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The authors conduct meta-analyses of relationships involving positive and negative ad-evoked feelings to determine (1) whether the effects of positive and negative feelings on advertising responses are symmetrical or asymmetrical and bipolar or bidimensional; (2) whether study design characteristics influence the strength of effects of positive and negative feelings on ad and brand attitudes; (3) whether moderator effects are differential for positive and negative feelings; and (4) whether relationships are generalizable across different study designs, product types, and media. Using the aggregated data, the authors assess competing predictions of three alternative theoretical perspectives: *bipolarity*, *generalized asymmetry*, and *contingent asymmetry*. Analyses indicate that positive and negative feelings have contingently asymmetrical effects on advertising responses. Study conditions related to subjects' cognitive processing sets moderated the effects of negative feelings on ad and brand attitudes but generally did not moderate the effects of positive feelings. The authors also demonstrate the utility of bootstrapping as an advantageous new way of conducting moderator analyses in meta-analysis.

## A Meta-Analysis of Relationships Between Ad-Evoked Feelings and Advertising Responses

In recent years, considerable effort has been devoted to understanding how ad-evoked feelings influence advertising responses (e.g., Aaker, Stayman, and Hagerty 1986; Batra and Ray 1986; Burke and Edell 1989; Edell and Burke 1987; Holbrook and Batra 1987).<sup>1</sup> The practical and theoretical importance of these effects has been underscored by a substantial volume of research published in leading journals and by a special Marketing Science Institute-sponsored conference (Yoon 1991). A decade of research has produced a rich body of empirical data, representing a diversity of study designs and advertising stimuli. Results consistently

have indicated important effects of ad-evoked feelings on advertising responses (e.g., Batra and Ray 1986; Edell and Burke 1987; Stayman and Aaker 1988). They also have provided useful information regarding the path structure of relationships (e.g., Burke and Edell 1989; MacInnis and Park 1991) and contingency factors that moderate the strength of relationships involving ad-evoked feelings (e.g., Batra and Stephens 1994; Goldberg and Gorn 1987).

Despite these contributions, important theoretical, practical, and methodological questions have not been addressed. For example, prior research has not indicated whether (1) positive and negative feelings are bidimensional or bipolar (i.e., whether they constitute separate constructs or merely opposite poles of the same construct), (2) they have symmetrical or asymmetrical effects, (3) study design characteristics moderate the strength of feeling effects, and (4) they differentially influence the effects of positive and negative feelings. Meta-analysis is useful for addressing these questions because it assesses the generalizability of relationships more objectively, precisely, and conclusively than narrative reviews and can identify relationships and contingency effects that have not been (and could not be) assessed in the context of a single empirical study (Bangert-Downs 1986).

Several theoretical perspectives drawn from the broader literature on affect make different predictions regarding the

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<sup>1</sup>We use the terms *feelings* and *emotions* interchangeably.

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absolute and relative strength of positive and negative feeling effects. We use meta-analysis not only to provide a systematic, quantitative analysis of the strength and generalizability of ad-evoked feeling effects, but also to test competing predictions implied by alternative theoretical perspectives using data aggregated across the research stream.

From a practical perspective, the relative strength of positive and negative feeling effects potentially could guide advertisers' decisions regarding executional strategies. For example, if negative (compared with positive) feelings have a greater impact on brand attitudes, advertisers seeking broad market appeal should avoid executions capable of evoking substantial negative affect to minimize potential harm to brand equity. Also, because advertisers often make trade-offs between "breaking through the clutter" and "being liked" (Walker and Dubitsky 1994), decisions regarding repetition, scheduling, and executions could be affected by findings regarding the relative strength of positive and negative feeling effects.

Methodologically, it is important for both industry and academic researchers to understand how study designs influence relationships between ad-evoked feelings and advertising responses. For example, researchers can bias effect sizes by unwittingly creating conditions that influence subjects' cognitive processing sets (Lutz 1985; Madden, Allen, and Twible 1988). Moreover, study design characteristics can influence differentially the effects of positive and negative feelings on advertising responses. Understanding these effects is important for conducting the most informative and precise copy tests, accurately interpreting research data, evaluating alternative theories, and devising the most effective study designs in industry and academic settings.

We also advance meta-analytic methodology by introducing bootstrapping as a way of performing multivariate moderator analyses. Small sample sizes are virtually always a problem in testing moderator effects in meta-analyses (Farley and Lehmann 1986) and often make testing multivariate parametric models of moderator effects infeasible. This typically leads to testing multiple moderators through independent analyses (e.g., t-tests or comparisons of confidence intervals) of one moderator at a time. Unfortunately, this practice does not account for correlations among the moderators or the redundancy of their shared variances with the criterion. The small sample sizes typical of meta-analyses in marketing (and other fields) also lead to limited power to reject the null hypothesis, which leads to high risk of type II errors and erroneous conclusions that "true" (i.e., generalizable) effect sizes have been found. The most likely effect of such conclusions would be to discourage worthwhile research seeking to identify moderator effects (Sackett, Harris, and Orr 1986). Bootstrapping helps overcome these limitations by enabling moderator effects to be tested in multivariate models. Although bootstrapping has been used increasingly in the marketing literature (Bone, Sharma, and Shimp 1989; Inman and McAlister 1993; Van Trijp, Hoyer, and Inman 1996), it has not been applied previously to meta-analysis. However, it has great potential utility for this type of research.

### THE RESEARCH DOMAIN

Research on emotional responses to advertising grew from the extensive research on attitude toward the ad ( $A_{ad}$ ) and more generally from important developments in the

psychology of emotion (e.g., Lazarus 1984; Zajonc 1984). It was motivated by the finding that ad-evoked feelings influence brand attitudes independently of attribute beliefs (e.g., Batra and Ray 1986; Burke and Edell 1989; Mitchell and Olson 1981; Stayman and Aaker 1988). Empirical research on  $A_{ad}$  is reviewed by Brown and Stayman (1992). Using covariance structure modeling in conjunction with meta-analysis, they, like MacKenzie, Lutz, and Belch (1986), find support for the dual mediation model, which includes an indirect (as well as a direct) effect of  $A_{ad}$  on brand attitude ( $A_b$ ). (The indirect effect was mediated by brand-related cognitions.) Brown and Stayman (1992) analyze a wide range of relationships involving  $A_{ad}$  but do not assess the separate effects of positive and negative feelings. Relationships between ad-evoked feelings and other response variables, such as brand attitudes, are also outside the scope of that study.

