

On the Primacy of Affect in the Determination of Attitudes and Behavior: The Moderating Role of Affective-Cognitive Ambivalence

Howard Lavine

State University of New York at Stony Brook

Cynthia J. Thomsen

Northern Illinois University

Mark P. Zanna

University of Waterloo, Waterloo, Ontario, Canada

and

Eugene Borgida

University of Minnesota

Received: April 22, 1997; revised: February 27, 1998; accepted: April 18, 1998

Using data from four national surveys, we examined the role of affective-cognitive ambivalence in moderating the relative impact of affect and cognition on overall attitudes and behavior. Each survey assessed the affective and cognitive components of attitudes toward presidential candidates, as well as overall candidate attitudes and reported voting behavior. We found support for a primacy of affect (vs. cognition) effect among respondents with *ambivalent* affective-cognitive structures: For respondents with oppositely valenced affect and cognition, affect generally exerted a stronger influence on candidate attitudes and voting behavior than did cognition. However, for respondents with *univalent*

The data were provided by the Inter-University Consortium for Political and Social Research. We thank the Social Science Research Institute at Northern Illinois University and Julie Wright for their assistance in obtaining the data.

Address correspondence and reprint requests to Howard Lavine, Department of Psychology, Northern Illinois University, DeKalb, IL 60115. E-mail: Lavine@niu.edu.

affective-cognitive structures (i.e., similarly valenced affect and cognition), affect and cognition exerted a roughly equal influence on overall attitudes and voting behavior. Results are discussed in terms of the processes through which the ambivalence-moderated primacy of affect effect occurs, and its potential consequences. © 1998 Academic Press

The attitudes we form and express are likely to be influenced both by the emotions that the attitude object arouses within us and on our more “rational”/“logical” cognitive assessment of the attitude object’s attributes (Breckler & Wiggins, 1989; Esses, Haddock & Zanna, 1993; Millar & Tesser, 1989; Zanna & Rempel, 1988). For example, a policy such as capital punishment is likely to inspire both feelings (e.g., disgust) and beliefs (e.g., that it is ineffective in deterring violent crime). According to cognitive consistency theories (Festinger, 1957; Heider, 1958) as well as the tripartite model of attitude structure (Breckler, 1984; Rosenberg & Hovland, 1960), affective and cognitive bases of attitude should generally be similarly valenced and at least moderately positively correlated. Moreover, because one component may be (at least partly) based on or derived from the other (e.g., Zajonc & Markus, 1982), the two types of information are likely to exert largely redundant effects on overall evaluations.

Research has confirmed the hypothesis that affective and cognitive components of attitudes are often highly correlated with one another (e.g., Bagozzi & Burnkrant, 1979; Breckler, 1984, Study 2; Breckler & Wiggins, 1989; Esses et al., 1993; Ostrom, 1969; but see Woodmansee & Cook, 1967). Nonetheless, a growing body of research has revealed that the two types of information exert at least partially non-redundant influences on overall evaluative judgments. For example, Abelson, Kinder, Peters and Fiske (1982) showed that people’s emotional reactions to political candidates contributed to the prediction of their candidate attitudes above and beyond the influence of cognitions about the candidates’ personal qualities. Similarly, Stangor, Sullivan, and Ford (1991) found that emotions and stereotypic beliefs each exert a unique influence on attitudes toward a variety of social groups (see also Bagozzi & Burnkrant, 1979; Breckler & Wiggins, 1989; Esses et al., 1993; Jackson, Hodge, Gerard, Ingram, Ervin, & Sheppard, 1996).

These findings have prompted the question of whether affect or cognition typically exerts the predominant influence in determining overall attitudinal preferences (e.g., Zanna & Rempel, 1988). Given that the affective and cognitive bases of attitudes are often at least somewhat nonredundant, it becomes important to delineate the manner in which these two types of attitudinal information are integrated when people attempt to formulate overall evaluations and when they engage in attitude-relevant behavior. Algebraic theories of attitude formation such as Fishbein and Ajzen’s (1975) expectancy-value model and Anderson’s (1981) information integration theory provide no *a priori* basis for predicting that affective and cognitive information would have differential impact on overall attitudes. According to these theories, attitudes are computed by arithmetically combining the evaluative implications of individual pieces of relevant (affective

or cognitive) information, each of which is weighted by its subjective probability. Unless the two types of information systematically differ either in their subjective probabilities or in the extremity of their evaluative implications, such models suggest that affective and cognitive information would be equally influential in determining overall attitudes.

MODERATORS OF RELIANCE ON AFFECT VERSUS COGNITION

Alternatively, the relative weight of affect and cognition in evaluative judgments may vary as a function of specific features of the situation, the person, and/or the attitude object. This is conceptually parallel to the suggestion of functional attitude theorists that the motivational underpinnings of attitudes may arise from features of the situation, the person, and/or the attitude object (e.g., Herek, 1986). There are several ways in which situational factors may influence the relative contribution of affect and cognition to overall attitudes. First, some situations heighten the salience of belief-based information (e.g., "why do you feel the way you do about the attitude object?"), thereby promoting thoughtful consideration of an object's attributes; others, in contrast, focus attention on feelings related to the attitude object (e.g., "how do you feel about the attitude object?"), thereby promoting emotion-based responding (e.g., Millar & Tesser, 1986). Similarly, situations that evoke different goals with respect to the attitude object (e.g., making instrumental or consummatory properties of the object more goal-relevant) may produce attitudes that are more strongly based on cognition versus affect, respectively (Millar & Tesser, 1989). Finally, the relative dominance of affect versus cognition on attitudes may depend simply on which type of information is acquired first (e.g., Edwards, 1990; Edwards & von Hippel, 1995).

Just as situational factors may enhance the impact of either affect or cognition on attitudes, stable individual differences in the tendency to prioritize affective versus cognitive information may exist (Haddock, 1994). Domain-specific differences in levels of knowledge or expertise may also predict a differential reliance on affective versus cognitive information in arriving at overall evaluations. For example, the policy attitudes of political experts may be based to a greater extent on abstract cognitive (ideological) than emotional considerations, whereas those of political novices may be based on emotional more than cognitive considerations (see Sniderman, Brody, & Tetlock, 1991, p. 81).

Finally, specific attitude objects may inherently differ in the extent to which they invoke or "afford" affective or cognitive reactions. For example, household consumer products may possess more instrumental than consummatory characteristics, and attitudes toward them may therefore be driven more by utilitarian beliefs than by emotion. In contrast, attitudes toward close friends and relatives may be driven more by emotion than by beliefs (for a similar argument in the functional context, see Shavitt, 1989). Moreover, objects that are disliked or perceived as threatening important values and beliefs may be especially likely to

produce cognition-based attitudes, whereas more favorably-regarded objects may elicit more affect-based evaluations (see Esses et al., 1993).

ATTITUDE AMBIVALENCE AND THE RELATIVE IMPACT OF AFFECT AND COGNITION

In sum, although the extant research shows no consistent dominance of either affect or cognition in overall evaluations, specific kinds of situations, persons, and attitude objects have been found to promote a greater reliance on either affect or cognition in making attitudinal judgments. In the present research, we investigate another factor that is likely to influence the relative weighting of affective and cognitive information in attitudinal computations: intra-attitudinal structure. Until recently, attitude researchers have almost universally made the implicit assumption that attitudes can be represented in terms of a single, bipolar (positive-negative) dimension. Increasingly, however, investigators have acknowledged the likelihood that some attitudes are ambivalent, or characterized by the co-existence of both positive and negative evaluations (e.g., Cacioppo & Berntson, 1994; Thompson, Zanna, & Griffin, 1995; Zanna & Rempel, 1988). This suggests an alternative to the traditional unidimensional view, one in which evaluative space is comprised of two separate unipolar dimensions (i.e., one negative and one positive).

Although the majority of attitudes are likely to be univalent (i.e., high on one of the evaluative dimensions and low on the other), this new perspective allows for the possibility that a given attitude may simultaneously invoke relatively strong positive and negative evaluations (i.e., ambivalence). One way in which this might occur is if different sources or types of attitude-relevant information have contradictory evaluative implications. An ambivalent attitude seems likely to result, for example, if one holds positive *beliefs* about a policy such as capital punishment (e.g., believing that it is an effective deterrent of crime) but simultaneously experiences negative *emotions* with respect to the issue (e.g., a sense of revulsion at the thought of taking another person's life). In fact, substantial evidence has accumulated in support of the proposition that the evaluative implications of affective and cognitive information about a given attitude object are sometimes inconsistent (e.g., Cacioppo, Gardner & Berntson, 1997; Hochschild, 1981; Thompson et al., 1995; Zaller, 1992).

