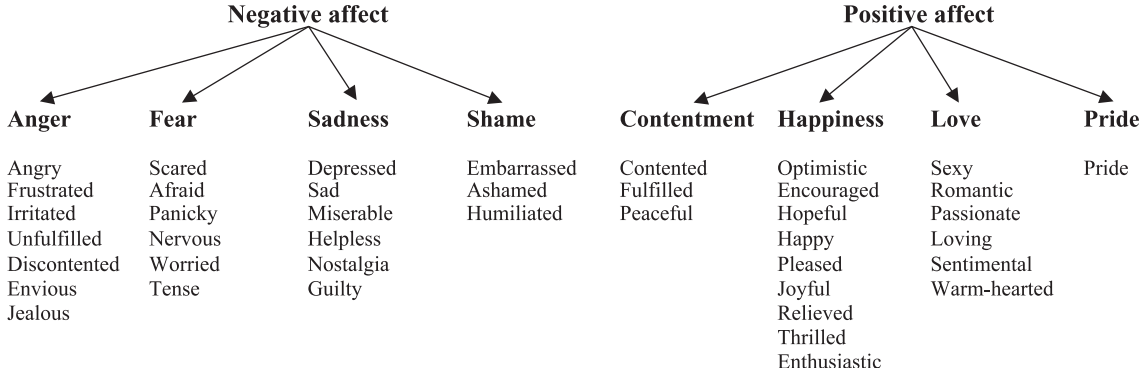


Fig. 1. Hierarchy of consumer emotions.

emotion words "envious" and "jealous". "Love" is demonstrated to be mainly experienced in the case of sentimental products, like mementos and gifts (Richins, 1997). The latter three emotions are interpersonal and less applicable in the case of widely available food. The emotion "pride" generally occurs when a consumer feels superior compared to another person, whereas the emotions "envy" and "jealousy" occur when consumers feel that another person has something more or better than them. Thus, the basic emotions in our analyses are as follows: anger, fear, sadness, shame, contentment, and happiness, measured in total by 33 specific emotion words.

5.2. Stability of the emotions structure across food types

Before we can test our second-order hierarchical model of consumer emotions, we have to establish whether we can pool the data across the four food types. We do this in two ways. First, we assess whether principal component analysis yields the same factor structure in each of the four food groups. The Bartlett's test of sphericity is significant for all four foods, and the measure of sampling adequacy ranges between .86 (organic food) and .92 (genetically modified food), which means that principal component analysis can be applied. The scree test indicated two factors in all four groups, explaining between 48% (regular food) and 60% (genetically modified food) of the variance. The factor structures (after rotation) were highly similar, Tucker's congruence coefficient always being greater than .95 ($P<.01$; Cattell, 1978).

A second way to assess the similarity of the four food groups is to test for the invariance of the covariance matrices across the four groups using LISREL 8.50 (Steenkamp and Baumgartner, 1998). The fit was good, given the large sample and high number of degrees of freedom (Baumgartner and Homburg, 1996): $\chi^2(1683)=3845.90$ ($P<.001$); CFI=.86; TLI=.82. Hence, we can pool the data across the different food types.

6. Results

6.1. Testing the proposed model

We used LISREL 8.50 to test the proposed hierarchical emotions model. The standardized parameter estimates of the second-order factor analysis are reported in Fig. 2. Model fit is acceptable: $\chi^2(490)=3036.79$ ($P<.001$), CFI=.84, TLI=.83. Although the χ^2 was highly significant (not unexpected given the large sample size; Anderson and Gerbing, 1988), other indicators suggest reasonable model fit, especially considering that fit is adversely affected by model complexity (Baumgartner and Homburg, 1996; Bollen, 1989; Bone et al., 1989). In addition, the fit measures are in line with simulation results (see Gerbing and Anderson, 1993 for a review) and compare favorably to other models with similar degrees of freedom (e.g., Netemeyer et al., 1991; Richins and Dawson, 1992; Wong et al., 2003).

All factor loadings were significant at $P<.001$, the average loading being .73. Only the factor loading of the emotion nostalgia on the basic emotion sadness was below .40. A possible explanation for this is that nostalgia involves complex emotional responses and can have both a positive and a negative connotation (Holak and Havlena, 1998). The correlation between the second-order factors positive and negative affect was significant ($r=-.35$, $P<.01$), confirming earlier results found in consumer research (e.g., Westbrook, 1987; Phillips and Baumgartner, 2002).