Studies of ad-evoked feelings typically have included  $A_{ad}$  and brand attitude as dependent variables.<sup>2</sup> The effects of ad-evoked feelings on  $A_{ad}$  are considered direct (e.g., Burke and Edell 1989; Stayman and Aaker 1988), whereas the effects of feelings on brand attitude are found to be primarily indirect and mediated by  $A_{ad}$  (e.g., Stayman and Aaker 1988). Feelings- $A_{ad}$  and feelings-brand attitude relationships invariably are consistent in direction (i.e., uniformly positive for positive feelings and uniformly negative for negative feelings). Because the feelings- $A_{ad}$  relationship is direct, it tends to be stronger than the indirect relationship between feelings and brand attitude. Feelings- $A_{ad}$  and feelings-brand attitude relationships are found to be contingent on the same moderators, such as involvement and cognitive elaboration, as detailed in the following paragraphs. Thus, our conceptual development is the same for both ad and brand attitudes.

Empirical research on ad-evoked feelings has established that affective responses, as subjective states of the individual, can be distinguished clearly from semantic judgments and evaluations of stimulus advertisements (Aaker, Stayman, and Hagerty 1986; Edell and Burke 1987; Holbrook and Batra 1987). As such, they have substantial effects on ad and brand attitudes, purchase intentions, and actual choice (e.g., Aaker, Stayman, and Hagerty 1986; Batra and Ray 1986; Burke and Edell 1989; Edell and Burke 1987; Holbrook and Batra 1987; MacInnis and Park 1991; Stayman and Aaker 1988; Stayman and Batra 1991). Consistent with the conceptualization described previously, effects of feelings on brand attitudes appear to be primarily indirect and mediated by  $A_{ad}$  (Batra and Ray 1986; Edell and Burke 1987; MacInnis and Park 1991), though modest direct effects can occur, especially at low levels of advertising exposure (Stayman and Aaker 1988). In addition to these "on-line" effects, ad-evoked affect retrieved from memory can increase choice probability for advertised brands (Stayman and Batra 1991).

Research also has investigated the contingencies that moderate the strength of ad-evoked feeling effects on ad and

<sup>2</sup>Purchase intentions (PI) also have been considered in several studies. Purchase intentions typically are conceptualized as direct consequences of brand attitude and indirect consequences of  $A_{ad}$ . However, an insufficient number of studies exist to conduct meaningful moderator analyses of the feelings-PI relationships. We do report the overall weighted means for the feelings-PI relationships in Table 2.

brand attitudes. For example, one research stream identifies program context and placement of target advertisements among other advertisements as moderators of ad-evoked feeling effects. Goldberg and Gorn (1987) find that advertisements placed in happy programs elicit more positive responses than those placed in sad programs, especially when the advertisements are emotional rather than informational. Aaker, Stayman, and Hagerty (1986) find that warm advertisements are more effective when viewed following contrasting types of executions.

The most reliable contingency effects established to date relate to viewer involvement and the amount of cognitive elaboration of advertisement content. Research has demonstrated that, in general, ad-evoked feelings have relatively weak effects under high involvement and conditions that encourage cognitive elaboration. For example, Batra and Stephens (1994) find that the effects of affective responses on brand attitudes are strongest when motivation to process brand information is low. Madden, Allen, and Twible (1988) find that subjects who receive instructions to evaluate advertisement executions have less affective response than subjects who are not so instructed. Greenwald and Leavitt (1984) suggest that highly involved viewers are likely to engage in greater message elaboration and critical evaluation of advertisements and to experience less affective response. Using data aggregated across the  $A_{ad}$  literature, Brown and Stayman (1992) find that experimental conditions favoring greater cognitive elaboration produce a weaker relationship between ad-evoked feelings and  $A_{ad}$  than conditions not favoring elaboration.

Similar effects of involvement have been found in research on the influence of positive moods on persuasion. For example, Batra and Stayman (1990) find that a positive mood has a greater effect on brand attitudes for subjects low in need for cognition (i.e., dispositional tendency to elaborate content material cognitively). They also find that positive-mood subjects make less distinction between strong and weak message arguments and produce fewer counterarguments than neutral-mood subjects. Curren and Harich (1994) find that positive mood has a significant effect on brand evaluations when personal relevance is low but not when personal relevance is high. A plausible explanation of these findings is that feelings act as peripheral cues that influence attitudes and intentions when motivation and/or ability to elaborate arguments cognitively are low (Petty and Cacioppo 1986; Schwarz, Bless, and Bohner 1991).

#### THEORETICAL PERSPECTIVES

We use the aggregated study effects to assess whether the effects of ad-evoked feelings are (1) bidimensional or bipolar and (2) symmetrical or asymmetrical. Furthermore, if asymmetry exists between positive and negative feeling effects, it could be either *generalized* (i.e., invariant across study conditions) or *contingent* (i.e., context specific). Three theoretical perspectives, derived from the broader affect literature, imply different predictions with respect to these questions and possibilities. These perspectives and their predictions are developed in the following sections.

##### *Bipolarity*

In recent years, positive and negative affect have come to be viewed as nearly orthogonal independent factors (Diener

and Emmons 1984; Isen 1993; Tellegen 1985; Watson, Clark, and Tellegen 1988; Watson and Tellegen 1985; Zevon and Tellegen 1982). However, this view has been challenged strongly by Green, Goldman, and Salovey (1993), who build on previous demonstrations that methodological artifacts tend to suppress negative correlations between positive and negative affect (e.g., Bentler 1969; Russell 1979) to provide strong evidence that low correlations between positive and negative affect result artifactually from random and nonrandom measurement error. They show that correction for random measurement error alone can lead to the conclusion that affect is bipolar rather than bidimensional. For example, averaging across their first two studies, correction for random measurement error causes the negative correlation between positive and negative mood to increase from  $-.33$  to  $-.89$ . If positive and negative feelings are polar opposites along a single continuum, their effects on advertising responses are likely to be at least roughly symmetrical.

##### *Generalized Asymmetry*

The possibility of generalized asymmetry is illustrated by the finding from decision-making research that negative information generally has greater influence than positive information (e.g., Mizerski 1982; Weinburger, Allen, and Dillon 1981).<sup>3</sup> For example, Weinburger, Allen, and Dillon (1981) found that negative (compared with positive) information has more influence on evaluations of unbranded goods and services. Similarly, Mizerski (1982) finds that negative (compared with positive) information has stronger effects on consumers' ratings of product attributes. A plausible explanation of this generalized negativity bias is grounded in attribution theory. It holds that positive information may be discounted because it is more consistent with social norms than negative information is. Thus, positive information may result from socially desirable responding as well as from veridical responses to stimulus features. In contrast, negative information is more likely to be diagnostic of stimulus characteristics and thus is not discounted (Mizerski 1982). Although it remains unclear whether this negativity bias generalizes to feelings-advertising response relationships, a similar discounting principle potentially could apply. If feelings constitute informational input to ad and brand attitudes as has been proposed in the literature (e.g., Gorn, Goldberg, and Basu 1993; Greenwald and Leavitt 1984; MacInnis and Park 1991), the effects of negative feelings might outweigh those of positive feelings in a manner consistent with the general negativity bias. If so, the conclusion that positive and negative feeling effects are generally asymmetrical would be warranted.