Of central interest in the present research is the possibility that the relative impact of affect and cognition on overall evaluations may critically depend on the consistency of an attitude's internal structure—specifically, on the evaluative congruity between an attitude's underlying affective and cognitive components. When, as is most often the case, attitude-related feelings and thoughts are evaluatively consistent (i.e., both types of information are either positive or both negative), neither affect nor cognition is likely to exert a consistently stronger influence on global attitudes; moreover, the relative impact of each type of

information may be difficult to discern in these cases because their evaluative implications are largely redundant. For attitudes marked by affective-cognitive consistency, the variability in the predictive power of affect and cognition observed both within and across studies can likely be accounted for by differences in the subjective probability and/or evaluative extremity associated with individual pieces of affective and cognition information (cf. Fishbein & Ajzen, 1975).

However, when feelings and thoughts conflict, might one component typically exhibit a stronger relation to overall attitudes? That is, when affective-cognitive ambivalence exists, do people consistently rely on one type of information to the relative exclusion of the other in forming their opinions? Or, alternatively, do people equally weight the conflicting affective and cognitive information by simply combining (e.g., averaging) the two types of information? Unfortunately, very little is known about how conflicting affective and cognitive information are utilized and integrated in forming overall attitudes (Eagly & Chaiken, 1993). We hypothesize that when affect and cognition have conflicting evaluative implications, individuals will rely to a greater extent on their emotional reactions to an attitude object than on their beliefs about an attitude object's attributes in determining their overall attitudes and attitude-relevant behavior.

This *primacy of affect hypothesis* is suggested by several aspects of Zajonc's (1980, 1984; Zajonc & Markus, 1982) formulation about the prepotence of affect in determining preferences. First, affective responses may often chronologically precede cognitive responses in attitude formation (for a functional-evolutionary explanation of this possibility, see Edwards & von Hippel, 1995). For example, we may have an immediate affect-based reaction (perhaps classically conditioned, see Greenwald, 1981) when we first encounter a new person, before we acquire any knowledge about his or her personal qualities. Second, affective responses are perceived as more subjectively valid and more closely linked to the self than are cognitive responses. Thus, when the two types of information conflict, the emotions engendered by an attitude object may be experienced as more revealing of our true evaluations than are our cognitive appraisals of the object's attributes. Consistent with this reasoning, Edwards (Edwards, 1990; Edwards & von Hippel, 1995) has provided evidence that attitudes based on affect are held with greater confidence than are those based on cognition. Finally, affective information may be more easily retrieved from memory than is cognitive information (in part because of affect's stronger links to the self). If this is indeed the case, the retrieval of attitude-relevant information may be guided to a greater extent by the evaluative connotations of affective than cognitive information. When affect and cognition have conflicting evaluative implications, this suggests that affective information is likely to be retrieved first, while subsequently retrieved (inconsistent) cognitive information may then be suppressed or refuted in the service of cognitive consistency motives (Chaiken & Yates, 1985; Liberman & Chaiken, 1991; Tesser, 1978).

Hypotheses

Based on this reasoning, in the present research we hypothesized that affect would predominate over cognition in the determination of attitudes and behavior, but only for attitudes marked by affective-cognitive ambivalence. In accord with previous research, we expected to observe no consistent difference in the predictive power of affect and cognition for attitudes that manifest affective-cognitive univalence. To test this *ambivalence-moderated primacy of affect hypothesis*, we used national survey data assessing attitudes toward presidential candidates and voting behavior in four different election years. We chose the candidate appraisal domain to test this hypothesis because it represents a highly naturalistic and involving context in which both emotions and cognitions are intimately involved in attitudinal preferences and behavioral choices (e.g., Abelson et al., 1982). Using these data, we examined the relative impact of *feelings* (e.g., pride) engendered by U.S. presidential candidates and *beliefs* about the candidates' personal qualities (e.g., leadership) on respondents' overall candidate attitudes and voting behavior, and compared these patterns of effects for ambivalent and univalent respondents. Specifically, our hypotheses imply first that affect should correlate more strongly with attitudes and behavior than should cognition when attitudes are ambivalent but not when they are univalent (i.e., when affect and cognition concur). In addition, the overall evaluative judgments of ambivalent respondents should vary as a function of whether the ambivalence consists of negative affect and positive cognition (A-/C+) or positive affect and negative cognition (A+/C-). Specifically, if affect predominates over cognition among ambivalent respondents, overall attitudes should be more positive among the latter than among the former.

METHOD

Respondents and Data

Respondents were drawn from the National Election Studies (NES) data collected by the Center for Political Studies at the University of Michigan. The Pre- and Post-Election NES interviews consist of large national random probability samples of American adults. The interviews from four recent presidential elections (1980, 1984, 1988, 1992) included items assessing emotions engendered by the candidates (affect), beliefs about the candidates' domain-relevant personal qualities (cognition), overall candidate evaluations (attitude), and reported voting behavior. These data permitted us to replicate any effects both across attitude objects (i.e., candidates) and respondents (i.e., election years). The candidates included Anderson, Carter, and Reagan in 1980, Mondale and Reagan in 1984, Bush, Dukakis, and Jackson in 1988, and Clinton and Bush in 1992. The influence of affect and cognition on attitudes was assessed using the pre-election data, while our measure of voting behavior was based on the post-election interview. The analyses of voting behavior reported below are thus prospective. Each of the pre-election interviews consisted of more than 1,500 respondents (1980 $N = 1,614$; 1984 $N = 2,257$; 1988 $N = 2,040$; 1992 $N = 2,485$).

Measures of Affect, Cognition, Attitude, and Behavior

Affect. In each interview, respondents were asked whether each candidate—"because of the kind of person he is, or because of something he has done—ever made you feel _." Scores for each emotion

were thus dichotomous. In 1980 and 1984, the interview included three positive (hopeful, proud, sympathetic) and four negative (angry, afraid, uneasy, disgusted) emotion terms. In 1988 and 1992, the interview included only two positive (hopeful, proud) and two negative (angry, afraid) emotion terms. A composite affect score was computed for each respondent toward each candidate in each election year by subtracting the number of negative emotions endorsed from the number of positive emotions endorsed. Thus, composite affect scores could range from -4 (strong negative affect) to $+3$ (strong positive affect) for the 1980 and 1984 data, and -2 to $+2$ for the 1988 and 1992 data (mean $\alpha = .64$).

Cognition. In 1980, the interview included six positive trait terms (moral, knowledgeable, inspiring, able to solve economic problems, able to provide strong leadership, able to develop good relations with other countries) and three negative trait terms (dishonest, weak, and power hungry). In subsequent election years, however, the interviews included only positive trait terms: In 1984, the interview included 16 positive trait terms (decent, compassion, intelligent, moral, inspiring, knowledgeable, cares about people like you, leadership, sets a good example, kind, commands respect, hard-working, understands people like you, fair, in touch with ordinary people, and religious); in 1988, the interview included the first eight trait terms used in 1984 plus the term "honest;" and in 1992, the interview included the nine traits used in 1988 except that the trait "gets things done" was substituted for "decent."

In all interviews, respondents rated the extent to which each candidate could be characterized by each trait on a 4-point scale where 1 = extremely well, 2 = quite well, 3 = not too well, and 4 = not well at all. To create a composite index of cognition toward each candidate in each election year, we first reversed the 1-4 scale ratings for all but the three negative trait terms from the 1980 interview, so that higher scores represented more positive cognition. We then summed the scores across the relevant trait ratings. Thus, cognition scores could range from 16 (strong negative cognition) to 64 (strong positive cognition) for the 1980 and 1984 data, and nine to 36 for the 1988 and 1992 data (mean $\alpha = .90$).

Attitudes and voting behavior. In all interviews, respondents' candidate attitudes were assessed on standard 101-point feeling thermometer scales. The item was worded as follows:

I'll read the name of a person and I'd like you to rate that person using the feeling thermometer. Ratings between 50 degrees and 100 degrees mean that you feel favorable and warm toward the person. Ratings between 0 and 50 degrees mean that you don't feel favorable toward the person and that you don't care too much for that person. But if you don't feel particularly warm or cold toward the person, you would rate the person at the 50 degree mark.

To assess voting behavior in the post-election interview, respondents were simply asked whether they had voted, and if so, for whom.

