Attitudinal Ambivalence: A Test of Three Key Hypotheses

Christopher J. Armitage
University of Sheffield

Mark Conner
University of Leeds

*This article reports two studies designed to test the hypotheses that lower levels of attitudinal ambivalence are associated with attitudes that are more predictive of behavior, more stable over time, and less pliable. Study 1 (*n = *346) employed a prospective design to test the effects of ambivalence on attitude-intention-behavior relationships. Findings indicated that less ambivalent attitudes were more predictive of subsequent behavioral intentions and behavior but were unrelated to attitude stability. Study 2 (*n = *344) used a simple pre-post experimental design and showed that ambivalent attitudes were more pliable in the face of a persuasive communication. The findings are discussed in relation to future research into the bidimensional conceptualization of attitudes.*

The relationship between expressed attitudes and subsequent behavior has been of particular interest to social psychologists for several decades. In spite of this, evidence for strong and consistent relationships between attitudes and behavior has proved somewhat elusive (e.g., Ajzen & Fishbein, 1977; Eagly & Chaiken, 1993; Kim & Hunter, 1993; Kraus, 1995; Wicker, 1969). One focus of research attention has been directed at ways of bridging the gap between attitudes and behavior. A number of approaches have been adopted, including examination of moderator variables (e.g., attitude strength) (Petty & Krosnick, 1995), improvement of correspondence between measures (e.g., Fishbein, 1980), and consideration of behavioral intentions as mediators of attitude-behavior relations (e.g., Ajzen, 1991; Fishbein & Ajzen, 1975). The latter has received particular attention, and many studies now employ measures of behavioral intention as a proxy for actual behavior (for a recent review, see Godin & Kok, 1996).

Consistent across most attempts to improve attitude-behavior relations is the conceptualization of attitude as a unidimensional, bipolar construct. Individuals are assumed to hold an attitude position somewhere along a bipolar continuum. That is, they hold a neutral, a positive, or a negative attitude toward an object or behavior. Thus, individuals are held to engage in behaviors toward which they are positively disposed and avoid behaviors toward which they are negatively disposed (Eagly & Chaiken, 1993; Kraus, 1995). Implicit in this view is the assumption that positive attitudes are the diametric opposite of negative attitudes. Recently, however, it has been argued that individuals may simultaneously hold both negative and positive attitudes that are not perfectly (negatively) correlated with one another (e.g., Cacioppo, Gardner, & Berntson, 1997). In understanding this finding, particular attention has been focused on the concept of attitudinal ambivalence (see Priester & Petty, 1996; Thompson, Zanna, & Griffin, 1995, for recent reviews).

Attitudinal ambivalence may be defined as a state in which an individual "is inclined to give it [an attitude object] equivalently strong positive or negative evaluations" (Thompson et al., 1995, p. 367).[1] This extends the unidimensional view of attitudes into a bidimensional construct, where individuals may simultaneously hold both positive and negative attitudes toward an object or behavior. Although attitudinal ambivalence is actually a reconceptualization of the attitude construct, it is more

Authors' Note: Address correspondence concerning this article to Christopher J. Armitage, Centre for Research in Social Attitudes, Department of Psychology, University of Sheffield, Sheffield S102TP, United Kingdom; e-mail: c.armitage@sheffield.ac.uk.

PSPB, Vol. 26 No. 11, November 2000 1421-1432

commonly treated as a facet of attitude strength (e.g., Bassili, 1996; Krosnick, Boninger, Chuang, Berent, & Carnot, 1993; Thompson et al., 1995).

Krosnick and Petty (1995) argue that there are four defining features of strong attitudes. Thus, attitudes may be regarded as being strong if they possess one or more of the following attributes: (a) remain stable over time, (b) impact on behavior, (c) influence information processing, and (d) resist persuasion.[2] One might therefore expect less ambivalent (i.e., univalent) attitudes to be more stable over time, more predictive of behavior (and behavioral intentions), less pliable, and/or to exert influence on information processing. This article focuses on the effects of attitudinal ambivalence on attitude stability, attitude pliability, and the influence of attitudes on behavioral intentions and behavior (see Jonas, Diehl, & Brömer, 1997, for a recent test of the information-processing hypothesis).

A number of authors have investigated the effects of attitudinal ambivalence on each of Krosnick and Petty's (1995) defining features but have produced conflicting findings. For example, whereas Bargh, Chaiken, Govender, and Pratto (1992) showed that ambivalent (i.e., weaker) attitudes were less stable than nonambivalent attitudes, more recent studies have failed to fully replicate the finding (see Bassili, 1996). Similarly, whereas Jonas et al. (1997) found stronger attitude-behavioral intention relations for more ambivalent attitudes, Lavine, Thomsen, Zanna, and Borgida (1998) reported that attitude-behavior relations were attenuated by affective-cognitive inconsistency (see Norman & Smith, 1995; Sparks, Hedderley, & Shepherd, 1992, for similarly conflicting findings). Finally, Bassili (1996) tested the pliability of attitudes in the face of persuasive messages but found that ambivalence was not consistently related to pliability. The present article reports two studies that address two possible explanations for these inconsistencies.

First, previous research into attitudinal ambivalence has operationalized ambivalence in different ways. For example, whereas Lavine et al. (1998) examined affective-cognitive consistency, Bassili (1996) measured global ambivalence and Sparks and colleagues (1992) investigated attitude variability. As yet, it is unclear whether these are interchangeable; however, there is good reason to expect differences between (for example) affective-cognitive, evaluative-cognitive, and evaluative-affective inconsistency (e.g., Chaiken, Pomerantz, & Giner-Sorolla, 1995). The present article therefore focuses on testing the properties associated with global measures of ambivalence (see Thompson et al., 1995).