##### *Contingent Asymmetry*

In contrast to generalized asymmetry, the persuasion literature offers several conceptual perspectives that predict an interaction between valence of feelings and cognitive elaboration. Three of these (mood as information, mood-congruent recall, and the motivation hypothesis) are consistent in two predictions: (1) that cognitive elaboration is greater when

<sup>3</sup>It should be noted that recent research (e.g., Homer and Batra 1994) demonstrates that negative advertising can affect different types of beliefs differently, which suggests that the negativity bias might work selectively.

negative rather than positive feelings predominate and (2) that feelings have less impact on ad and brand attitudes when cognitive elaboration is greater (for a review, see Schwarz and Clore 1996). We briefly review these theories, which we classify collectively as the *contingent asymmetry* perspective, in the following sections.

*Mood as information.* This theory maintains that affective states serve informative functions. It holds that when information is lacking, people evaluate an attitude object simply by asking themselves, "How do I feel about it?" (Schwarz, Bless, and Bohner 1991). The same heuristic comes into play as a simplification strategy when too much information is available or when ability and/or motivation to process available information is lacking (Schwarz 1990). Positive feelings signal a state of well-being in the person's environment and do not prompt cognitive elaboration. In contrast, negative feelings signal actual or potential problems, prompting effortful, detail-oriented processing to identify and cope with the root cause (Isen 1987; Schwarz 1990). Greater cognitive elaboration in turn leads to less influence of feelings on ad and brand attitudes when feelings are negative.

*Mood-congruent recall.* A robust empirical finding is that people in good moods are persuaded equally by strong or weak arguments, but people in bad moods are persuaded more by strong arguments (Schwarz and Clore 1996). One possible explanation is that positive mood-congruent material cued from memory is more extensive than negative mood-congruent material and thus occupies a greater proportion of limited processing capacity (Isen et al. 1978; Mackie and Worth 1989, 1991). Mackie and Worth (1989) find that happy subjects elaborate message arguments cognitively when provided ample time (to ease capacity limitations), a finding that they interpret as support for mood-congruent recall. Processing capacity limitations resulting from positive feelings could lead to less elaboration of advertising content and greater impact of feelings than when ad-evoked feelings are negative.

*Motivational hypothesis.* The motivational hypothesis holds that people in good moods seek to maintain positive feelings, whereas people in bad moods strive to repair negative feelings. Thus, happy people engage in less cognitive processing (e.g., produce fewer counterarguments and overall cognitive responses) because effortful elaboration interrupts their positive feelings (e.g., Batra and Stayman 1990; Batra and Stephens 1994). Conversely, people experiencing negative feelings process information more intensively as a means of identifying and correcting the cause of their feelings (Schwarz and Clore 1996). In turn, more intensive processing leads to weaker effects of negative (compared with positive) feelings on advertising responses.

#### POTENTIAL MODERATORS

Research on ad-evoked feelings has employed a diversity of study designs, including different types of samples, advertising stimuli, measurement instruments, and exposure conditions. We coded study design characteristics as potential moderators on the basis of a review of ad-evoked feelings research and the methodological literature on meta-analysis. Some coded characteristics ultimately could not be used because insignificant variation existed across studies or because one study characteristic was redundant with

another.<sup>4</sup> The study characteristics we analyzed included type of experimental instructions given to subjects (instructed/not instructed to attend to target advertisements), type of cover story (experimenters' interest in reactions to target advertisements was disguised/not disguised), advertising medium (television/print), and type of advertised product (novel/familiar). These are described briefly in the following sections.

*Instructions and cover story.* Experimental instructions and cover stories are likely to influence subjects' cognitive sets directly upon exposure to target advertisements. Instructions and cover stories that focus attention on target advertisements are conducive to cognitive elaboration of advertising content, whereas those that do not focus attention on target advertisements encourage heuristic processing (Brown and Stayman 1992; Derbaix 1995; Madden, Allen, and Twible 1988). Thus, instructions to attend to advertisements and undisguised cover stories are likely to produce relatively weak feeling effects on ad and brand attitudes. The theories summarized previously as the contingent asymmetry perspective suggest that attentive viewers whose feelings are positive tend to resist cognitive elaboration of advertising material, whereas attentive viewers whose feelings are negative spontaneously engage in elaborated processing. If so, effects of positive feelings are likely to be strong regardless of whether subjects' attention is directed specifically to target advertisements. In contrast, effects of negative feelings are likely to be strong only when attention is not focused specifically on target advertisements. This is the fundamental prediction of the contingent asymmetry perspective.

*Medium.* Previous research suggests that the advertising medium is a moderator of cognitive and affective responses to advertising (Brown and Stayman 1992; Chaiken and Eagly 1983; Krugman 1965). Comparing print with television, Chaiken and Eagly (1983) find that message information and product cognitions are more important determinants of advertising outcomes for print advertisements, whereas likability of the communicator (a more peripheral cue) is more important for television advertisements. Homer and Yoon (1992) also argue that television advertisements are more complex stimuli than print advertisements and elicit a broader range of emotions. The impact of feelings may be greater for television advertisements than for print advertisements because cognitive elaboration is likely to be less for television (assuming approximately equal attention levels).

*Novel/familiar product.* Previous research suggests that ad-evoked feeling effects are likely to be stronger for novel brands. Moore and Hutchinson (1983) find that prior brand attitudes can affect advertising responses. It is also likely that attitudes toward established brands are less influenced by ad-evoked feelings than attitudes toward unfamiliar brands (Johnson and Eagly 1989). Consistent with this premise, Brown and Stayman (1992) find stronger relationships between  $A_{ad}$  and both brand attitude and purchase

<sup>4</sup>For example, too few studies used nonstudent samples to estimate a meaningful sample parameter. Also, with the exception of Edell and Burke's (1987) scale, no other measurement scale was used across multiple studies. Whether advertisements were embedded in other content material was correlated too highly with experimental instructions to permit analysis of it as a separate moderator.

Table 1  
PREDICTIONS OF CONCEPTUAL PERSPECTIVES

<i>Theoretical Perspective</i>	<i>Main Effect of Valence on A<sub>ad</sub> and Brand Attitude</i>	<i>Valence × Cognitive Elaboration Interaction (in relation to A<sub>ad</sub> and Brand Attitude)</i>
Bipolarity	No	No
Generalized Asymmetry	Negative > positive	No
Contingent Asymmetry	No	Positive > negative when attention is directed to target advertisements

intentions for unfamiliar brands but no difference for the feelings–A<sub>ad</sub> relationship. Derbaix (1995) shows that the effects of ad-evoked feelings on A<sub>ad</sub> and A<sub>b</sub> are stronger for novel brands than for familiar brands.