Affective-cognitive ambivalence. We classified respondents as having *ambivalent* affective-cognitive structures toward a given candidate if they held positive affect (i.e., proportionally more positive than negative feelings) and negative cognition (i.e., perceiving the candidate as lacking positive domain-relevant qualities) toward that candidate, or vice-versa. Conversely, we classified respondents as having *univalent* affective-cognitive structures toward a given candidate if their feelings and beliefs about the candidate were either both positive or negative. To create positive and negative affect conditions for the 1980 and 1984 data, we first summed the number of positive (total possible = 3) and negative (total possible = 4) emotions each respondent experienced in response to each candidate. The summed positive emotions were then divided by three and the summed negative emotions were divided by four. Positive and negative affect conditions (for the contrast analyses described below) were then created by subtracting the negative emotion quotient from the positive emotion quotient. For the 1988 and 1992 data, positive and negative affect conditions were created by simply subtracting the number of negative emotions (total possible = 2) experienced from the number of positive emotions (total possible = 2) experienced. Thus, for each election year, scores of less than zero indicated negative emotion and scores of greater than zero indicated positive emotion. To create

positive and negative cognition conditions, respondents with average cognition scores below the midpoint of the scale (i.e., <2.5) comprised the negative cognition condition, whereas those with average cognition scores above the midpoint (i.e., >2.5) comprised the positive cognition condition. Respondents with composite affect scores of zero and/or composite cognition scores of 2.5 were excluded from the analyses reported in Tables 1, 2, and 5 (however, these respondents are included in the correlational analyses reported in Tables 3, 4, and 6-8).¹

RESULTS

Reliability, Variance, and Sample Size

According to the *ambivalence-moderated primacy of affect hypothesis*, when the evaluative implications of affect and cognition conflict, attitudes should be better predicted by affect than by cognition; in contrast, when the evaluative implications of affect and cognition concur, affect and cognition should exert roughly equal effects on attitudes and behavior. To evaluate this hypothesis, we assessed the relative strength of both independent (zero-order) and unique (semi-partial) association between affect and cognition, on one hand, and candidate attitudes and voting behavior, on the other. These correlations were computed separately for respondents with ambivalent and those with univalent affective-cognitive structures. We also report a series of meta-analyses comparing the relative influence of affect and cognition on attitudes and behavior for ambivalent and univalent respondents across candidates and election years.

Before conducting these analyses, however, it is necessary to rule out potential alternative explanations for any observed differences in the magnitude of correlations (e.g., affect-attitude vs. cognition-attitude) within each of the two groups (i.e., ambivalent and univalent). If one type of information (affect or cognition) systematically exhibits less variability or less internal consistency, correlations between scores on these scales and overall attitudes would be artifactually deflated (see Cohen & Cohen, 1983). For example, if ambivalent respondents possessed relatively little information about the candidates and thus responded somewhat randomly to the cognition items, the reliability of our cognition measure may be substantially lower than our measure of affect. Were this the case, correlations involving affect (e.g., affect-attitude, affect-behavior) might be artifactually higher than those involving cognition (e.g., cognition-attitude, cognition-behavior) even if the influence of affect and cognition is equal. Reliability and variance estimates for ambivalent and univalent respondents are provided in Tables 1 and 2, respectively. As can be seen in the tables, the reliabilities of our affect and cognition measures were high and relatively equal for univalent respondents (mean α 's = .80 vs. .92 for affect and cognition, respectively). However, among ambivalent respondents, our cognition measure (mean α = .68)

¹ Although the NES surveys from 1984, 1988, and 1992 did not include any negative cognition terms, it is reasonable to assume that respondents who did not view the candidates as possessing positive traits experienced negative cognition toward them. That is, perceiving a candidate as lacking in morality, intelligence, leadership abilities, etc. is tantamount to holding negative beliefs about his or her domain-relevant abilities (Klein, 1996).

TABLE 1

VARIANCE ESTIMATES FOR AFFECT, COGNITION, ATTITUDE, AND BEHAVIOR, AND RELIABILITY ESTIMATES FOR AFFECT AND COGNITION FOR RESPONDENTS WITH AMBIVALENT AFFECTIVE-COGNITIVE STRUCTURES

Election	Ambivalent respondents						
	Variance				N	Reliability	
	Affect	Cognition	Attitude	Behavior		Affect	Cognition
1980							
Anderson	3.13	9.73	365	.03	76	.14	.76
Carter	2.31	7.73	273	.19	147	.27	.66
Reagan	1.72	10.82	238	.25	116	.64	.79
1984							
Mondale	1.96	24.90	424	.12	214	.31	.81
Reagan	1.58	31.13	371	.23	121	.01	.78
1988							
Bush	1.32	7.45	563	.21	90	.49	.52
Dukakis	0.65	8.23	465	.14	170	.24	.66
Jackson	0.92	9.00	561	—	205	.31	.62
1992							
Bush	1.58	7.89	420	.12	160	.52	.58
Clinton	1.36	7.96	369	.15	116	.57	.62
Means	1.65	12.48	405	.16	142	.35	.68

was much more reliable than our affect measure (mean $\alpha = .35$).² The lower reliabilities of affect than cognition among ambivalent respondents thus constituted a substantial obstacle to finding evidence of the primacy of affect hypothesis in this group. That is, by reducing the magnitude of affect-attitude/behavior correlations, these low affect reliabilities are likely to depress the magnitude of observed differences between affect-attitude/behavior and cognition-attitude/behavior correlations among ambivalent respondents.

To provide more accurate estimates of the true correlations of affect and cognition with attitudes and behavior among ambivalent respondents, we disattenuated both the zero-order and semi-partial correlations for this group of respondents. To do this, we used alphas from the entire sample (mean α 's = .64

² Clearly it is important to diagnose why (many of) the affect reliabilities were as low as they were for ambivalent respondents. The answer has to do with highly constrained variability in this condition. This occurred because more than 75% of respondents with ambivalent affective-cognitive structures held negative emotions but positive beliefs about the attitude objects (i.e., relatively few ambivalent respondents were of the A+/C- type). Thus, the composite affect scores for ambivalent respondents consisted predominantly of -2s and -1s for the 1988 and 1992 elections, and -4s, -3s, -2s, and -1s for the 1980 and 1984 elections. The affect scores of univalent respondents, in contrast, ranged throughout the 4-point (-2 to +2, excluding zero; 1988 and 1992 elections) or 7-point scale (-4 to +3, excluding zero; 1980 and 1984 elections). F_{\max} tests revealed that the variability was significantly greater (by a factor of >2) within the univalent than the ambivalent condition (mean $s^2 = 1.65$ and 3.43 for ambivalent and univalent groups, respectively). Because our cognition measure was much more fine-grained, this variability restriction posed less of a reliability problem for cognition.

TABLE 2

VARIANCE ESTIMATES FOR AFFECT, COGNITION, ATTITUDE, AND BEHAVIOR, AND RELIABILITY ESTIMATES FOR AFFECT AND COGNITION FOR RESPONDENTS WITH UNIVALENT AFFECTIVE-COGNITIVE STRUCTURES

Election	Univalent respondents						
	Variance				N	Reliability	
	Affect	Cognition	Attitude	Behavior		Affect	Cognition
1980							
Anderson	3.92	22.75	546	.14	323	.76	.85
Carter	5.48	33.39	921	.24	628	.88	.88
Reagan	4.93	35.69	787	.25	580	.79	.89
1984							
Mondale	4.49	87.23	782	.25	593	.78	.95
Reagan	5.20	131.64	934	.23	931	.81	.96
1988							
Bush	1.99	35.40	887	.23	640	.78	.93
Dukakis	1.88	27.14	830	.23	526	.77	.92
Jackson	2.10	46.51	1013	—	1003	.83	.95
1992							
Bush	2.31	37.82	867	.24	991	.78	.93
Clinton	1.96	31.13	730	.24	789	.77	.93
Means	3.43	48.84	829	.23	700	.80	.92

and .90 for affect and cognition, respectively) rather than alphas from just the ambivalent respondents. Using overall alphas provides a more conservative test of the hypothesis; that is, adjustments based on the lower alphas from just the ambivalent respondents would provide results even more congenial to our hypothesis. In addition, it allows us to avoid computational problems associated with disattenuating semi-partial correlations.³

Finally, for both univalent and ambivalent respondents, cognition scores exhibited more variability than did affect scores (see Tables 1 and 2). This is not surprising given that affect and cognition were measured on different metrics (i.e.,

³ We did not disattenuate the correlations among univalent respondents for two reasons: (1) the alphas were high, and thus the correlations were quite accurate to begin with, and (2) by virtue of selecting respondents with similarly valenced affect and cognition, we constrained the correlation between affect and cognition to be positive and very strong (mean $r = .82$). This caused insoluble problems in computing disattenuated semi-partial correlations. Specifically, the denominator term of the semi-partial disattenuation equation (formula 10.5.5 in Cohen & Cohen, 1983, p. 408) is as follows: $\sqrt{r_{11}^2 * r_{22} - r_{12}^2}$, where r_{11} denotes the reliability for affect, r_{22} denotes the reliability for cognition, and r_{12}^2 denotes the squared correlation between affect and cognition. The problem was that r_{12}^2 was generally larger than $r_{11}^2 * r_{22}$. We did examine the disattenuated zero-order correlations for both groups of respondents, however, and found results highly similar to those reported in the text. The disattenuated zero-order correlations showed, for example, that among ambivalent respondents, affect accounted for more than 10 times the variance in attitudes than did cognition (11.56% vs. 1.0%; see below) but that among univalent respondents, both affect and cognition exerted very substantial and nearly equal effects on attitudes (accounting for 81 and 72% of the variance, respectively).