Second, with the exception of Lavine et al. (1998), all previous studies of attitudinal ambivalence have employed student samples. Sears (1986) has presented evidence to suggest that students' attitudes are relatively pliable and that their behavior often is inconsistent with their attitudes. Given that attitude stability, pliability, and prediction of behavior are three of the defining characteristics of strong attitudes, the use of student samples represents a potential problem for generalizability. The present article tests the effects of attitudinal ambivalence in a nonstudent sample.[3]

The aim of the present article is to extend previous research by examining the effects of global attitudinal ambivalence on (a) attitude stability, (b) prediction of behavioral intention and behavior, and (c) attitude pliability with a nonstudent sample. Study 1 investigates the hypotheses that less ambivalent attitudes are both more predictive of behavior (and behavioral intentions) and stable over time. Study 2 examines the hypothesis that ambivalent attitudes will be more pliable in the face of persuasive communications than will less ambivalent attitudes. Consumption of a low-fat diet was the topic of interest given that previous research indicates that food choice often is associated with ambivalence (e.g., Beardsworth, 1995; Sparks et al., 1992).

STUDY 1

Study 1 extends the work reviewed above by assessing the impact of global attitudinal ambivalence in a prospective study of attitude-intention-behavior relations. Previous work on attitudinal ambivalence has examined either attitude-intention relations (e.g., Jonas et al., 1997) or attitude-behavior relations (e.g., Lavine et al., 1998). Given that intentions have consistently been shown to mediate the relationship between attitudes and behavior (e.g., Ajzen, 1991; Godin & Kok, 1996), measures of attitude, intention, and behavior were assessed in the present study. The prospective design allowed us to simultaneously test the predictions that less ambivalent attitudes are stable over time and more predictive of subsequent behavior.

Wilson and Hodges's (1992) attitudes-as-constructions model provides a useful framework for understanding the proposed relationship between ambivalence and attitude stability (see also Erber, Hodges, & Wilson, 1995; Zaller & Feldman, 1992). Central to the attitudes-as-constructions model is the idea that when attitudes are required (e.g., for decision making), they are constructed from available information. Within-person variability is therefore a function of the extent to which underlying information (e.g., beliefs, feelings) is incon-

sistent. That is, each time an individual constructs an attitude, the degree of attitude (in)stability should vary as a function of the level of evaluative incongruity between positive and negative evaluations of the object or behavior. From this perspective, inconsistency in the determinants of attitudes provides a structural basis for ambivalence, which in turn regulates stability. It also implies that level of ambivalence and attitude stability are inextricably linked. Hence, less ambivalent attitudes should be more stable over time.

Less ambivalent attitudes also might be expected to be more predictive of subsequent behavioral intentions and behavior than ambivalent attitudes. Although it has been argued that the augmented attitude-behavior relationship associated with strong attitudes is simply a function of attitude stability (e.g., Erber et al., 1995), it is also possible that such effects may occur independently of attitude stability. For example, Thompson et al. (1995) note that attitudinal ambivalence is necessarily negatively correlated with attitude extremity (p. 382).[4] That is, univalent attitudes should be more extreme than ambivalent attitudes and therefore more predictive of behavioral intentions and behavior. This hypothesis is directly supported by Lavine et al. (1998, but see Jonas et al., 1997) and indirectly supported by Kallgren and Wood (1986). Kallgren and Wood (1986) compared experimental participants whose attitude extremity had been manipulated with a no-treatment control group and reported attitude-behavior correlations of .85 and .19 for the experimental and control conditions, respectively. We therefore expect less ambivalent attitudes to be more predictive than ambivalent attitudes of behavioral intentions and behavior.

Method

DESIGN AND PARTICIPANTS

The study was prospective in design, with measurement at three time points. This provided us with measures of attitudes, intentions, and behavior at three separate points in time. Related studies have tended to use cross-sectional designs, which increases the possibility that relationships between attitudes and behavior may have been artificially inflated by consistency bias (see Budd, 1987). To reduce the influence of this potential artifact, measures were taken between 3 and 5 months apart.

The study consisted of 421 female and 96 male hospital workers ($n = 517$) who were contacted at Time 1 (M age = 37.00 years; range = 20 to 66 years). Of these, 72% ($n = 370$) were successfully contacted again at Time 2, 5 months later. Time 3 came 3 months after Time 2. Data analysis is based on 346 individuals (67% of original sample) for whom data at each time point were available. There were 71 men and 286 women (M age = 37.2 years, $SD = 10.1$; range = 20 to 64 years). Responders did not differ from nonresponders in terms of gender, age, attitudes, level of ambivalence, behavioral intentions, or behavior.

TIME 1 MEASURES

The following measures were used in the questionnaires given at each time point. Item wordings, factor loadings, and reliability scores are presented in Table 1.

Intention. Intention to eat a low-fat diet was assessed using two items, each on a 7-point bipolar (–3 to +3) scale.

Attitude. Attitude was assessed using a semantic differential scale. Three pairs of adjectives were rated, each on a 7-point bipolar (–3 to +3) scale.

Attitudinal ambivalence. Thompson et al. (1995) define ambivalence as the situation where a person "is inclined to give it [an attitude object] equivalently strong or negative evaluations" (p. 367). Participants were provided with two statements designed to tap the difference between positive and negative thoughts/feelings with regard to eating a low-fat diet. The first was with respect to positive thoughts/feelings: "Considering only the positive things about eating a low-fat diet in the future, and ignoring the negative things, how positive are those things? (*not at all positive* to *extremely positive*)." The second was concerned with negative thoughts/feelings: "Considering only the negative things about eating a low-fat diet in the future, and ignoring the positive things, how negative are those things? (*not at all negative* to *extremely negative*)." These were combined using the formula outlined in Thompson et al. (1995), which was designed to capture both level of similarity and intensity of the two evaluations:[5]

$$\text{Ambivalence} = (\text{positive} + \text{negative})/2 - |\,\text{positive} - \text{negative}\,|$$

Hence, the formula encapsulates average intensity and level of similarity between the two evaluations in computing a measure of attitudinal ambivalence.

TIME 2 MEASURES

Questionnaires were distributed to the same sample 5 months later. These were returned by 72% of the original sample (Time 2 $n = 370$). In addition to second measures of attitude, ambivalence, and intention (using the same item wordings), we included a self-report measure of behavior, using two items (see Table 1).