#### *Implied Theoretical Predictions*

In Table 1, we specify the predictions made by the three conceptual perspectives. The bipolarity perspective predicts that the effects of positive and negative feelings on advertising responses are approximately equal in magnitude and that disattenuation for measurement error produces a large negative correlation between positive and negative feelings. The generalized asymmetry perspective predicts a main effect of valence such that the effects of negative feelings are generally greater than those of positive feelings. The contingent asymmetry perspective predicts that valence of feelings interacts with instructions and cover story such that the effects of positive (compared with negative) feelings are greater when instructions and cover story focus attention on target advertisements.

### METHOD

#### *Collection of Studies*

Studies included in the meta-analyses were located by searching the *Journal of Consumer Research*, *Advances in Consumer Research*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Consumer Psychology*, *Journal of the Academy of Marketing Science*, *Journal of Advertising*, *Journal of Advertising Research*, *Psychology and Marketing*, and *Journal of Current Issues and Research in Advertising*. The *ABI Inform* and *Psychlit* databases also were searched for additional publications. We contacted authors of published articles and researchers working in the field by mail to request (1) correlation matrices when published articles reported only partialled multivariate statistics, (2) any information necessary for coding study characteristics that was not included in the published reports, and (3) other study reports that met the specifications for inclusion but that we might have overlooked initially. After coding the study characteristics, we contacted authors by mail to ask them to check our codings for accuracy. This resulted in changing only 2 of more than 300 codings.<sup>5</sup>

Our review encompasses all available studies of ad-evoked feelings. We assessed the feasibility of including the

smaller number of advertising-related persuasion studies that manipulated mood independently of target advertisements rather than measured the feelings elicited by the advertisements (e.g., Batra and Stayman 1990; Howard and Barry 1994) in the primary analyses. However, a homogeneity test of the positive feelings–brand attitude relationship (the primary area of overlap) indicated substantial differences in mean effect sizes between the two types of studies (corrected  $r = .374$ ,  $n = 20$  for ad-evoked emotion studies; corrected  $r = .208$ ,  $n = 3$  for mood manipulation studies,  $t(4) = 1.67$ ,  $p < .10$ ). This difference was statistically significant at the .10 level despite limited power and a large variance for the ad-evoked emotions group.<sup>6</sup> Therefore, the mood manipulation studies were not included in the primary analyses. Including them would have caused a downward bias in a single relationship (i.e., positive feelings–brand attitude) and materially affected conclusions regarding the symmetry or asymmetry of positive and negative feeling effects. Non-advertising-related mood manipulation studies were excluded because their dependent variables were inconsistent with the advertising focus of our study. Also, studies that measured ad-depicted emotions rather than emotions felt by respondents (e.g., Biel and Bridgwater 1990) and those that used the same data as another study (e.g., Stout and Leckenby 1988, which used the same data as Stout and Leckenby 1986) were omitted. These procedures and criteria resulted in a set of 55 studies with independent samples, reported in 46 published articles (dating from 1986 to 1995).

#### *Procedures*

We coded discrete ad-evoked feelings as positive or negative. This classification corresponds to the most fundamental conceptual distinction in categorizing emotions (Frijda 1986; Lazarus 1991; Roseman 1991; Smith and Ellsworth 1985). The distinction between positive and negative emotions is acknowledged universally in conceptual models. Watson and Tellegen (1985) find that higher-order positive and negative affect factors account for one-half to three-fourths of the common variance in factor analyses of affect ratings. Bagozzi (1993) also finds that discrete negative emotions load strongly on a higher-order negative emotion construct. The positive/negative distinction provides a conceptually sound and practically meaningful principle for aggregating the study effects. The majority of empirical studies operationalize emotions merely as positive or negative (e.g., Baumgartner, Sujan, and Bettman 1992; MacInnis and Park 1991). In other studies, discrete emotions are classified easily as positive or negative. Thus, the meta-analyses were conducted and are reported separately for positive and negative emotions.

The effect-size metric used in the analyses was  $r$ , the Pearson product-moment correlation coefficient. Many studies, however, report only partialled multivariate indices of effect size and not usable pairwise relationships. In these instances, as noted previously, we solicited correlation matrices from the researchers. Bivariate effect-size indices,

<sup>5</sup>A list of studies included in the analysis and their codings is available from Pamela M. Homer.

<sup>6</sup>The difference in mean effect sizes is not surprising, because mood manipulation studies typically strive to disassociate mood manipulations from presentation of affectively neutral stimuli, whereas ad-evoked feelings studies overtly measure affective responses to an affectively rich stimulus.

such as Student's *t* and *F* ratios with one degree of freedom in the numerator, were converted to *r* according to formulas provided by Hunter and Schmidt (1990, p. 272). When multiple effects were reported for a single relationship in a single sample, we analyzed the mean of the reported effects. Thus, we based the analyses on independent observations to the greatest extent possible and only included one effect per relationship per sample (Bangert-Downs 1986). Each correlation was corrected for measurement error (i.e., divided by the product of the square roots of the two reliabilities) and weighted by its sample size relative to the cumulative sample size for that relationship (Hunter and Schmidt 1990, p. 119). For studies that did not report reliabilities, the weighted mean reliability across all studies that did report it was used. We performed moderator analyses on the attenuation-corrected correlations. These represent the best estimates of the strength of relationships between latent constructs in the population (Hunter and Schmidt 1990).

Hunter and Schmidt (1990) maintain that when statistical artifacts such as sampling error, measurement error, and range restriction account for as much as 75% of total between-study variance, the conclusion that no meaningful "true" variance in effect size exists across studies is warranted. Thus, we analyzed the proportion of total variance accounted for by sampling error and measurement error. In addition, a chi-square statistic assessing the significance of between-study variances was computed (Hunter and Schmidt 1990, p. 151). When the ratio of sampling error to total variance around the weighted mean attenuation-corrected correlation was less than 75% and the chi-square statistic was statistically significant, we conducted moderator analyses.

## RESULTS

### Overall Analyses

In Table 2, we present the mean observed and attenuation-corrected correlations, the ratio of sampling error to

total between-study variance, confidence intervals, and credibility intervals<sup>7</sup> for all pairwise relationships with positive and negative feelings that had multiple usable study effects. We also present the chi-square test statistic indicating the statistical significance of the between-study variance in the attenuation-corrected correlations. The results of the overall analysis are noteworthy in three respects: (1) overall, the effects of positive and negative feelings are roughly mirror images, (2) the attenuation-corrected correlation between positive and negative feelings ( $r = -.262$ ) does not approach a level that would suggest bipolarity rather than bidimensionality, and (3) most relationships are not generalizable across study design characteristics.

These findings are inconsistent with both the bipolarity and generalized asymmetry perspectives. The roughly equal overall magnitudes of positive and negative feeling effects do not reflect the main effect of valence predicted by generalized asymmetry. Also, the modest negative attenuation-corrected correlation between positive and negative feelings is consistent with the bidimensional rather than the bipolar conceptualization of ad-evoked feelings.