TABLE 3

ZERO-ORDER AND SEMI-PARTIAL CORRELATIONS OF AFFECT AND COGNITION WITH OVERALL CANDIDATE ATTITUDE FOR RESPONDENTS WITH AMBIVALENT AND UNIVALENT AFFECTIVE-COGNITIVE STRUCTURES

Election	Ambivalent respondents				Univalent respondents			
	Zero-order		Semi-partial		Zero-order		Semi-partial	
	Aff.	Cog.	Aff.	Cog.	Aff.	Cog.	Aff.	Cog.
1980								
Anderson	.60**	-.03	.82**	.51**	.76**	.78**	.23**	.29**
Carter	.38**	.07	.60**	.46**	.83**	.83**	.24**	.24**
Reagan	.17*	.31**	.51**	.51**	.81**	.82**	.21**	.26**
1984								
Mondale	.42**	.08	.49**	.25**	.81**	.79**	.31**	.24**
Reagan	.21**	.25**	.39**	.37**	.84**	.86**	.22**	.27**
1988								
Bush	.12	.00	.32**	.24**	.81**	.81**	.24**	.25**
Dukakis	.33**	.01	.39**	.19**	.76**	.76**	.25**	.26**
Jackson	.37**	.01	.42**	.19**	.79**	.82**	.28**	.21**
1992								
Bush	.18*	.19**	1.04**	.79**	.77**	.80**	.20**	.29**
Clinton	.47**	.08	.92**	.64**	.81**	.79**	.28**	.22**
Means	.34	.10	.72	.44	.80	.83	.25	.25

Note. The mean correlations presented in the last row were not tested for statistical significance.

* $p < .05$; ** $p < .01$.

for 1980 and 1984, affect scores could range between -4 and $+3$ whereas cognition scores could range between 16 and 64; for 1988 and 1992, affect scores could range between -2 and $+2$ whereas cognition scores could range between 9 and 36). That cognition scores exhibited more variability than did affect scores constitutes another obstacle to finding evidence of the primacy of affect hypothesis among ambivalent respondents. It is important to note, however, that the variability in cognition scores was more restricted *relative* to the variability in affect scores among ambivalent than univalent respondents (for ambivalent respondents: mean s^2 's = 1.65 and 12.48 for affect and cognition, respectively; for univalent respondents: mean s^2 's = 3.43 and 48.84 for affect and cognition, respectively). Thus, variability in cognition may have been particularly restricted among ambivalent respondents. This may have created spurious evidence for the primacy of affect hypothesis among ambivalent respondents.

To assess whether the potential restriction in cognition variability among ambivalent respondents can account for the pattern of correlations presented below (Tables 3 and 4), we employed a correction for restriction of range suggested by Cohen and Cohen (1983, p. 70, equation 2.11.7). This correction enabled us to estimate the correlation that would be obtained if the full variability were available. To correct the "restricted" correlations (i.e., the correlations

TABLE 4
ZERO-ORDER AND SEMI-PARTIAL CORRELATIONS OF AFFECT AND COGNITION WITH VOTING BEHAVIOR
FOR RESPONDENTS WITH AMBIVALENT AND UNIVALENT AFFECTIVE-COGNITIVE STRUCTURES

Election	Ambivalent respondents				Univalent respondents			
	Zero-order		Semi-partial		Zero-order		Semi-partial	
	Aff.	Cog.	Aff.	Cog.	Aff.	Cog.	Aff.	Cog.
1980								
Anderson	.30**	-.11	.31**	.16*	.29**	.37**	.00	.22**
Carter	.03	.16	.22**	.25**	.66**	.65**	.21**	.17*
Reagan	.00	.28**	.27**	.33**	.69**	.72**	.15*	.26**
1984								
Mondale	.44**	-.20	.38**	.00	.66**	.57**	.34**	.06
Reagan	.19	.31**	.41**	.42**	.76**	.74**	.25**	.20**
1988								
Bush	-.03	.18	.38	.33*	.76**	.72**	.28**	.15*
Dukakis	.54**	-.19	.50**	.12	.66**	.58**	.33**	.10**
Jackson	—	—	—	—	—	—	—	—
1992								
Bush	.07	.08	.43**	.33**	.62**	.65**	.15*	.25**
Clinton	.60**	-.11	.88**	.53**	.72**	.66**	.31**	.11*
Means	.26	.04	.45	.28	.66	.64	.23	.17

Note. Correlations involving voting behavior are point-biserial correlations where 0 = voted for another candidate and 1 = voted for the candidate. Thus, the signs of the correlations involving voting behavior are positive if they are in the right direction and negative if they are in the wrong direction. The mean correlations presented in the last row were not tested for statistical significance.

* $p < .05$; ** $p < .01$.

computed on ambivalent respondents), we first rescaled the cognition scores so that they would be on the same metric as the affect scores.⁴ We used the variability of affect and cognition from the relatively unrestricted univalent sample as an estimate of the unrestricted variance for each variable. The corrected correlations exhibited a very similar pattern to those displayed in Tables 3 and 4 and do not alter any of the substantive conclusions that we reach from interpreting these data. For example, the corrected zero-order affect-attitude and cognition-attitude correlations for Mondale in 1984 are .57 and .16, respectively. The analogous corrected semi-partial correlations are .68 and .45.

⁴ For the 1980 and 1984 data, affect was assessed on an 8-point scale (scores could range from -4 to +3), whereas cognition was assessed on a 49-point scale (scores could range from 16 to 64). To equate the two scales, we rescaled the original 49-point cognition scale into an eight point scale (by dividing the scores into $49/8 = 6.125$ equal sectors). For the 1988 and 1992 data, affect was assessed on a 5-point scale (scores could range from -2 to +2), whereas cognition was assessed on a 28-point scale (scores could range from 9 to 36). To equate the two scales, we rescaled the original 28-point cognition scale into a five point scale (by dividing the scores into $28/5 = 5.6$ equal sectors).

Affect-Attitude/Behavior vs. Cognition-Attitude/Behavior Correlations

Attitudes. The zero-order and semi-partial associations of affect and cognition with candidate attitudes appear in Table 3. These correlations provide strong support for the primacy of affect hypothesis among ambivalent respondents. As can be seen in the table, at the zero-order level, affect was generally more predictive of attitudes (average $r = .34$) than was cognition (average $r = .10$) among ambivalent respondents. Follow-up t tests between dependent zero-order correlations (see Cohen & Cohen, 1983, p. 57) indicated that affect predicted attitudes significantly better than did cognition for Anderson, Carter, Mondale, Dukakis, Jackson, and Clinton, ($ts > 2.05$, $ps < .05$). In no case did cognition predict attitudes *significantly* better than did affect. Moreover, beyond significant differences in their *relative* impact, the affect-attitude correlation was significant in 90% of the analyses (all but for Bush in 1988), whereas the cognition-attitude correlation was significant in only 30% of the analyses.

The semi-partial coefficients revealed a highly similar pattern to the zero-order correlations. As can be seen in Table 3, affect generally exerted a stronger unique influence on attitudes (average $r = .72$; controlling for cognition) than did cognition (average $r = .44$; controlling for affect) among respondents with ambivalent affective-cognitive structures. That is, controlling for cognition, affect explained an average of 52% of the variance in attitudes; however, controlling for affect, cognition explained an average of only 19% of the variance in attitudes. Follow-up t -tests between dependent semi-partial correlations indicated that affect predicted attitudes significantly better than did cognition for Mondale, Dukakis, Jackson, and Clinton ($ts > 1.64$, $ps \leq .05$, one-tailed). As for the zero-order correlations, in no case did cognition predict attitudes significantly better than did affect.