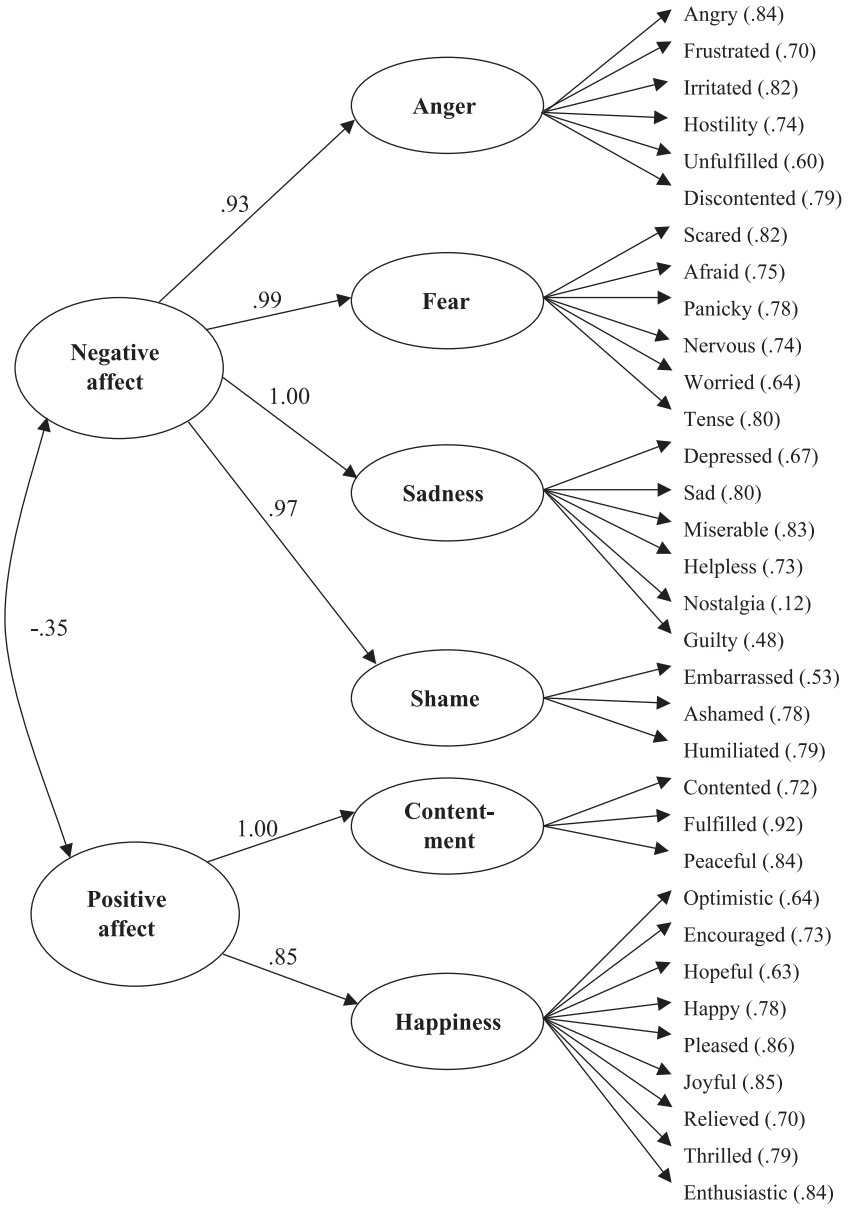
These results support the convergent and discriminant validity of our model (Steenkamp and Van Trijp, 1991). The reliability of our measures was high. Cronbach alphas were $\alpha=.94$ and $\alpha=.95$ for the dimensions positive and negative affect, respectively. The basic emotions yielded the following reliabilities: anger ($\alpha=.88$), fear ($\alpha=.88$), sadness ($\alpha=.76$), shame ($\alpha=.74$), contentment ($\alpha=.86$), and happiness ($\alpha=.92$).

6.2. Comparison of the superordinate level with the basic emotions

Although the emotion *structure* is similar for the four food groups, that does not imply that the various foods evoke the same emotional *intensity*. Table 4 provides the mean scores for the superordinate dimensions positive and negative affect and for the basic emotions.

ANOVA with multiple comparisons (LSD) was used to investigate whether the mean values across food groups are significantly different. Participants experience significantly more negative affect and less positive affect for genetically modified foods than for the other food groups. Yet, the basic emotions show differences among the food types that would have been lost if only positive and negative affect had been considered. Both the basic emotions fear and contentment contain additional subtle distinctions across the food groups. The negative affect experienced by consumers is similar for functional, organic, and regular food. Yet, consumers feel a lot more fearful concerning functional food than for organic and regular food. Concerning the positive emotions, contentment has very low values for organic food compared to functional and regular food. These nuances, however, are wiped away for positive affect.