All of the relationships studied had significant nonartificial variance, which signifies nonhomogeneity of effect sizes. This indicates that the effects of positive and negative ad-evoked emotions are context dependent rather than generalizable. It shows that estimated effect sizes are a function of (and must be interpreted in light of) the study designs that produce them. Thus, the similar magnitudes of positive and negative feeling effects in the overall analysis do not constitute *prima facie* evidence of symmetry. Further analyses were necessary to assess the moderator effects of study de-

<sup>7</sup>Credibility intervals represent intervals around the corrected mean correlations based on variances that have been corrected for statistical artifacts (in this case, sampling error). Thus, they represent only "true" (i.e., nonartificial) variance and are always smaller than the confidence intervals (Whitener 1990).

Table 2  
DESCRIPTIVE STATISTICS FOR PAIRWISE RELATIONSHIPS

Relationship	Cumulative <i>N</i>	Observed $\bar{r}$	Corrected $\bar{r}$	Sampling error/ $s_e^2$	95% confidence interval for corrected $\bar{r}$	95% credibility interval for corrected $\bar{r}$	$\chi^2_{(n-1)}$ *
Positive feelings and negative feelings ( <i>k</i> = 16)	3788	-.229	-.262	.067	-.722 ≤ $\rho$ ≤ .235	-.706 ≤ $\rho$ ≤ .182	240.19 <sub>(15)</sub>
Positive feelings and <i>A</i> <sub>ad</sub> ( <i>k</i> = 25)	3762	.482	.551	.012	-.462 ≤ $\rho$ ≤ 1.000	-.456 ≤ $\rho$ ≤ 1.000	2071.16 <sub>(24)</sub>
Negative feelings and <i>A</i> <sub>ad</sub> ( <i>k</i> = 17)	3068	-.428	-.494	.015	-1.000 ≤ $\rho$ ≤ .406	-1.000 ≤ $\rho$ ≤ .340	1132.75 <sub>(16)</sub>
Positive feelings and <i>A</i> <sub>b</sub> ( <i>k</i> = 19)	3062	.330	.367	.042	-.283 ≤ $\rho$ ≤ 1.000	-.269 ≤ $\rho$ ≤ 1.000	449.84 <sub>(18)</sub>
Negative feelings and <i>A</i> <sub>b</sub> ( <i>k</i> = 14)	2739	-.342	-.389	.028	1.000 ≤ $\rho$ ≤ .318	1.000 ≤ $\rho$ ≤ .308	494.37 <sub>(13)</sub>
Positive feelings and purchase intention ( <i>k</i> = 14)	2387	.241	.280	.082	-.204 ≤ $\rho$ ≤ .764	-.184 ≤ $\rho$ ≤ .744	171.43 <sub>(13)</sub>
Negative feelings and purchase intention ( <i>k</i> = 9)	1996	-.172	-.200	.139	-.539 ≤ $\rho$ ≤ .139	-.515 ≤ $\rho$ ≤ .115	64.97 <sub>(8)</sub>
Positive feelings and beliefs ( <i>k</i> = 3)	381	.154	.173	.741	-.023 ≤ $\rho$ ≤ .369	.118 ≤ $\rho$ ≤ .228	4.05 <sub>ns</sub>
Negative feelings and beliefs ( <i>k</i> = 2)	369	-.329	-.390	.095	-.787 ≤ $\rho$ ≤ .007	-.767 ≤ $\rho$ ≤ -.013	21.04 <sub>(1)</sub>
Positive feelings and recall ( <i>k</i> = 4)	354	.065	.083	>1.00	-.056 ≤ $\rho$ ≤ .222	-.443 ≤ $\rho$ ≤ .609	1.79 <sub>ns</sub>
Negative feelings and recall ( <i>k</i> = 2)	235	-.175	-.238	.399	-.508 ≤ $\rho$ ≤ .032	-.444 ≤ $\rho$ ≤ -.032	5.02 <sub>(1)</sub>
Positive feelings and brand cognitions ( <i>k</i> = 4)	562	.256	.295	.135	-.114 ≤ $\rho$ ≤ .706	-.087 ≤ $\rho$ ≤ .677	29.67 <sub>(3)</sub>
Negative feelings and brand cognitions ( <i>k</i> = 3)	442	-.242	-.292	.162	-.659 ≤ $\rho$ ≤ .075	-.625 ≤ $\rho$ ≤ .042	18.49 <sub>(2)</sub>
Negative feelings and attitude toward advertising ( <i>k</i> = 2)	362	-.036	-.036	>1.00	-.124 ≤ $\rho$ ≤ .052	...	.73 <sub>ns</sub>

\*(*n* - 1) refers to the degrees of freedom for this test. All values are significant at  $p < .05$  unless otherwise indicated.

sign characteristics on the effects of positive and negative ad-evoked feelings.

#### Moderator Analyses

We conducted moderator analyses by using bootstrapping to regress the correlations between feelings and ad and brand attitudes against the coded study characteristics.<sup>8</sup> In these analyses, each observation was weighted by its sample size relative to the cumulative bootstrap sample size. For each relationship, we drew 200 bootstrap samples with replacement from the original sample, reran the regression for each bootstrap sample, and then used the resulting parameter estimates to generate a frequency distribution for each parameter across the 200 regressions. We then examined the proportion of parameter estimates that had the same sign. If more than 95% of the parameter estimates were positive, we inferred that the parameter is positive and statistically significant at the 5% level. The median parameter estimate across the 200 regressions serves as the point estimate for each independent variable (Efron and Tibshirani 1986).

To evaluate the relative effects of positive and negative feelings, we first treated all of the individual study correlations between feelings and  $A_{ad}$  and feelings and brand attitude as absolute values (regardless of valence) and specified a dummy variable to indicate positive and negative feelings (i.e., the dummy variable was set to 1 for negative feelings and 0 otherwise). Second, we incorporated the main effect of valence and terms representing interactions between valence and each coded study characteristic into the regression models. Third, as described previously, we performed 200 bootstrapped regressions for both the  $A_{ad}$  and brand attitude models.

We conducted these analyses as a series of nested model tests. Experimental instructions and cover story were correlated substantially (i.e., most studies that did not instruct subjects to attend to target advertisements also used disguised cover stories), which caused data dependencies between these two dummy-coded study characteristics. Judge and colleagues (1985) recommend imposing linear constraints as a means of dealing with collinearity when a theoretical reason exists to believe that the explanatory variables are related. In this case, we assessed whether instructions and cover story represent parallel indicators of the same underlying latent construct by testing the linear constraint that the effect of cover story equals zero.