In contrast to respondents with ambivalent affective-cognitive structures, the zero-order and semi-partial correlations among respondents with univalent affective-cognitive structures (see the right side of Table 3) revealed that both affect and cognition exhibited strong and nearly equal associations with attitudes (for zero-order correlations, average affect-attitude $r = .80$ and average cognition-attitude $r = .83$; for semi-partial correlations, average affect-attitude $r = .25$ and average cognition-attitude $r = .25$). The pattern of results is similar when these correlations are disattenuated for unreliability (see Footnote 3).

Behavior. The zero-order and semi-partial associations of affect and cognition with voting behavior appear in Table 4. These correlations provide further substantiation of the primacy of affect hypothesis among respondents with ambivalent affective-cognitive structures. As can be seen in the left side of the table, at the zero-order level, affect was generally more predictive of behavior (average $r = .26$) than was cognition (average $r = .04$) among respondents with ambivalent affective-cognitive structures. Follow-up t -tests between dependent zero-order correlations indicated that affect predicted voting behavior significantly better than did cognition for Anderson, Mondale, Dukakis, and Clinton, ($ts > 2.41$, $ps < .05$). Similarly, the affect-behavior correlation was significant in

44.44% (4 of 9) of the analyses, whereas the cognition-behavior correlation was significant in only 22.22% (2 of 9) of the analyses. Moreover, in only one case (Reagan in 1980) did cognition predict voting behavior *significantly* better than did affect ($t = 2.16, p < .05$). Finally, as with the correlations involving attitude, these primacy of affect results among ambivalent respondents remained largely intact when controlling for the other attitudinal component (see the semi-partial correlations in columns four and five of Table 4).

In contrast to respondents with ambivalent affective-cognitive structures, correlations among respondents with univalent affective-cognitive structures (see the right side of Table 4) revealed that both affect and cognition exhibited strong and nearly equal associations with voting behavior (for zero-order correlations, average affect-behavior $r = .66$ and average cognition-behavior $r = .64$; for semi-partial correlations, average affect-behavior $r = .23$ and average cognition-behavior $r = .17$). In summary, correlational analyses suggest that when the underlying structure of affective-cognitive information is univalent (i.e., when affect and cognition are both positive or both negative), affect and cognition exert a roughly equal influence on overall candidate attitudes and voting behavior. Considering only the semi-partial correlations, cognition accounted for an average of 4.57% and affect accounted for an average of 5.77% of the variance in attitudes and behavior. However, when the underlying structure of affective-cognitive information was evaluatively incongruent (i.e., ambivalent), respondents generally relied more heavily on their feelings about the candidates than on their beliefs about the candidates' domain-relevant attributes in forming their overall candidate evaluations and in guiding their subsequent voting behavior. Considering only the semi-partial correlations, cognition accounted for an average of 13.60% of the variance in attitudes and behavior, whereas affect accounted for an average of 36.05% of the variance in attitudes and behavior.

Contrasts between Two Types of Ambivalence: A+/C- vs. A-/C+

If, as the correlations in Tables 3 and 4 suggest, respondents relied to a greater extent on their emotions than on their beliefs when the two components conflicted, respondents with positive feelings and negative thoughts (A+/C-) should hold more favorable overall attitudes than should respondents with negative feelings and positive thoughts (A-/C+). We examined this hypothesis by examining mean attitude scores as a function of positive vs. negative affect and cognition. The 2 (affect: negative vs. positive) \times 2 (cognition: negative vs. positive) cell means for each candidate are presented in Table 5. Consistent with the correlational analyses described above, these means reveal considerable support for the primacy of affect hypothesis among respondents with ambivalent affective-cognitive structures. Specifically, in eight of the 10 candidate analyses (for all but Reagan in 1980 and 1984), ambivalent respondents with affective-cognitive structures of the A+/C- form exhibited more favorable candidate attitudes than did ambivalent respondents with affective-cognitive structures of the A-/C+ form. Overall, the mean attitude score for respondents with A+/C-

TABLE 5
OVERALL CANDIDATE ATTITUDE AS A FUNCTION OF POSITIVE AND NEGATIVE AFFECT AND COGNITION

Election	A-/C-	A-/C+	A+/C-	A+/C+	p (A+/C- vs. A-/C+)
1980					
Anderson	29.92	41.14	53.87	68.61	<.01
Carter	27.98	54.49	58.92	76.95	<.05
Reagan	31.17	54.16	51.58	75.93	ns.
1984					
Mondale	27.53	45.78	53.96	76.29	<.01
Reagan	28.51	56.50	55.45	81.94	ns.
1988					
Bush	28.78	47.71	52.61	82.73	ns.
Dukakis	26.55	39.19	55.75	78.05	<.01
Jackson	13.55	34.59	54.55	72.93	<.01
1992					
Bush	25.76	47.64	49.47	72.16	ns.
Clinton	26.57	41.75	54.26	74.23	<.01
Means	26.63	46.30	54.13	75.98	

Note. A-/C-, negative affect/negative cognition; A-/C+, negative affect/positive cognition; A+/C-, positive affect/negative cognition; A+/C+, positive affect/positive cognition. p (A+/C- vs. A-/C+) refers to the significance value of the contrast between the A+/C- and A-/C+ means.

structures was 54.13, whereas the mean attitude score for respondents with A-/C+ structures was 46.30 (see the bottom row of Table 5). As can be seen in column 6 of Table 5, contrasts indicated that this difference was significant in 6 of 10 analyses (and marginally significant for Bush in 1988 ($t[138] = 1.55, p < .06$, one-tailed).

Meta-Analyses

As our data included replications across 10 attitude objects and four separate groups of respondents, we also conducted a series of meta-analyses to further evaluate the ambivalence-moderated primacy of affect hypotheses. We employed a technique developed by Raju, Burke, Normand, and Langlois (1991) appropriate for estimating the mean and variance of population correlations. First, we estimated the weighted mean zero-order correlation (and standard error of the mean correlation) for the 10 affect-attitude correlations among ambivalent respondents. As can be seen in Table 6, this weighted mean correlation was .32. In contrast, the weighted mean cognition-attitude correlation among ambivalent respondents was .10. Importantly, the 99% confidence intervals for the affect-attitude and cognition-attitude correlations do not overlap (i.e., .27 to .37 for affect-attitude and .05 to .16 for cognition-attitude). Therefore, overall (across candidates and election years), affect exerted a significantly greater influence on attitudes than did cognition among ambivalent respondents ($p < .01$). However, in keeping with the ambivalence-moderated aspect of our hypothesis, this was not

TABLE 6
 META-ANALYSIS OF ZERO-ORDER AFFECT-ATTITUDE, COGNITION-ATTITUDE, AFFECT-BEHAVIOR, AND
 COGNITION-BEHAVIOR CORRELATIONS FOR AMBIVALENT AND UNIVALENT RESPONDENTS

	Zero-order correlations			
	Ambivalent respondents		Univalent respondents	
	w-avg. ^a	99% CI ^b	w-avg.	99% CI
<i>r</i> Attitudes with				
Affect	.32	.27, .37	.80	.79, .81
Cognition	.10	.05, .16	.81	.80, .82
<i>r</i> Behavior with				
Affect	.26	.19, .33	.69	.67, .71
Cognition	.02	-.05, .09	.66	.65, .68

^a W-avg. = weighted average estimate of the meta-attitudinal correlation.