TIME 3 MEASURES

Questionnaires were distributed to the same sample 3 months later. These were returned by 67% of the origi-

TABLE 1: Factor Loadings and Reliabilities for the Measures (Study 1)

	Low Ambivalence		*High Ambivalence*	
Variables	*Factor Loading*	*Reliability*	*Factor Loading*	*Reliability*
Attitude		.84		.88
My eating a low-fat diet in the future is . . .				
unpleasant to *pleasant*	.88		.89	
unenjoyable to *enjoyable*	.89		.94	
unsatisfactory to *satisfactory*	.60		.67	
Behavioral intention		.85		.83
I intend to eat a low-fat diet in the future (*definitely do not* to *definitely do*)	.95		.82	
I plan to eat a low-fat diet in the future (*definitely do not* to *definitely do*)	.61		.69	
Behavior		.87		.86
I have eaten a low-fat diet in the last 3 months (*strongly disagree* to *strongly agree*)	.89		.82	
How often did you eat a low-fat diet in the last 3 months? (*never* to *frequently*)	.86		.92	

nal sample (Time 3 n = 346). Measures of attitude, ambivalence, intention, and behavior were taken at Time 3 (using the same item wordings).

ANALYSIS

Initial analyses examined the relationship between attitudinal ambivalence (computed from the equation presented earlier) and other variables using correlations and ANOVA. We subsequently created two groups of individuals based on a median split of the ambivalence measure.

Structural equation analyses (using LISREL8) were used to test the hypothesized relations among variables. This approach was adopted for two main reasons. First, it allowed us to simultaneously test the pathways in the model. Second, this procedure allowed us to test the relationship between variables that are not influenced by measurement error. After assessing that the data met multivariate normality assumptions, the analyses were carried out in three stages. First, confirmatory factor analysis was used to test the adequacy of the measurement model. Second, we tested the structural model to evaluate the strength of paths between variables. Third, we employed multiple group analyses to test the proposed moderating effects of attitudinal ambivalence.

Confirmatory factor analysis (CFA) was used to examine the reliability and validity of the measures employed (Bollen, 1989). The CFA model employed is shown in Figure 1. The CFA was used to examine the degree of convergent and discriminant validity of measures. Because all data are self-report, the measures all share common method variance. This has the effect of making tests of convergent validity weak and tests of discriminant validity strong because measures are likely to be related because of sharing common method variance (see Bagozzi & Kimmel, 1995). Reliabilities were computed using the following formula:

$$\rho_i = (\Sigma\lambda_i)^2 / [(\Sigma\lambda_i)^2 + \Sigma\theta_i],$$

where λ_i is the ith factor loading on the construct of interest, θ_i is the error variance corresponding to λ_i, and the standardized solution is assumed (see Bagozzi & Kimmel, 1995 for details). The CFA analyses were performed using LISREL8 (Jöreskog & Sörbom, 1993).

We then employed structural equation modeling to test the fit of the model. The model tested is shown in Figure 1. This part of the analysis also was performed using LISREL8.

The moderation effects also were tested using LISREL8 as follows. First, we ran a simultaneous analysis with the paths between latent variables of interest constrained to be equal in the low- and high-ambivalence groups. We then used chi-square difference tests by comparing the model with paths constrained to be equal with a model where these same paths were left free and estimated separately in the two groups. Because these models were nested, the difference in chi-square between the models should be distributed as chi-square with degrees of freedom equal to the difference in the number of free parameters (Jöreskog & Sörbom, 1984). A chi-square difference corresponding to a probability level of less than .05 was used as a criterion to reject the null hypothesis that the given parameters are equal across the two groups. We conducted all structural equation modeling analyses using covariance matrices as input to LISREL8 because we compared multiple groups (Jöreskog & Sörbom, 1993).

We also employed LISREL8 to test the moderating effects of attitudinal ambivalence on the stability of latent variables. Separate models were fitted for low- and high-ambivalence responders. We then examined the stability coefficients (the paths between the same latent variables measured at different time points) for differences between the two ambivalence groups.

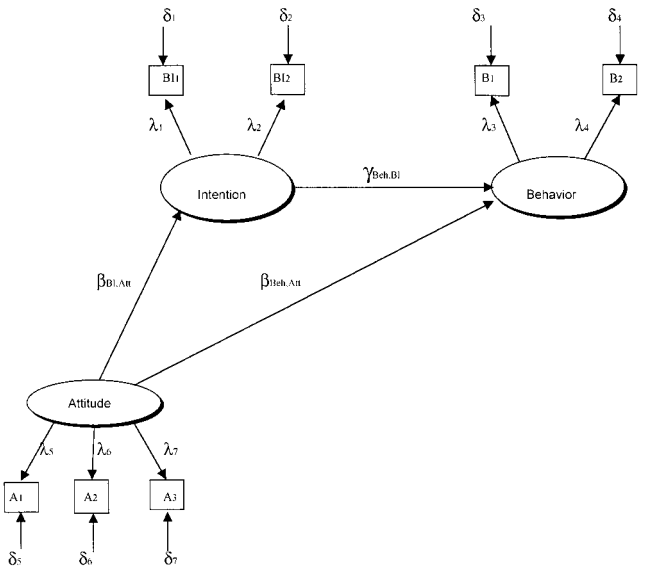

Figure 1 Attitude-intention-behavior model tested.
NOTE: BI = intention, B and Beh = behavior, and A and Att = attitude.

Results

ATTITUDINAL AMBIVALENCE

Our measure of ambivalence was based on the Griffin calculation using the unipolar positive and negative evaluation scales described in the Method section. The mean ambivalence score was 1.75 (*SD* = 2.27), with a mean intensity/magnitude ([P + N]/2) of 5.23 and a mean similarity (| P – N |) score of 1.31. As expected, ambivalence was negatively related to attitude extremity as assessed on the bipolar semantic-differential attitude measure ($r = -.18$, $p < .001$), that is, ambivalent individuals had less extreme attitudes in general. The ambivalence measure showed satisfactory test-retest reliabilities (rs = .41, .44; ps < .001, for Time 1 → Time 2 and Time 2 → Time 3, respectively).

Higher and lower ambivalence groups were constructed via a median (1.50) split on the ambivalence scores calculated at Time 1. The two ambivalence groups did differ in attitude extremity, $F(1, 345) = 9.23$, $p < .01$. Perhaps more important, the two groups did not differ on variability in either attitudes, $F(178, 168) = 1.18$, or attitude extremity, $F(178, 168) = 1.02$.