We regressed the individual study correlations against the main effects of valence, medium, experimental instructions, and product type and the interactions between valence and each coded study characteristics except cover story. We then regressed the residuals from this analysis against the main effect of cover story and the interaction between valence and cover story.<sup>9</sup> A significant main effect of valence would be consistent with generalized asymmetry, whereas significant interaction terms would indicate contingent asymmetry. The results are presented in Table 3.

<sup>8</sup>These analyses were conducted only on the four relationships for which an ample number of observations (i.e., at least ten) existed.

<sup>9</sup>We also conducted the analysis by constraining the main effect of instructions and the valence  $\times$  instructions interaction to equal zero in the first run and then testing this constraint by regressing the residuals from the first run against instructions and the valence  $\times$  instructions interaction. The results were identical substantively to those obtained in the analysis reported here.

Table 3  
RESULTS OF BOOTSTRAPPED REGRESSIONS WITH  
INTERACTION TERMS

Predictors	Models	
	$A_{ad}$	$A_b$
Valence	-.082	-.118
Instructions	.059	-.040*
Medium	.163*	.140
Product Type	.236***	-.074**
Valence $\times$ Instructions	.251***	.305**
Valence $\times$ Medium	-.008	.059
Valence $\times$ Product Type	.059	.125
Median $R^2$	.43	.53
Cover Story	.017	.041*
Valence $\times$ Cover Story	.068	.091**
Median Incremental $R^2$	.08	.12

\*indicates  $p < .10$ .

\*\*indicates  $p < .05$ .

\*\*\*indicates  $p < .01$ .

Consistent with the findings of the overall analyses, the main effect of valence was not significant in either the  $A_{ad}$  or brand attitude models, which indicates that the results are not consistent with generalized asymmetry. However, consistent with contingent asymmetry, valence interacted with experimental instructions in the  $A_{ad}$  model ( $\beta = .251$ ,  $p < .01$ ) and with both experimental instructions ( $\beta = .305$ ,  $p < .01$ ) and cover story ( $\beta = .091$ ,  $p < .05$ ) in the brand attitude model.

We then conducted additional analyses to assess the specific effects of the coded study characteristics on relationships involving positive and negative feelings. These analyses were conducted using bootstrapped regressions performed in the same nested fashion described previously. We report the results in Table 4. On average, the coded study characteristics accounted for between 49 and 79% of the variance in effect sizes, which suggests that these four coded study characteristics have substantial ability to explain between-study variance in the effects of ad-evoked feelings.<sup>10</sup> The moderator effects of each coded study characteristic are discussed in the following sections.

#### Experimental Instructions

Consistent with the contingent asymmetry perspective, experimental instructions moderated the effect of negative feelings on  $A_{ad}$  ( $\beta = -.302$ ,  $p < .05$ ) but did not moderate the effects of positive feelings on  $A_{ad}$  ( $\beta = .064$ , n.s.). Experimental instructions also moderated the negative feelings-brand attitude relationship ( $\beta = -.241$ ,  $p < .10$ ) in the manner predicted by contingent asymmetry. Experimental instructions moderated the effects of positive feelings on brand attitude ( $\beta = -.039$ ,  $p < .10$ ), but this effect was opposite in direction to the effect of instructions on the negative feelings-brand attitude relationship. Positive feelings had a greater effect on brand attitude when instructions

<sup>10</sup>We also coded sample type (student versus nonstudent) but did not include it in the bootstrapped regressions, because the presence of several samples that could not be classified unambiguously as one or the other (e.g., Burke and Edell 1989) seriously would have reduced the number of observations available for the multivariate analysis. Independent analyses revealed no significant effects of sample type, though the number of studies using nonstudent samples was extremely small (as indicated in Table 2).

Table 4  
RESULTS OF BOOTSTRAPPED REGRESSIONS TESTING SPECIFIC EFFECTS OF POSITIVE AND NEGATIVE FEELINGS

Dependent Variable	Predictors (Coded Study Characteristics)				
	Instructions <sup>a</sup>	Cover Story <sup>b</sup>	Medium <sup>c</sup>	Product Type <sup>d</sup>	Median R <sup>2</sup>
Positive-A <sub>ad</sub>	.064	-.008	.145*	.226**	.50
Negative-A <sub>ad</sub>	-.302**	-.046	-.133**	-.312**	.49
Positive-A <sub>b</sub>	-.039*	.023	.127	-.077**	.62
Negative-A <sub>b</sub>	-.241*	-.112**	-.150**	-.018	.79

<sup>a</sup>0 = instructed to attend; 1 = not instructed to attend.

<sup>b</sup>0 = undisguised; 1 = disguised.

<sup>c</sup>0 = television; 1 = print.

<sup>d</sup>0 = novel; 1 = familiar.

\*indicates  $p < .10$ .

\*\*indicates  $p < .05$ .

focused subjects' attention on target advertisements. A plausible explanation for this unexpected effect is that subjects who are instructed specifically to attend to advertisements that obviously are intended to evoke positive feelings might exaggerate their affective responses.

#### Cover Story

Cover story moderated the effects of negative feelings on brand attitude (beta =  $-.112$ ,  $p < .05$ ) but not on A<sub>ad</sub> (beta =  $-.046$ , n.s.). It did not moderate significantly the effects of positive feelings on either A<sub>ad</sub> (beta =  $-.008$ , n.s.) or brand attitude (beta =  $.023$ , n.s.). The significant moderating effect of cover story on the negative feelings-brand attitude relationship and the absence of significant moderating effects on relationships involving positive feelings again are consistent with contingent asymmetry. The effect of cover story on the negative feelings-A<sub>ad</sub> relationship was directionally consistent with the contingent asymmetry prediction, even though it was not statistically significant.

#### Medium

The results did not support the prediction of stronger feeling effects for television advertisements than for print advertisements. Medium had significant effects on the positive feelings-A<sub>ad</sub> (beta =  $.145$ ,  $p < .10$ ), negative feelings-A<sub>ad</sub> (beta =  $-.133$ ,  $p < .05$ ), and negative feelings-brand attitude (beta =  $-.150$ ,  $p < .05$ ) relationships. However, the direction of these effects was opposite to the prediction. For each relationship, feelings had stronger effects in studies using print advertisements than in those using television advertisements. Results for the positive feelings-brand attitude relationship, though not significant, were directionally consistent. The reason for these findings is not immediately clear. Further research is warranted to investigate the effects of feelings across media.

#### Product Type

Product type (novel/familiar) moderated the effects of positive feelings on both A<sub>ad</sub> (beta =  $.226$ ,  $p < .05$ ) and brand attitude (beta =  $-.077$ ,  $p < .01$ ). However, these effects were in opposite directions. Contrary to expectation, the positive feelings-A<sub>ad</sub> relationship was stronger for familiar products. It is possible that familiar advertisements for existing products cued retrieval of ad-related affect from

memory. If ad-related affect is a well-defined feature of familiar brand schemas, it could cause stronger feelings-A<sub>ad</sub> relationships than spontaneous experience of ad-related affect for novel products.