^b 99% CI = 99% confidence interval around the w-avg correlation.

the case for univalent respondents. Among univalents, the meta-analytic confidence intervals around the affect-attitude and cognition-attitude correlations *do* overlap (see Table 6). Thus, for univalent respondents, affect and cognition did not exert differentially strong effects on attitudes. As can also be seen in Table 6, the same pattern of effects occurred for behavior. Among univalent but not ambivalent respondents, the confidence intervals around the affect-behavior and cognition-behavior correlations overlap. Therefore, overall, affect exerted a significantly greater independent influence on subsequent behavior than did cognition among ambivalent but not univalent respondents. Table 7 displays the same series of meta-analyses for the semi-partial correlations. The same pattern of effects emerged: For both attitudes and behavior, the confidence intervals for correlations involving affect and cognition overlap for univalent but not ambiva-

TABLE 7
 META-ANALYSIS OF SEMI-PARTIAL AFFECT-ATTITUDE, COGNITION-ATTITUDE, AFFECT-BEHAVIOR, AND
 COGNITION-BEHAVIOR CORRELATIONS FOR AMBIVALENT AND UNIVALENT RESPONDENTS

	Semi-partial correlations			
	Ambivalent respondents		Univalent respondents	
	w-avg. ^a	99% CI ^b	w-avg.	99% CI
<i>r</i> Attitudes with				
Affect	.58	.54, .62	.24	.22, .27
Cognition	.41	.36, .46	.26	.24, .28
<i>r</i> Behavior with				
Affect	.42	.36, .48	.24	.20, .27
Cognition	.25	.18, .32	.17	.14, .20

^a W-avg. = weighted average estimate of the meta-attitudinal correlation.

^b 99% CI = 99% confidence interval around the w-avg correlation.

TABLE 8

META-ANALYSIS OF THE AFFECT-ATTITUDE MINUS COGNITION ATTITUDE CORRELATIONS AND AFFECT-BEHAVIOR MINUS COGNITION-BEHAVIOR CORRELATIONS FOR AMBIVALENT AND UNIVALENT RESPONDENTS

	Zero-order correlations		Semi-partial correlations	
	w-avg. Q^a	99% CI ^b	w-avg. Q	99% CI
Aff.-Att.-Cog.-Att. ^c				
Ambivalent Ss	.23	.18, .28	.34	.29, .39
Univalent Ss	-.03	-.05, .00	-.01	-.03, .02
Aff.-Beh.-Cog.-Beh. ^d				
Ambivalent Ss	.29	.23, .35	.22	.16, .29
Univalent Ss	.03	-.04, .11	.07	.03, .10

^a W-avg. Q = weighted average meta-analytic estimate of the difference between correlations.

^b 99% CI = 99% confidence interval around the w-avg correlation.

^c Aff.-Att.-Cog.-Att. = the r -to- z transformed meta-analytic difference between the affect-attitude and cognition-attitude correlations.

^d Aff.-Beh.-Cog.-Beh. = the r -to- z transformed meta-analytic difference between the affect-behavior and cognition-behavior correlations.

lent respondents. Therefore, overall, affect exerted a significantly greater unique influence on both attitudes and behavior than did cognition among ambivalent but not univalent respondents.

Next, we directly compared the difference in affect-attitude/behavior and cognition-attitude/behavior correlations across ambivalent and univalent respondents (e.g., we compared whether the meta-analytic affect-attitude minus cognition-attitude correlation was larger among ambivalent than univalent respondents). To do this, we first r -to- z transformed the correlations. We then computed the Q statistic (r -to- z_1 - r -to- z_2) suggested by Cohen (1988, p. 110; i.e., the r -to- z transformed difference between the affect-attitude and cognition-attitude correlations). Q represents the degree to which affect out-predicted cognition (higher numbers represent stronger affect-attitude/behavior than cognition-attitude/behavior correlations). The results are displayed in Table 8. For ambivalent respondents, the meta-analytic zero-order difference between affect-attitude and cognition-attitude correlations was .23. For univalent respondents, the difference was -.03. As can be seen in the table, the confidence intervals around these difference correlations do not overlap; therefore, affect out-predicted cognition to a *significantly* greater extent among ambivalent than univalent respondents ($p < .01$). As the table shows, the same significant pattern held true for behavior (.29 vs. .03). Moreover, the same significant pattern held true for both attitudes (.34 vs. -.01) and behavior (.22 vs. .07) for the semi-partial correlations.

DISCUSSION

Investigations of the relative impact of affect and cognition on overall evaluative judgments have revealed that neither type of information consistently exerts the stronger influence (e.g., Abelson et al., 1982; Breckler & Wiggins, 1989; Esses

et al., 1993). However, both situational and individual difference moderators of the strength of these relationships have recently been identified (e.g., Millar & Tesser, 1986; Sniderman et al., 1991). In the present research, we investigated whether the evaluative congruity between an attitude's underlying affective and cognitive components moderated the relative weight of affect versus cognition in the determination of attitudes. Specifically, we hypothesized that affect would predominate over cognition in the expression of attitudes and behavior when the attitude's underlying affective-cognitive structure was ambivalent (i.e., when affect and cognition were of opposite valence) but not when the underlying attitudinal structure was univalent (i.e., when affect and cognition were of the same valence). Because previous research has shown that attitudes toward presidential candidates are significantly influenced by both affective (e.g., how a candidate makes a person feel) and cognitive (e.g., the degree to which a candidate is perceived to possess domain-relevant personal qualities) responses (Abelson et al., 1982), presidential candidates served as our attitudinal stimuli to test the ambivalence-moderated primacy of affect hypothesis.

Our results generally revealed strong support for this hypothesis. Among ambivalent respondents, across 38 comparisons, affect significantly out-predicted cognition in 18 cases. In contrast, in only one case did cognition significantly out-predict affect. Among univalent respondents, however, affect and cognition exerted highly similar effects on attitudes and behavior. These univariate results are further supported by the results of our meta-analyses. For ambivalent respondents, the lower bound estimate of the 99% confidence interval associated with the weighted average correlation involving affect was larger than the upper bound estimate of the weighted average correlation involving cognition. This occurred for both zero-order and semi-partial correlations, and for both attitudes and behavior. Moreover, the weighted average semi-partial correlation involving affect accounted for 33.64% of the variance in attitudes (and 17.64% of the variance in behavior) whereas the weighted average semi-partial correlation involving cognition accounted for only 16.81% of the variance in attitudes (and 6.25% of the variance in behavior) among ambivalent respondents (see Table 7).

Consistent with the ambivalence-moderated aspect of our hypothesis, the primacy of affect over cognition was not observed among respondents with univalent affective-cognitive structures. Among respondents whose emotions and beliefs were either both positive or both negative, the meta-analytic affect-attitude/behavior and cognition-attitude/behavior correlations were highly similar, and not significantly different. For example, affect accounted for an average of 5.76% of the unique variance in attitudes and cognition accounted for an average of 6.76% of the unique variance.

Finally, that affect exerted a stronger influence on attitudes than did cognition among ambivalent respondents is further supported by our contrast analysis findings that the attitudinal consequences of affective-cognitive ambivalence depend on its particular form ($A+/C-$ vs. $A-/C+$). Specifically, positive feelings and negative thoughts produced more positive overall evaluations than did negative feelings and positive thoughts. Across all ten analyses, the mean

difference between the A+/C- and A-/C+ conditions was 7.83 points, and this difference was significant in 6 out of 10 analyses. Thus, among those with affection but little admiration for a given candidate (or vice-versa), emotions generally exerted a greater pull on overall attitudes and behavior toward that candidate than did respondents' beliefs about the candidate's domain-relevant attributes. In contrast, among those with similarly valenced affection and admiration for a candidate, affect and cognition generally exerted an equal influence on overall attitudes and behavior toward that candidate.

Explaining the Primacy of Affect for Ambivalent Attitudes

Clearly one important question in understanding our results is *why* affect rather than cognition should be the superior predictor of attitudes and behavior when the two have conflicting implications. One possibility is that people attach greater validity to their attitude-related emotions than to their attitude-related beliefs (e.g., Zajonc, 1980). That is, perhaps people place greater confidence or certainty in their emotional experiences related to an attitude object (e.g., that capital punishment makes them feel disgusted) than they do in their beliefs that an attitude object is associated with a certain set of attributes (e.g., that capital punishment will reduce violent crime). Consistent with this possibility, Edwards (1990; Edwards & von Hippel, 1995) has shown that attitudes based on affect are held with greater confidence than are those based on cognition. Thus, our primacy of affect findings among ambivalent respondents may be at least partly mediated by differences in the confidence or subjective validity with which attitude-related affect and cognition are held.

A second possibility is that affective responses toward social attitude objects (e.g., people, social issues) typically chronologically precede a more systematic (cognitive) analysis of the attitude object's attributes (Sears, 1993; Zajonc, 1980, 1984). In recent research, Edwards (1990, Edwards & von Hippel, 1995) created affect- and cognition-based attitudes by manipulating the order in which affective and cognitive information about an attitude object were presented to participants. Edwards showed that overall attitudes were most strongly influenced by the information that was presented first. Thus, attitudes with ambivalent affective-cognitive structures may function more as affect- than as cognition-based attitudes. If the evaluative implications of affect and cognitive conflict, this suggests that affect should play the dominant role in guiding attitude formation and attitude-related behavior.