RELIABILITY

Table 1 shows the factors loadings and reliabilities for the CFAs. The factor loadings were generally high (range = .60 to .95). The reliabilities for attitude, behavioral intention, and behavior were generally good (range = .83 to .88).

CONVERGENT AND DISCRIMINANT VALIDITY

The goodness-of-fit indices for these CFAs were examined next. The χ^2 tests provide evaluations of the goodness of fit for the models against the alternative hypothesis that the variance-covariance matrix is any positive definite matrix. Jöreskog and Sörbom's (1989) Goodness-of-Fit Index (GFI) is a measure of how well the implied variance-covariance matrix from the parameter estimates of the model predict the sample variance-covariance matrix. GFI is bounded by 0 and 1, with higher values indicating better fits. Bentler's Comparative Fit Index (CFI) gives another measure of fit and is less biased by sample size than the GFI. It is also bounded by 0 and 1, with values greater than 0.9 indicating good fits. The results of these analyses show that the models provide good fits for the low- and high-ambivalence groups combined, $\chi^2(34, N = 346) = 44.8$, $p = .10$, GFI = .97, CFI = .99. The χ^2, GFI, and CFI point to a satisfactory fit. This supports the idea that convergent validity of measures has been obtained (i.e., that measures assumed to be indicators of the same factor share significant amounts of common variance).

Discriminant validity was addressed through examination of the correlations between factors corrected for attenuation due to unreliabilities in the measures. These correlations are shown in Table 2. All correlations are significantly less than 1.00 (i.e., by an amount in excess of twice their standard error). These data indicate that the factors possess discriminant validity.

The values on the diagonal of Table 2 indicate the variance of the latent variables. The data show no evidence of differences in variance between these variables across the two groups. Of particular interest is the comparison for attitudes: Whereas the variance is slightly higher in the lower ambivalence group, the difference does not approach statistical significance ($p > .25$).

TESTS OF MODERATION EFFECTS

The parameter estimates for the key paths in the structural model are shown in Table 3. In each case, high levels of variance in intentions (low-ambivalence R^2 = .69, high-ambivalence R^2 = .84) and behavior (low-ambivalence R^2 = .61, high-ambivalence R^2 = .33) are explained. In addition, the overall fit of the two models is good, $\chi^2(34) = 44.5$, $p = .10$, GFI = .97, CFI = .99. Differential patterns of prediction are apparent across groups. We hypothesized that attitudinal ambivalence would moderate the unmediated (direct) relationship between attitudes and behavior. We examined this

TABLE 2: Tests of Discriminant Validity Among Constructs: Correlations Among Latent Variables and Variances (Study 1)

	Low Ambivalence			*High Ambivalence*		
	Beh	*BI*	*Att*	*Beh*	*BI*	*Att*
Behavior (Beh)	1.01 [.24]			.74 [.16]		
Intention (BI)	.56 (.19)	1.22 [.17]		.82 (.12)	1.21 [.21]	
Attitude (Att)	.54 (.11)	.55 (.08)	1.69 [.25]	.40 (.08)	.39 (.08)	1.66 [.24]

NOTE: Standard error is in parentheses. Variances of latent variables are on the diagonal and standard errors are in square brackets.

TABLE 3: Path Coefficients for Attitude-Intention-Behavior Model for Low and High Ambivalence Groups (Study 1)

	Low Ambivalence			*High Ambivalence*		
Path	*Unstandardized*	SE	*Standardized*	*Unstandardized*	SE	*Standardized*
Att → BI	.57*	.08	.55	.37*	.08	.40
Att → Beh	.37*	.11	.32	.09	.08	.08
BI → Beh	.44*	.10	.38	.98*	.12	.78

NOTE: Att = attitude, BI = intention, and Beh = behavior.
*$p < .001$.

hypothesis by comparing the parameter estimates for the low- and high-ambivalence groups. Table 3 provides the relevant coefficients. First, we examined the direct path from attitudes to behavior. The standardized coefficient for the direct effect of attitudes, unmediated by intentions, was significant for the low-ambivalence group ($\gamma = .32$, $p < .001$). For the high-ambivalence group, however, the effect was statistically nonsignificant ($\gamma = .08$, $p > .10$). We next examined the path from intentions to behavior. The coefficient for the direct effect of intentions was significant for both the low- and high-ambivalence groups ($\gamma = .38$, $p < .001$; $\gamma = .78$, $p < .001$, respectively). The paths between attitude and intention also were significant for both groups (low-ambivalence $\gamma = .55$, $p < .001$; high-ambivalence $\gamma = .40$, $p < .001$).

Although the above analysis supported the hypotheses of the study, we conducted a more rigorous test using the chi-square difference test. For each of the three key paths, we tested the difference in parameter values across groups for statistical significance via invariance tests with a simultaneous group analysis. To minimize variation between the two groups in measurement structure (i.e., factor loadings) on comparisons of structural parameters, we tested the invariance of key paths against an intermediate model in which factor loadings are constrained to be equal across groups. The factor-loading constraint model did not result in a significant decrease in fit, $\chi^2(39) = 53.8$, $p = .06$; the difference in chi-square values from the full model was 9.3, with 5 degrees of freedom ($p > .05$). Because the factor loadings did not differ across groups, we conducted all the invariance tests with the factor-loading constraint model, which provided a good fit to the data, that is, the factor-loading constraint model was a baseline model. We performed tests of invariance with a chi-square difference test by comparing the finding for the baseline model with a model constraining the parameters of interest to be equal. Table 4 summarizes the results from the tests of invariance across the two groups.

As can be seen from Table 4, low- and high-ambivalence groups differed significantly across all three key paths. Specifically, the attitude-intention and attitude-behavior relationships were significantly stronger for the low-ambivalence group than for the high-ambivalence group. The direct path between intention and behavior was significantly stronger for the high-ambivalence group. This confirmed our earlier analyses. Thus, all paths in the attitude-intention-behavior model were moderated simultaneously by attitudinal ambivalence.