To demonstrate the usefulness of basic emotions for understanding the consumer's feelings, we will take a closer look at one of the food groups. Genetically modified food represents a controversial topic in contemporary society, and previous research (e.g., Bredahl, 2001) has shown that consumers have a rather negative attitude towards this type of food. The scores on negative and positive affect support this, but the basic emotions indicate more clearly how consumers feel. Participants do not feel sad or ashamed, but



Note: Reported are standardized coefficients. All coefficients significant at $p < .05$.
First-order factor loadings are reported in parentheses after the specific emotions.

Fig. 2. Results of second-order factor analysis.

are very angry and afraid. This means that they feel energized and powerful rather than inactive, and feel that they themselves are not to be blamed, but someone else is. In addition, genetically modified food elicits strong associations of risk and uncertainty leading to feelings of fear.

Table 4
Differences in the intensity of the superordinate and basic emotions for the food groups

Emotion	GMF	Functional	Organic	Regular	*F*	P value
Negative affect	1.99[a]	1.45[b]	1.43[b]	1.46[b]	31.25	<.001
Anger	2.19[a]	1.51[b]	1.47[b]	1.55[b]	34.49	<.001
Sadness	1.79[a]	1.46[b]	1.47[b]	1.47[b]	11.99	<.001
Fear	2.16[a]	1.57[b]	1.40[c]	1.43[c]	46.06	<.001
Shame	1.65[a]	1.32[b]	1.29[b]	1.31[b]	11.30	<.001
Positive affect	1.68[a]	2.41[b,c]	2.32[c]	2.48[b]	40.09	<.001
Contentment	1.82[a]	2.69[b]	2.40[c]	2.81[b]	47.38	<.001
Happiness	1.64[a]	2.32[b]	2.29[b]	2.37[b]	33.64	<.001

Note: Different supercripts reflect a significant difference of the intensity at a *p*-value <0.05.

7. Conclusion

Based on our literature review, we concluded that despite the different ways to measure emotions, positive and negative affect are frequently employed as general emotion dimensions. Important nuances, however, are lost if emotions of the same valence are collapsed together. This paper therefore proposed a hierarchical model of consumer emotions (Fig. 1) to integrate the different research streams concerning emotion content and structure. This model specifies emotions at three levels of generality. At the superordinate level, it distinguishes between positive and negative affect. This is generally considered to be the most abstract level at which emotions can be experienced (e.g., Berkowitz, 2000; Diener, 1999). At the level of basic emotions, we specify four positive (contentment, happiness, love, and pride) and four negative (sadness, fear, anger, and shame). At the subordinate level, we distinguish between 42 specific emotions based on Richins' (1997) CES. Our empirical study provides support for the proposed model and suggests that the basic emotions allow for a better understanding of the consumers' feelings concerning certain food products compared to only positive and negative affect. Note that not in all situations this model need be used as a whole. Dependent on the research question, only part of the model may be used. However, even in such cases, the researcher can still relate his/her specific results to the broader structure of our emotions. This makes it easier for emotions research to cumulatively build on each other and to identify gaps in our knowledge.

Our study has several limitations, which offer avenues for future research. First, we excluded two basic emotions (love and pride) from our empirical analysis. Future research is needed to validate the whole hierarchy of emotions, and to test our model on other products and services. Second, future research can expand the set of specific consumer emotions. Possible candidates include the negative emotions regret and disappointment that recently received a great deal of attention in consumer research (e.g., Inman and Zeelenberg, 2002; Tsiros and Mittal, 2000; Zeelenberg and Pieters, 1999). Regret stems from bad decisions, whereas disappointment originates from disconfirmed expectancies (Zeelenberg and Pieters, 1999). We thus propose that regret can be positioned under the basic emotion shame, and disappointment under the basic emotion sadness (Zeelenberg et al., 1998), but future research should investigate this.

Third, future research can investigate whether the set of basic emotions has greater explanatory power than positive and negative affect. Our exploratory analysis indicates this, but future research should test this hypothesis. Fourth, we tested our emotions model in The Netherlands. The further advancement of consumer research as an academic discipline requires that the validity of our theories and measures and their degree of general validity and boundary conditions be tested in different countries (Steenkamp and Burgess, 2002).

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