A third possibility is that affect and cognition serve different psychological functions. Specifically, the affective component of attitudes may serve an adaptive/behavioral function whereas the cognitive component of attitudes may serve an information processing/knowledge function (see Breckler & Wiggins, 1989). From this perspective, when affect and cognition conflict the former should be used in guiding behavior (e.g., voting) whereas the latter should be used in guiding information processing (e.g., selective exposure). This differential functions view can account for our behavioral results in which affect generally

predicted voting behavior better than did cognition among participants with ambivalent affective-cognitive structures. To the extent that attitudes toward presidential candidates generally serve a behavioral function, this perspective may also be able to account for our attitudinal results. Specifically, if respondents' goal in forming attitudes toward presidential candidates is to prepare them for subsequent voting behavior, affect should be a better predictor of candidate attitudes than should cognition among those with ambivalent affective-cognitive structures.

What Are the Consequences of Affective-Cognitive Ambivalence?

Finally, it is of interest to speculate about the role of affective-cognitive ambivalence in regulating an attitude's durability and impact (Krosnick & Petty, 1995). With respect to durability, attitudes with underlying ambivalent affective-cognitive structures are likely to be less stable over time than are attitudes with underlying univalent affective-cognitive structures. Because attitudes may often be episodically constructed on the basis of temporarily accessible information (e.g., Tourangeau & Rasinski, 1988; Zaller & Feldman, 1992; Wilson & Hodges, 1992), ambivalent attitudes should be more likely than their univalent counterparts to vary as a result of temporary shifts in the salience of affect and cognition, thus creating instability over time (for evidence on this point, see Bargh, Chaiken, Govender & Pratto, 1992; Bassili, 1996).

With respect to impact, attitudes with underlying ambivalent affective-cognitive structures are likely to be less strongly related to subsequent behavior than are attitudes with underlying univalent affective-cognitive structures. Affective-cognitive ambivalence should moderate the attitude-behavior relation for several reasons. First, ambivalent attitudes are associated with conflicting cues, thereby weakening their potential consistency with behavior. Second, because ambivalent attitudes are less cognitively accessible in memory than are univalent attitudes (e.g., Bargh et al., 1992; Bassili, 1996; Lavine, Thomsen, Borgida & Sullivan, 1992), they should be less likely to bias perceptions of the attitude object in behavioral situations, and thus less likely to be consistent with behavior (Fazio, 1986; Fazio, Chen, McDonel, & Sherman, 1982; Fazio & Williams, 1986). Third, if ambivalent attitudes are indeed relatively unstable over time, they should be weaker predictors of behavior than univalent attitudes. This should be the case because behavior is controlled by the attitude existing at the moment the behavior is initiated, and this attitude is more likely to have undergone change (due to instability) when it is ambivalent rather than univalent (see Doll & Ajzen, 1992; Eagly & Chaiken, 1995; Schwartz, 1978).

Conclusions and Future Directions

Social and political psychologists have increasingly acknowledged that people may simultaneously possess both positive and negative evaluations of attitude objects (e.g., Feldman & Zaller, 1992; Hochschild, 1981; Thompson et al., 1995; Zaller, 1992). In accord with this idea, theorists have proposed that evaluative

space may consist of two unipolar (negative and positive) dimensions instead of a single bipolar (negative-positive) dimension (Breckler, 1994; Cacioppo & Berntson, 1994; Cacioppo, Gardner & Berntson, 1997; Kaplan, 1972; Katz & Hass, 1988; Kerlinger, 1984; Thompson et al., 1995; Zanna & Rempel, 1988). For example, Rodin (1978) has argued that people represent degrees of liking and disliking of others along separate dimensions of evaluation, and Cacioppo and his colleagues (e.g., Cacioppo et al., 1997) have argued that positive and negative evaluative processes have differentiable classes of antecedents and consequences. Consistent with this reasoning, positive and negative evaluations have often been found to be independent of one another (e.g., Abelson et al., 1982; but see Green, Goldman, & Salovey, 1993).

In the present research, we examined the hypothesis that affective-cognitive ambivalence is an important determinant of the relative influence of affect and cognition on overall attitudes and behavior. Future research might examine the manner in which affective-cognitive ambivalence is resolved. For example, what situational, personal, and/or attitude object factors regulate the degree to which affect and/or cognition change as consistency pressures promote the resolution of ambivalence? Future research might also examine the consequences of different types of ambivalence (e.g., mixed beliefs, torn feelings) in connection with the affective and cognitive underpinnings of attitudes. For example, would having mixed beliefs but univalent feelings result in a stronger influence of affect than cognition on overall attitudes?

Finally, future research might examine the influence of ambivalence in regulating information processing and the structural complexity of resulting attitudes. It is reasonable to expect that people with ambivalent attitudes would be less likely than those with univalent attitudes to selectively expose themselves to evaluatively congruent information (Lavine, Wagner & McBride, 1997); that is, they might prefer to expose themselves to two-sided rather than to one-sided attitude-relevant information. Perhaps as a result, ambivalence-based differences in information processing should result in attitudes that are more integratively complex than attitudes with univalent structures (Tetlock, 1986).

Attitude researchers have recently rediscovered the concept of attitude ambivalence (e.g., Breckler, 1994; Priester & Petty, 1996; Thompson et al., 1995), and are beginning to investigate its antecedents and consequences (see Jonas, Diehl & Brömer, 1997; Lavine, Huff, Wagner & Sweeney, in press; Lavine, Thomsen, Borgida & Sullivan, 1992; MacDonald & Zanna, in press; Thompson & Zanna, 1995). By reconceptualizing the nature of attitudes in unipolar, bidimensional terms, attitude researchers stand to gain new insights into the relationship between attitude structure and basic attitudinal processes such as the attitude-behavior relationship (Jonas et al., 1995) and resistance to attitude change (Lavine et al., in press; Tourangeau, Rasinski, Bradburn & D'Andrade, 1989).

REFERENCES

- Abelson, R. P., Kinder, D. R., Peters, M. D., & Fiske, S. T. (1982). Affective and semantic components in political person perception. *Journal of Personality and Social Psychology*, **42**, 619–630.

- Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. San Francisco: Jossey-Bass.
- Anderson, N. H. (1981). *Foundations of information integration theory*. San Diego, CA: Academic Press.
- Bagozzi, R. P., & Burnkrant, R. E. (1979). Attitude organization and the attitude-behavior relationship. *Journal of Personality and Social Psychology*, **37**, 913–929.
- Bargh, J. A., Chaiken, S., Govender, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology*, **62**, 893–912.
- Bassili, J. N. (1996). Meta-judgmental versus operative indexes of psychological attributes: The case of measures of attitude strength. *Journal of Personality and Social Psychology*, **71**, 637–653.
- Breckler, S. J. (1984). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of Personality and Social Psychology*, **47**, 1191–1205.
- Breckler, S. J. (1994). A comparison of numerical indexes for measuring attitude ambivalence. *Educational and psychological measurement*, **54**, 350–365.
- Breckler, S. J., & Wiggins, E. C. (1989). Affect versus evaluation in the structure of attitudes. *Journal of Experimental Social Psychology*, **25**, 253–271.
- Cacioppo, J. T., & Berntson, G. G. (1994). Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological Bulletin*, **115**, 401–423.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychology Review*, **1**, 3–25.
- Chaiken, S., & Yates, S. M. (1985). Affective-cognitive consistency and thought-induced attitude polarization. *Journal of Personality and Social Psychology*, **49**, 1470–1481.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd edition). Hillsdale, NJ: Erlbaum.
- Doll, J., & Ajzen, I. (1992). Accessibility and stability of predictors in the theory of planned behavior. *Journal of Personality and Social Psychology*, **63**, 754–765.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. New York: Harcourt, Brace, Jovanovich.
- Eagly, A. H., & Chaiken, S. (1995). Attitude strength, attitude structure, and resistance to change. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 413–432). Mahwah, NJ: Erlbaum.
- Esses, V. M., Haddock, G., & Zanna, M. P. (1993). Values, stereotypes and emotions as determinants of intergroup attitudes. In D. L. Hamilton & D. M. Mackie (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception*. San Diego: Academic Press.
- Edwards, K. (1990). The interplay of affect and cognition in attitude formation and change. *Journal of Personality and Social Psychology*, **59**, 212–216.
- Edwards, K., & von Hippel, W. (1995). Hearts and minds. The priority of affective and cognitive factors in person perception. *Personality and Social Psychology Bulletin*, **21**, 996–1011.
- Fazio, R. H. (1986). How do attitudes guide behavior? In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 204–243). New York: Guilford Press.
- Fazio, R. H., Chen, J. M., McDonel, E. C., & Sherman, S. J. (1982). Attitude accessibility, attitude-behavior consistency, and the strength of the object-evaluation association. *Journal of Experimental Social Psychology*, **18**, 339–357.
- Fazio, R. H., & Williams, C. J. (1986). Attitude accessibility as a moderator of the attitude-perception and attitude-behavior relation: An investigation of the 1984 presidential election. *Journal of Personality and Social Psychology*, **51**, 505–514.
- Feldman, S., & Zaller, J. (1992). Political culture of ambivalence: Ideological responses to the welfare state. *American Journal of Political Science*, **36**, 268–307.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