ATTITUDINAL AMBIVALENCE AND THE STABILITY OF ATTITUDES, INTENTIONS, AND BEHAVIOR

One potential explanation of the moderating effect of attitudinal ambivalence on the relationships between attitudes, intentions, and behavior is that ambivalence taps the extent to which the three are stable over time. In particular, it may be that higher levels of ambivalence are associated with less stable attitudes or with more stable

TABLE 4: Tests of Invariance of Key Path Coefficients Across Low- and High-Ambivalence Groups (Study 1)

	Fit of the Model With the Path		*Test of Invariance*	
Path	*Free*	*Fixed to Be Equal*	^{2} *Test*	p
Att → BI	$\chi^2(39) = 53.4$	$\chi^2(40) = 57.7$	$\Delta\chi^2(1) = 3.9$	< .05
Att → Beh	$\chi^2(39) = 53.4$	$\chi^2(40) = 58.0$	$\Delta\chi^2(1) = 4.2$	< .05
BI → Beh	$\chi^2(39) = 53.4$	$\chi^2(40) = 70.2$	$\Delta\chi^2(1) = 16.4$	< .001

NOTE: Att = attitude, BI = intention, and Beh = behavior.

TABLE 5: Tests of Ambivalence-Stability Relationship: Disattenuated Correlations Across Time (Study 1)

	Low Ambivalence		*High Ambivalence*	
	Time 3	*Time 2*	*Time 3*	*Time 2*
Attitude				
Time 2	.78 (.11)	—	.78 (.12)	—
Time 1	.73 (.09)	.73 (.07)	.59 (.09)	.63 (.07)
Intention				
Time 2	.74 (.10)	—	.75 (.12)	—
Time 1	.73 (.14)	.76 (.11)	.79 (.10)	.75 (.07)
Behavior				
Time 2	.81 (.09)	—	.81 (.09)	—

NOTE: Standard error is in parentheses.

intentions. To assess this potential explanation of our findings, we carried out further analyses. Table 5 presents disattenuated correlations between time points for each of the components (attitudes, intentions, and behavior). These can be interpreted as stability coefficients. Compared at high and low levels of ambivalence, these analyses revealed no differences in attitude, intention, or behavior stability. For the attitude measures, it also was possible to compute within-subjects correlations across time points because we had three data points at each time point. These within-subjects correlations for attitude scores were uncorrelated with ambivalence (r = –.01 for Time 1 → Time 2; r = –.02 for Time 2 → Time 3). It was therefore concluded that any moderator effects of ambivalence on the relationships between attitudes, intentions, and subsequent behavior were not attributable to differences in the stability of our measures of attitudes, behavioral intentions, or behavior. Thus, less ambivalent attitudes are not more stable over time than more ambivalent attitudes.

Discussion

Congruent with predictions, Study 1 demonstrated that ambivalence moderated the attitude-behavior and the attitude-intention relationships. More specifically, univalent attitudes were more predictive of both intention and behavior than were ambivalent attitudes. Similarly, stronger (i.e., less ambivalent) attitudes predicted behavior directly, whereas weaker (i.e., more ambivalent) attitudes exerted an indirect influence on behavior via behavioral intention. The present findings therefore corroborate those of Lavine et al. (1998) and extend them by examining attitude-intention-behavior relations.

In addition, the relationship between intention and behavior was significantly stronger for individuals with more ambivalent attitudes. There are two possible interpretations of this latter finding. First, given that Jonas et al. (1997) have shown that a state of ambivalence increases systematic information processing, it is possible that intention-formation was facilitated in ambivalent individuals, leading to stronger intention-behavior correspondence (cf. Bagozzi & Yi, 1989). Second, under conditions of attitudinal ambivalence, intention formation may be based on variables other than attitudes (e.g., norms or habits) (see Conner & Armitage, 1998; Fishbein & Ajzen, 1975), which resulted in the formation of stronger behavioral intentions. Given that Study 1 took neither direct measures of information processing nor measures of norms or habits, the further investigation of this finding is essential for future research.

In contrast, predictions concerning stability effects were not supported. The effects of attitudinal ambivalence on attitude-intention-behavior relations were independent of attitude stability. These findings corroborate those of Bassili (1996), who also found that ambivalence was unrelated to attitude stability, but contrast with the findings of Bargh et al. (1992). The implication is that attitude stability may not be at the core of all measures of attitude strength, as has previously been suggested (e.g., Ajzen, 1996; Doll & Ajzen, 1992; Erber et al., 1995; but see Eagly & Chaiken, 1995).

Study 1 therefore provides evidence to suggest that less ambivalent attitudes share some of the same characteristics as strong attitudes. Study 2 was designed to test the prediction that ambivalent attitudes are more pliable in the face of persuasive communications.

STUDY 2

More ambivalent attitudes are expected to be more susceptible to the influence of a persuasive communication. For example, Eagly and Chaiken (1995) argue that "attitudes are strong to the extent that they are well embedded in an existing attitudinal structure" (p. 414); thus, strong attitudes are held to be more securely anchored in knowledge structures. Given that ambivalent attitudes are based on conflicting evaluations and inconsistent information, they should be more weakly anchored and hence more pliable than univalent attitudes.

Method

PARTICIPANTS AND DESIGN

The study consisted of 533 hospital workers (431 women, 102 men; *M* age = 36.35 years, range = 17 to 66 years) who were contacted and provided baseline data. Of these, 344 (277 women, 67 men) were successfully contacted again postintervention (a response rate of 64.5%). Responders did not differ from nonresponders in terms of attitudes, ambivalence, behavioral intentions, or behavior, $F(4, 511) = 1.47$, $p = .21$. It was concluded that postintervention responders were a representative sample of baseline responders and subsequent analyses are therefore based on the 344 respondents who provided data at both baseline and follow-up.

The study was a simple pre-post experimental design. Attitudes and level of attitudinal ambivalence were assessed at baseline. Five months later, participants were randomized to either an attitude change or a control condition and received experimental materials designed to change attitudes or provide information only. Three months following this, changes in attitudes were assessed.

MATERIALS

Both interventions were presented in short (i.e., four pages) leaflet form and were distributed to participants 5 months postbaseline.

Control intervention. The control group received basic information regarding consumption of a low-fat diet. This included information concerning United Kingdom government recommendations, epidemiological data associated with population-wide fat consumption, and sources of fat in the diet. The information was based on that provided by the UK Ministry of Agriculture, Fisheries, and Food (1992).