The effect of product type on the positive feelings-brand attitude relationship was in the expected direction. This relationship was stronger for novel products than for familiar products. This is consistent with the premise that ad-evoked emotions have greater impacts on brand attitude for novel brands for which prior brand attitudes are nonexistent (Moore and Hutchinson 1983).

The relationship between negative feelings and A<sub>ad</sub> was also stronger for familiar products (beta =  $-.312$ ,  $p < .05$ ). Although contrary to expectation, this result is consistent with the effect of product type on the positive feelings-A<sub>ad</sub> relationship reported previously. Product type did not moderate the negative feelings-brand attitude relationship (beta =  $-.018$ , n.s.). This result is inconsistent with our prediction of a stronger relationship for new products. The fact that product type differentially moderated relationships involving ad and brand attitudes suggests the need for research to investigate when and why feelings affect A<sub>ad</sub> and brand attitude differently.

#### Mean Correlations by Subgroup

Table 5 reports the weighted mean correlations by subgroups based on levels of the coded study characteristics. On the basis of the aggregated data, these provide some interesting insights regarding the relative strength of positive and negative feelings under specific study conditions. For example, Table 5 shows that the effects of negative (compared with positive) feelings were stronger when experimental interest in target advertisements was disguised. However, the effects of positive (compared with negative) feelings were stronger when interest in target advertisements was undisguised. The plots of subgroup means for the two levels of experimental instructions shown in Figure 1 illustrate this pattern.<sup>11</sup> These subgroup patterns clearly show differential effects of study characteristics on the effects of positive and negative feelings and constitute a useful basis of comparison for further research (Lehmann

<sup>11</sup>Although the subgroup means for cover story reveal a similar pattern, they are not plotted because of the substantial overlap between cover story and instructions.



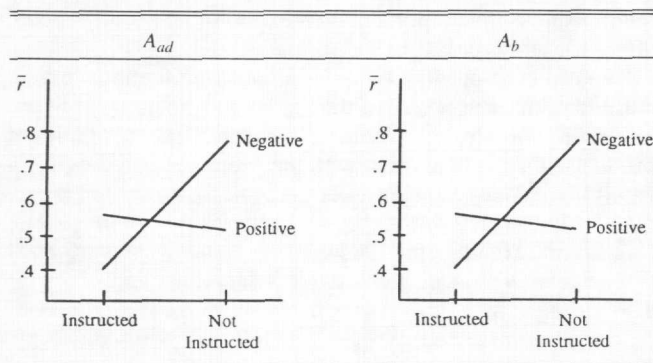
Table 5  
SUBGROUP COMPARISONS OF MODERATOR EFFECTS

Relationship	Instructed to Attend	versus	Not Instructed to Attend	Undisguised Cover Story	versus	Disguised Cover Story	TV	versus	Print	Novel	versus	Familiar
Positive- $A_{ad}$	.554	versus	.538	.502	versus	.665*	.535	versus	.543	.470	versus	.620*
	(18 versus 7)			(11 versus 8)			(20 versus 3)			(12 versus 9)		
Negative- $A_{ad}$	-.396	versus	-.778*	-.343	versus	-.771**	-.461	versus	-.397	-.505	versus	-.642
	(12 versus 5)			(7 versus 7)			(13 versus 2)			(9 versus 5)		
Positive- $A_b$	.360	versus	.286	.354	versus	.270	.311	versus	.486	.388	versus	.256*
	(12 versus 6)			(9 versus 4)			(13 versus 3)			(11 versus 4)		
Negative- $A_b$	-.239	versus	-.485**	-.208	versus	-.512*	-.292	versus	-.342	-.383	versus	-.403
	(8 versus 5)			(7 versus 4)			(10 versus 2)			(9 versus 2)		

\*denotes  $p < .05$ .

\*\*denotes  $p < .01$ .

Figure 1  
PLOTS OF WEIGHTED MEAN CORRELATIONS BY  
EXPERIMENTAL INSTRUCTIONS (ABSOLUTE VALUES)



1996). The subgroup analyses also show that feelings- $A_{ad}$  relationships were stronger than feelings-brand attitude relationships. This is consistent with the premise that feelings- $A_{ad}$  relationships are direct, whereas feelings-brand attitude relationships are indirect. The subgroup comparisons are also useful in demonstrating the utility of bootstrapping for testing moderator effects in meta-analysis.

#### The Utility of Bootstrapping

The utility of bootstrapping for conducting moderator analyses can be seen by comparing the regression results with those of independent t-tests. The bootstrapped regressions identified several significant moderator effects (instructions on positive feelings-brand attitude, medium on both positive feelings- $A_{ad}$  and negative feelings-brand attitude, and product type on negative feelings- $A_{ad}$ ) that independent t-tests could not detect.<sup>12</sup> The regressions also correctly found that the moderating effects of cover story on positive feelings- $A_{ad}$  and negative feelings- $A_{ad}$  that appear clearly in the subgroup analyses are redundant with the effects of instructions.

More important, the bootstrapped regressions assessed the joint effects of the study characteristics. Analyzing the moderator effects individually can lead to attributing moderator effects to the wrong variables. For example, the subgroup

analysis suggests that the negative feelings- $A_{ad}$  relationship is slightly (but not significantly) stronger for studies using television advertisements ( $r = -.461$  versus  $r = -.397$ ). After partialing the effects of the other coded study characteristics, however, the bootstrapped regression leads to the opposite conclusion: Negative feelings influence  $A_{ad}$  more strongly in studies using print advertisements. Ability to account for these partialing effects, even with the small samples typical of moderator analyses in meta-analysis, is a major advantage of the bootstrapped multivariate regression.

#### DISCUSSION

In this study, we extend previous research by (1) comprehensively summarizing existing research on ad-evoked feelings, (2) providing summary evidence consistent with the contingent asymmetry theoretical perspective (but not with bipolarity or generalized asymmetry), (3) showing the context dependency of relationships involving ad-evoked feelings, and (4) presenting a useful new way of assessing moderator effects in meta-analysis. Our findings improve the interpretability of existing data and provide information useful for theory development and the design of new research.

Consistent with contingent asymmetry, study design characteristics related to amount of cognitive elaboration (i.e., experimental instructions and cover story) interacted with valence of feelings in relation to ad and brand attitudes. Also consistent with contingent asymmetry, experimental instructions and cover story moderated effects of negative feelings on advertising responses but, for the most part, did not moderate the effects of positive feelings. Effects of negative feelings on advertising responses were generally greater under conditions that did not encourage cognitive elaboration of target advertisements, whereas effects of positive feelings were generally strong regardless of study conditions.