- Green, D. P., Goldman, S. L., & Salovey, P. (1993). Measurement error masks bipolarity in affect ratings. *Journal of Personality and Social Psychology*, **64**, 1029–1041.
- Greenwald, A. G. (1981). Cognitive response analysis: An appraisal. In R. E. Petty, T. M. Ostrom, & T. C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 127–133). Hillsdale, NJ: Erlbaum.
- Haddock, G. (1994). *Investigating the existence of individual differences in attitude structure*. Unpublished doctoral dissertation, University of Waterloo.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Herek, G. M. (1986). The instrumentality of attitudes: Toward a neofunctional theory. *Journal of Social Issues*, **42**, 99–114.
- Hochschild, J. L. (1981). *What's fair? American beliefs about distributive justice*. Cambridge, MA: Harvard University Press.
- Jackson, L. A., Hodge, C. N., Gerard, D. A., Ingram, J. M., Ervin, K. S., & Sheppard, L. A. (1996). Cognition, affect, and behavior in the prediction of group attitudes. *Personality and Social Psychology Bulletin*, **22**, 306–316.
- Jonas, K., Diehl, M., & Bromer, P. (1997). Effects of attitudinal ambivalence on information processing and attitude-intention consistency. *Journal of Experimental Social Psychology*, **33**, 190–210.
- Kaplan, K. J. (1972). On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological Bulletin*, **77**, 361–372.
- Katz, I., & Hass, R. G. (1988). Racial ambivalence and American value conflict: Correlational and priming studies of dual cognitive processes. *Journal of Personality and Social Psychology*, **55**, 893–905.
- Klein, J. G. (1996). Negativity in impressions of presidential candidates revisited: The 1992 election. *Personality and Social Psychology Bulletin*, **22**, 288–295.
- Kerlinger, F. N. (1984). *Liberalism and conservatism: The nature and structure of social attitudes*. Hillsdale, NJ: Erlbaum.
- Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences*. Hillsdale, NJ: Erlbaum.
- Lavine, H., Huff, J., Wagner, S., & Sweeney, D. (in press). The moderating influence of attitude strength on the susceptibility to context effects in attitude surveys. *Journal of Personality and Social Psychology*.
- Lavine, H., Thomsen, C. J., Borgida, E., & Sullivan, J. S. (1992, May). *A test of the single- versus dual-evaluation model of attitude accessibility*. Paper presented at the annual meeting of the Midwestern Psychological Association, Chicago.
- Lavine, H., Wagner, S. H., & McBride, T. (1997). *Structural consistency, selective exposure, and attitude ambivalence*. Unpublished raw data.
- Liberman, A., & Chaiken, S. (1991). Value conflict and thought-induced attitude change. *Journal of Experimental Social Psychology*, **27**, 203–216.
- MacDonald, T. K., & Zanna, M. P. (in press). Cross-dimensional ambivalence toward social groups: Can ambivalence affect intentions to hire feminists? *Personality and Social Psychology Bulletin*.
- Millar, M. G., & Tesser, A. (1986). Effects of affective and cognitive focus on the attitude-behavior relation. *Journal of Personality and Social Psychology*, **51**, 270–276.
- Millar, M. G., & Tesser, A. (1989). The effects of affective-cognitive consistency and thought on the attitude-behavior relation. *Journal of Experimental Social Psychology*, **25**, 189–202.
- Ostrom, T. M. (1969). The relationship between the affective, behavioral and cognitive components of attitude. *Journal of Experimental Social Psychology*, **5**, 12–30.
- Priester, J. R., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating the positive and negative bases of attitudes to subjective ambivalence. *Journal of Personality and Social Psychology*, **71**, 431–445.
- Raju, N. S., Burke, M. J., Normand, J., & Langois, G. M. (1991). A new meta-analytic approach. *Journal of Applied Psychology*, **76**, 432–446.
- Rodin, J. M. (1978). Liking and disliking: Sketch of an alternative view. *Personality and Social Psychology Bulletin*, **4**, 473–478.

- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Rosenberg, M. J. (1968). Hedonism, inauthenticity, and other goals toward expansion of a consistency theory. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), *Theories of cognitive consistency: A sourcebook* (pp. 73–111). Chicago: Rand-McNally.
- Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective, and behavioral components of attitudes. In C. I. Hovland & M. J. Rosenberg (Eds.), *Attitude organization and change: An analysis of consistency among attitude components* (pp. 1–14). New Haven, CT: Yale University Press.
- Schwartz, S. H. (1978). Temporal instability as a moderator of the attitude-behavior relationship. *Journal of Personality and Social Psychology*, **36**, 715–724.
- Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). *Reasoning and choice: Explorations in political psychology*. Cambridge, England: Cambridge University Press.
- Stangor, C., Sullivan, J. A., & Ford, T. E. (1991). Affective and cognitive determinants of prejudice. *Social Cognition*, **9**, 359–380.
- Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). *Reasoning and choice*. Cambridge, England: Cambridge University Press.
- Tesser, A. (1978). Self-generated attitude change. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 11, pp. 289–338). San Diego, CA: Academic Press.
- Tetlock, P. E. (1986). A value pluralism model of ideological reasoning. *Journal of Personality and Social Psychology*, **50**, 819–827.
- Thompson, M. M., & Zanna, M. P. (1995). The conflicted individual: Personality-based and domain-specific antecedents of ambivalent social attitudes. *Journal of Personality*, **63**, 259–268.
- Thompson, M. M., Zanna, M. P., & Griffin, D. W. (1995). Let's not be indifferent about (attitudinal) ambivalence. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences*. Hillsdale, NJ: Erlbaum.
- Tourangeau, R., & Rasinski, K. A. (1988). Cognitive processes underlying context effects in attitude measurement. *Psychological Bulletin*, **103**, 299–314.
- Tourangeau, R., Rasinski, K. A., Bradburn, N., & D'Andrade, R. (1989). Belief accessibility and context effects in attitude measurement. *Journal of Experimental Social Psychology*, **25**, 401–421.
- Wilson, T. D., & Dunn, D. S. (1986). Effects of introspection on attitude-behavior consistency: Analyzing reasons versus focusing on feelings. *Journal of Experimental Social Psychology*, **22**, 249–263.
- Wilson, T. D., & Hodges, S. D. (1992). Attitudes as temporary constructions. In A. Tesser & L. Martin (Eds.), *The construction of social judgment* (pp. 37–65). Mahway, NJ: Erlbaum.
- Woodmansee, J. J., & Cook, S. W. (1967). Dimensions of verbal racial attitudes: Their identification and measurement. *Journal of Personality and Social Psychology*, **7**, 240–250.
- Zajonc (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, **35**, 151–175.
- Zajonc (1984). On the primacy of affect. *American Psychologist*, **39**, 117–123.
- Zajonc, R. B., & Markus, H. (1982). Affective and cognitive factors in preferences. *Journal of Consumer Research*, **9**, 123–131.
- Zaller, J. R. (1992). *The nature and origins of mass opinion*. New York: Cambridge University Press.
- Zaller, J. R., & Feldman, S. (1992). A simple theory of the survey response: Answering questions versus revealing preferences. *American Journal of Political Science*, **36**, 579–616.
- Zanna, M. P., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bar-Tal & A. W. Kruglanski (Eds.), *The social psychology of knowledge* (pp. 315–334). Cambridge, England: Cambridge University Press.
- Zanna, M. P., & Thompson, M. M. (1991, September). Let's not be indifferent about (attitudinal) ambivalence. R. E. Petty & J. A. Krosnick (Chairs), *Attitude strength: Antecedents and consequences*. Symposium conducted at the Ohio State University conference on attitudes, Nags Head, NC.