Attitude change intervention. The attitude change intervention contained the same amount of basic information as the control intervention. In addition, it contained a section that was specifically designed to change individuals' attitudes. This section was based on Fishbein and Ajzen's (1975) model of belief-attitude relations. Briefly, this holds that attitudes are based on beliefs about the likelihood of salient outcomes weighted by the evaluation of those outcomes. Data on outcome beliefs from a study that examined low-fat eating behavior and analyzed beliefs for future intervention provided the basis for the attitude change intervention (see Armitage & Conner, 1999, p. 78).

More specifically, we targeted the beliefs that discriminated those who intended to eat a low-fat diet from those who did not intend to eat a low-fat diet. Based on Armitage and Conner (1999), five beliefs were targeted. These related to beliefs about the taste of low-fat food, influence on level of fitness, weight control, health, and enjoyment of food.

For example, nonintenders believed that low-fat food was significantly less likely to taste nice. The intervention presented this belief as a myth, which was challenged using the following message:

> This refers to the belief that low-fat foods are bland, boring, and tasteless. This is simply not the case: There is a wide choice of prepackaged low-fat products available that are low in fat and tasty. Do you think that these companies could promote such foods if they were untasty? If you are prepared to cook for yourself, the table provides some facts and figures comparing the different levels of fat, depending on types of preparation method; there are probably low-fat alternatives to what you are eating at the moment.

MEASURES

Measured items were identical to those reported in Table 1. All measures were used in questionnaires at both baseline and follow-up.

Results

BASELINE ANALYSIS

MANOVA revealed no differences in attitudes between the experimental and control condition at baseline, $F(1, 337) = 1.59$, $p = .21$. To test the hypothesis that less ambivalent attitudes are more resistant to change, two groups (high and low ambivalence) were formed on the basis of a median split (ambivalence median = 2.50). Thus controlling for ambivalence, the impact of the interventions was evaluated.

EFFECTS OF INTERVENTIONS ON ATTITUDES

Across both intervention conditions, attitudes generally became more positive (*M* difference = +0.17, *SD* = 1.12),[6] although the magnitude of change was greater in the attitude change condition (*M* = +0.26, *SD* = 1.12) than in the control condition (*M* = +0.08, *SD* = 1.11). MANOVA was used to analyze the impact of the interventions on attitudes. Type of intervention (i.e., attitude change or control) and ambivalence (high or low, based on median split) were used as between-subjects variables. Time was the within-subjects variable, marking baseline and postintervention.

If ambivalent attitudes are more pliable, one would expect a significant Condition × Ambivalence × Time interaction. This was nonsignificant, $F(1, 327) = 2.14$, $p = .14$. However, univariate analyses revealed that the attitude intervention had differential effects on more ambivalent versus less ambivalent attitudes. For the

low-ambivalence group, there was no difference between the control and experimental conditions, $F(1, 188) = .01$, $p = .94$. In contrast, for more ambivalent individuals, attitudes became significantly more positive following the attitude change intervention, $F(1, 141) = 4.11$, $p < .05$. Hence, the attitude intervention had significantly stronger effects on more ambivalent attitudes. Study 2 therefore provides evidence to suggest that ambivalent attitudes are more pliable than less ambivalent attitudes.[7]

Discussion

Findings from Study 2 showed that both interventions generally improved attitudes toward eating a low-fat diet and that the attitude change intervention was more effective. The findings also provided support for the pliability hypothesis: Ambivalent attitudes were significantly more pliable than less ambivalent attitudes.

GENERAL DISCUSSION

SUMMARY OF FINDINGS

This article reports two studies that were designed to test the influence of attitudinal ambivalence on attitude stability, prediction of behavioral intentions and behavior, and resistance to persuasion. Findings from the two studies provide direct support for the hypotheses that less ambivalent attitudes are both more predictive of behavioral intentions and behavior and are less susceptible to persuasion. In addition, greater attitudinal ambivalence was associated with stronger intention-behavior relations. However, there was no evidence to suggest that attitudinal ambivalence was related to attitude stability.

The two studies therefore provide support for the bidimensional reconceptualization of the attitude construct. The bidimensional approach clearly represents a useful way to operationalize attitudes and extend them beyond simple diametric positive or negative evaluations of behavior. Indeed, this extension of the attitude construct may account for some apparent inconsistencies in previous attitude-behavior research (e.g., Ajzen & Fishbein, 1977; Eagly & Chaiken, 1993; Kim & Hunter, 1993; Kraus, 1995; Wicker, 1969).

HOW DOES ATTITUDINAL AMBIVALENCE EXERT ITS INFLUENCE?

Congruent with the work of Lavine and colleagues (1998), Study 1 provides convincing evidence to suggest that less ambivalent attitudes are more predictive of subsequent behavioral intentions and behavior. Similarly, Study 2 provides evidence of pliability effects: As predicted, ambivalent attitudes were more susceptible to persuasion (cf. Bassili, 1996). More controversial, however, were the effects on stability: Neither Bassili (1996) nor Study 1 provided support for the prediction that less ambivalent attitudes will be more stable over time (but see Bargh et al., 1992). The possibility exists that stability (and—potentially—pliability) are sufficient but not necessary conditions for strong attitudes (see also Krosnick & Petty, 1995). If this is the case, it may account for some of the inconsistencies reported in the literature. For example, using attitude stability and pliability as criteria for judging the efficacy of meta-attitudinal versus operative indices of attitude strength, Bassili (1996) reported differences across attitude topics. It is possible that such differences may be accounted for by inconsistencies in stability effects, as opposed to differences in attitude topic.

A number of authors have argued that attitude stability is the factor that all measures of attitude strength hold in common (Ajzen, 1996; Doll & Ajzen, 1992; Erber et al., 1995). Indeed, Wilson and colleagues' (see Erber et al., 1995; Wilson & Hodges, 1992) attitudes-as-constructions model predicts that strong attitudes will be stable over time. The implication is that the attitudes-as-constructions model is incompatible with a bidimensional conceptualization of attitudes. The crux of the problem may rest on the fact that the bidimensional view of attitudes posits two summary evaluations of objects (one positive, one negative), whereas the attitudes-as-constructions model argues that any such summary evaluations are not stored in memory at all.