We found several minor but notable exceptions to the pattern predicted by contingent asymmetry. First, cover story did not moderate the effects of negative feelings on  $A_{ad}$  as contingent asymmetry would have predicted. In this case, the additional variance explained by cover story after accounting for other moderator effects (average incremental  $R^2 = 6\%$ ) was not statistically significant. Much of the variance explained by cover story was redundant with that explained by experimental instructions. However, cover story did contribute uniquely to explained variance in the brand attitude model (19% incremental  $R^2$ ), which suggests the

<sup>12</sup>These analyses used a small sample t-test described by Winer (1971, pp. 41-42), which previously has been used for meta-analysis by Brown (1996) and Mathieu and Zajac (1990).

potential for each of these study characteristics to influence effect sizes independently.

A second minor discrepancy from the prediction of contingent asymmetry was the significant moderating effect of experimental instructions on the positive feelings–brand attitude relationship. This effect was in the opposite direction from the effects of instructions on relationships involving negative feelings. Positive feelings were related more strongly to brand attitude when subjects were instructed to attend to target advertisements than when they were not instructed to attend. A plausible explanation is that instructing subjects specifically to attend to target advertisements might create demand effects. Viewing positive emotional advertisements in a critical evaluation set might lead to exaggeration of positive feeling effects. Subjects easily can recognize and appreciate that good advertisements “work” on an emotional level, and this can influence their responses when they are aware during exposure that those responses are of interest to the researchers. Overall, the results are consistent with the contingent asymmetry predictions.

The evidence was not consistent with other theoretical perspectives. The attenuation-corrected correlation between positive and negative ad-evoked feelings ( $r = -.262$ ) clearly indicated nearly orthogonal independent dimensions rather than bipolar ends of a single continuum. Also, though the effects of positive and negative feelings were virtual mirror images in the overall analyses, these mean correlations did not estimate generalizable population parameters. Subsequent analyses demonstrated contingently asymmetric effects of positive and negative feeling effects. Thus, our findings lead to the conclusion that positive and negative ad-evoked feelings are bidimensional rather than bipolar and that their effects on advertising response variables are not symmetrical.

The absence of a main effect of valence in both the overall analysis and bootstrapped regression was inconsistent with generalized asymmetry. The results made clear that the relative strength of positive and negative feeling effects was context dependent rather than generalizable (i.e., the direction of asymmetry differed across contexts). There was no evidence to suggest that, in general, negative feelings are given greater weight than positive feelings or vice versa. Thus, the conclusion that feelings are contingently rather than generally asymmetrical is warranted.

Aspects of study designs clearly bias effect sizes systematically and create potential confounds with explanatory variables. Both the magnitude and direction of the effects of study design characteristics depended on the valence of ad-evoked feelings. The effects of negative feelings on ad and brand attitudes were greater when study procedures did not direct attention to target advertisements. In contrast, the effects of positive feelings were greater when procedures did direct attention to target advertisements. A clear implication for basic and applied research is that exposure conditions influence observed relationships between feelings and ad and brand attitudes. Results of applied copy tests and basic research on the effects of ad-evoked feelings will be most accurate and valid when exposure to target advertisements occurs under realistic exposure conditions. Study procedures that focus subjects' attention on target advertisements generally will produce results that do not generalize to realistic exposure conditions.

In addition to the moderators of processing goals, we identified other methodological factors that influenced relationship strength. Novel versus familiar product and advertising medium both had significant effects. These also suggest the need for additional research to understand why ad-evoked feelings influence attitudes toward the ad more strongly for familiar than for novel products. This effect was contrary to expectation and the moderating effects of feelings on brand attitudes (which, as expected, were stronger for novel brands). It seems likely that viewing familiar advertisements (or familiar types of advertisements) for a known brand may cue retrieval of stored affect from memory (Stayman and Batra 1991). This memory-based advertisement affect already might be associated closely and specifically with attitudes toward the brand's advertising, which leads to stronger effects of feelings on  $A_{ad}$  for familiar brands. These results suggest the need for research investigating why product type (novel/familiar) differentially moderates the effects of ad-evoked feelings on ad and brand attitudes.

Our study also demonstrates the advantages of using bootstrapping to test moderator effects in meta-analyses. The lack of distributional assumptions makes it generally applicable to the types of moderator analyses typically conducted in meta-analyses. Sample sizes in these analyses are almost invariably small, and no consensus has developed regarding the best way of assessing moderator effects. The methods most generally used involve testing effects of one moderator at a time (cf. Hunter and Schmidt 1990; Rosenthal 1984). As we have shown, this often leads to erroneous conclusions regarding (1) statistical significance of moderator effects and (2) attribution of moderator effects to the correct explanatory variables. Bootstrapping enables researchers to overcome both of these problems and thus enhances the validity of moderator analyses.

Our review suggests several additional worthwhile directions for further research. For example, we found unexpectedly strong effects of ad-evoked feelings in studies that used print advertisements. Contrary to expectation, the negative feelings– $A_{ad}$  and negative feelings–brand attitude relationships were stronger in studies using print advertisements than in studies using television advertisements. Although these results should be interpreted with caution because of the small number of studies using print advertisements, it would be worthwhile for further research to investigate moderating effects of media in more detail.

It also would be worthwhile to reevaluate models of cognitive and affective factors that mediate the effectiveness of advertisements intended to evoke negative feelings. The dual mediation model (MacKenzie, Lutz, and Belch 1986), for example, does not appear to represent accurately the intended effects of this type of advertising. Our findings indicate strong and robust negative effects of negative feelings on ad and brand attitudes (cf. Burke and Edell 1989; Edell and Burke 1987; Stayman and Aaker 1988). However, other research demonstrates that advertising designed to elicit negative emotions can have positive effects on motivation, attitude, and persuasion (e.g., Bagozzi and Moore 1994; Ray and Wilkie 1970; Sternthal and Craig 1974). It is important to understand better how fear appeals and other advertising designed to evoke negative emotions affect advertising outcomes.

Another issue for further research is the operationalization of  $A_{ad}$ . Previous research has established  $A_{ad}$  as a multidimensional construct (Madden, Allen, and Twible 1988; Olney, Holbrook, and Batra 1991; Shimp 1981). Researchers primarily have used global measures of  $A_{ad}$  that do not discriminate between cognitive and affective elements. Cognitive and affective reactions are likely to constitute separate dimensions of  $A_{ad}$ , and antecedent and moderating factors may influence these dimensions differentially (e.g., Madden, Allen, and Twible 1988).

In conclusion, our results suggest that the effects of positive and negative ad-evoked feelings are contingently asymmetrical. They demonstrate that the strength of effects of ad-evoked feelings depends systematically on the valence of emotion, study design characteristics, and cognitive evaluation set. These findings are important for interpretation of empirical findings, design of further research, and further theory development. We hope our results will stimulate and guide further research. Research designed to provide a more detailed understanding of the specific causes and effects of each type of emotion is needed.

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