In contrast, Eagly and Chaiken (1995) argue that attitudes are strong to the extent that they can resist persuasive messages and are embedded in knowledge structure. This article provides evidence to support both views. More specifically, Eagly and Chaiken (1995) distinguish between intraattitudinal and interattitudinal structure. The present article provides support for the argument that attitudinal ambivalence reflects one aspect of intraattitudinal structure and that this engenders attitude strength. Further research into intra- and interattitudinal properties of attitudes is required (see the following section).

LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

The present findings require replication with reference to different types of behavior; Bassili (1996) has shown that the effects of ambivalence may vary as a function of behavior type. Indeed, health-related food choice was chosen as the behavior of interest because it was likely to raise conflicting thoughts and feelings (see Sparks et al., 1992). It remains a matter for future study to determine whether attitudinal ambivalence is generalizable across behaviors and situations (cf. Bassili, 1996). In addition, this article did not directly test the information-processing hypothesis; although there was

indirect evidence that suggested that ambivalence influences information processing, further research is required to directly test this hypothesis (see Jonas et al., 1997). In spite of these concerns, this article provides further evidence to support the reconceptualization of attitudes as bidimensional—rather than unidimensional— constructs.

In their discussion of attitude strength as a function of attitude structure, Chaiken et al. (1995) argue that there are actually three forms of evaluative inconsistency: cognitive-affective, affective-evaluative, and evaluative-cognitive. The focus of this article was on global ambivalence (i.e., based on affect, cognition, and evaluation). The possibility exists that by refining measures of attitudinal ambivalence to examine these separable facets, differential effects of levels of ambivalence may influence prediction of behavior, pliability, stability, and information processing.

CONCLUSIONS

In summary, this article demonstrated that less ambivalent attitudes are more predictive of behavioral intentions and behavior and are more resistant to persuasion. Although attitudinal ambivalence is clearly a facet of attitude strength, there was no support for the prediction that strong attitudes are stable attitudes. Avenues for further research include investigation into different attitude objects, multiple facets of ambivalence (Chaiken et al., 1995), and Eagly and Chaiken's (1995) distinction between intra- and interattitudinal structure and their influence on attitude strength.

NOTES

1. Thompson, Zanna, and Griffin (1995) review the few studies that have investigated attitudinal ambivalence and consider ways in which ambivalence has been operationalized (see also Priester & Petty, 1996). They present data to support a formula that captures both level of similarity and intensity of the positive and negative evaluations. This formula was used in this article (for formula, see Method section).

2. Note that current opinion is divided as to whether these defining features represent necessary or sufficient conditions (see Krosnick & Petty, 1995). For example, several authors argue that attitude stability is the defining feature that all measures of attitude strength hold in common (e.g., Ajzen, 1996; Doll & Ajzen, 1992; Erber, Hodges, & Wilson, 1995), whereas others argue that lack of pliability lies at the core of attitude strength (e.g., Eagly & Chaiken, 1995). Congruent with the current state of the literature, we regard all four defining features as sufficient conditions to infer attitude strength.

APPENDIX
Correlation Coefficients Between Items Measured in Study 1

	Time 1					*Time 2*							*Time 3*						
	Bi1	*Bi2*	*Att1*	*Att2*	*Att3*	*Beh1*	*Beh2*	*Bi1*	*Bi2*	*Att1*	*Att2*	*Att3*	*Beh1*	*Beh2*	*Bi1*	*Bi2*	*Att1*	*Att2*	*Att3*
Time 1																			
Bi1	—	.66	.42	.47	.53	.45	.52	.54	.59	.27	.39	.39	.57	.62	.72	.58	.43	.51	.50
Bi2	.57	—	.43	.44	.46	.39	.37	.44	.44	.34	.40	.31	.41	.44	.49	.47	.36	.41	.34
Att1	.50	.39	—	.84	.58	.19	.30	.30	.27	.44	.46	.33	.31	.33	.36	.22	.45	.49	.30
Att2	.47	.46	.79	—	.64	.21	.29	.26	.28	.47	.51	.37	.30	.32	.38	.22	.44	.54	.37
Att3	.53	.39	.50	.54	—	.22	.23	.27	.34	.43	.42	.50	.26	.27	.39	.32	.45	.45	.41
Time 2																			
Beh1	.56	.36	.43	.39	.34	—	.77	.61	.48	.24	.33	.39	.56	.64	.51	.44	.39	.37	.39
Beh2	.45	.32	.36	.35	.34	.72	—	.59	.60	.21	.37	.36	.58	.70	.57	.56	.41	.43	.41
Bi1	.63	.38	.46	.44	.38	.58	.46	—	.53	.42	.46	.40	.52	.60	.55	.44	.42	.41	.47
Bi2	.45	.40	.39	.34	.35	.44	.40	.58	—	.27	.43	.40	.51	.59	.57	.61	.45	.48	.45
Att1	.43	.30	.56	.52	.34	.49	.42	.49	.40	—	.68	.58	.27	.23	.28	.20	.53	.47	.40
Att2	.43	.39	.61	.57	.39	.51	.47	.50	.40	.75	—	.57	.32	.31	.33	.27	.55	.55	.50
Att3	.41	.30	.46	.39	.48	.37	.37	.48	.41	.60	.65	—	.33	.40	.37	.32	.61	.56	.56
Time 3																			
Beh1	.50	.32	.41	.39	.31	.56	.60	.48	.38	.45	.47	.42	—	.75	.58	.47	.38	.36	.41
Beh2	.44	.34	.44	.41	.37	.58	.72	.42	.37	.45	.50	.51	.76	—	.68	.57	.51	.53	.47
Bi1	.53	.32	.44	.39	.36	.45	.46	.59	.48	.53	.51	.52	.60	.62	—	.65	.48	.50	.45
Bi2	.46	.34	.32	.34	.41	.44	.43	.50	.50	.39	.40	.44	.46	.52	.58	—	.38	.42	.39
Att1	.50	.31	.56	.52	.43	.39	.40	.44	.34	.56	.62	.57	.40	.49	.55	.47	—	.78	.67
Att2	.48	.39	.61	.60	.40	.44	.46	.49	.30	.56	.62	.50	.43	.54	.52	.44	.77	—	.65
Att3	.44	.28	.43	.39	.33	.44	.37	.58	.37	.44	.45	.52	.44	.51	.57	.48	.62	.65	—

NOTE: High levels of attitudinal ambivalence ($n = 168$) are above the diagonal; low levels of attitudinal ambivalence ($n = 178$) are below the diagonal. Numbers following item labels refer to the order presented in Table 1 (i.e., Att1 = "My eating a low-fat diet in the future is . . . [*unpleasant* to *pleasant*]"). Bi = intention, Att = Attitude, and Beh = behavior.

3. Recent evidence suggests the trend for using college students is not diminishing. Sherman, Buddie, Dragan, End, and Finney (1999) reported that of *Personality and Social Psychology Bulletin* and *Journal of Personality and Social Psychology* articles published in 1996, 85% and 63% (respectively) used student samples. Congruent with this, much of the research on attitude strength (in general) has been conducted on student samples. Potentially, this may account for inconsistencies in the literature (cf. Krosnick & Petty, 1995).

4. Note that Krosnick, Boninger, Chuang, Berent, and Carnot (1993) reported a correlation of $r = -.90$ between extremity and ambivalence.

5. In another study of attitudinal ambivalence in relation to consuming a low-fat diet, this two-item measure of ambivalence correlated strongly ($r = .73$, $p < .001$, $n = 146$) with a measure based on four pairs of items (Conner, Sparks, Povey, James, & Shepherd, 1999).

6. Note that ± scores indicate direction of effect. Thus, + refers to attitude change in a positive direction; – indicates a negative shift in attitude.

7. Note that these data also were analyzed using ambivalence as a continuous variable. Ambivalence, condition, and their product were regressed on change in attitude. As one would expect, the interaction term was negatively related to attitude change ($\beta = -.10$, $p < .10$), indicating that more ambivalent attitudes were more pliable in the attitude change condition.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211.

Ajzen, I. (1996). The directive influence of attitudes on behavior. In P. M. Gollwitzer & J. A. Bargh (Eds.), *Psychology of action* (pp. 385-403). New York: Guilford.

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*, 888-918.

Armitage, C. J., & Conner, M. (1999). Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low fat diet using the theory of planned behavior. *Journal of Applied Social Psychology, 29*, 72-90.

Bagozzi, R. P., & Kimmel, S. K. (1995). A comparison of leading theories for the prediction of goal-directed behaviours. *British Journal of Social Psychology, 34*, 437-461.

Bagozzi, R. P., & Yi, Y. (1989). The degree of intention formation as a moderator of the attitude-behavior relationship. *Social Psychology Quarterly, 52*, 266-279.

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.

Beardsworth, A. (1995). The management of food ambivalence: Erosion or reconstruction? In D. Maurer & J. Sobal (Eds.), *Eating agendas: Food and nutrition as social problems* (pp. 117-143). New York: De Gruyter.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York: John Wiley.

Budd, R. J. (1987). Response bias and the theory of reasoned action. *Social Cognition, 5*, 95-107.

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., Pomerantz, E. M., & Giner-Sorolla, R. (1995). Structural consistency and attitude strength. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 387-412). Mahwah, NJ: Lawrence Erlbaum.

Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behavior: A review and avenues for further research. *Journal of Applied Social Psychology, 28*, 1429-1464.

Conner, M., Sparks, P., Povey, R., James, R., & Shepherd, R. (1999). *Moderator effects of attitudinal ambivalence on attitude-behaviour relationships*. Manuscript submitted for publication.

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*. Fort Worth, TX: 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: Lawrence Erlbaum.

Erber, M. W., Hodges, S. D., & Wilson, T. D. (1995). Attitude strength, attitude stability, and the effects of analyzing reasons. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 433-454). Mahwah, NJ: Lawrence Erlbaum.

Fishbein, M. (1980). A theory of reasoned action: Some applications and implications. In H. E. Howe, Jr., & M. M. Page (Eds.), *Nebraska symposium on motivation* (Vol. 27, pp. 65-116). Lincoln: University of Nebraska Press.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion, 11*, 87-98.

Jonas, K., Diehl, M., & Brömer, P. (1997). Effects of attitudinal ambivalence on information processing and attitude-intention consistency. *Journal of Experimental Social Psychology, 33*, 190-210.

Jöreskog, K. G., & Sörbom, D. (1984). *LISREL 6 user's guide*. Mooresville, IN: Scientific Software.

Jöreskog, K. G., & Sörbom, D. (1989). *LISREL 7: A guide to the program and applications*. Chicago: SPSS.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8 user's reference guide*. Chicago: Scientific Software.

Kallgren, C. A., & Wood, W. (1986). Access to attitude-relevant information in memory as a determinant of attitude-behavior consistency. *Journal of Experimental Social Psychology, 22*, 328-338.

Kim, M. -S., & Hunter, J. E. (1993). Attitude-behavior relations: A meta-analysis of attitudinal relevance and topic. *Journal of Communication, 43*, 101-142.

Kraus, S. J. (1995). Attitudes and the prediction of behavior: A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin, 21*, 58-75.

Krosnick, J. A., Boninger, D. S., Chuang, Y. C., Berent, M. K., & Carnot, C. G. (1993). Attitude strength: One construct or many related constructs? *Journal of Personality and Social Psychology, 65*, 1132-1151.

Krosnick, J. A., & Petty, R. E. (1995). Attitude strength: An overview. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 1-24). Mahwah, NJ: Lawrence Erlbaum.

Lavine, H., Thomsen, C. J., Zanna, M. P., & Borgida, E. (1998). On the primacy of affect in the determination of attitudes and behavior: The moderating role of affective-cognitive ambivalence. *Journal of Experimental Social Psychology, 34*, 398-421.

Ministry of Agriculture, Fisheries, and Food. (1992). *Manual of nutrition*. London: HMSO.

Norman, P., & Smith, L. (1995). The theory of planned behaviour and exercise: An investigation into the role of prior behaviour, behavioural intentions and attitude variability. *European Journal of Social Psychology, 25*, 403-415.

Petty, R. E., & Krosnick, J. A. (Eds.). (1995). *Attitude strength: Antecedents and consequences*. Mahwah, NJ: Lawrence Erlbaum.

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*, 431-449.

Sears, D. O. (1986). College sophomores in the laboratory: Influences of a narrow data base on social psychology's view of human nature. *Journal of Personality and Social Psychology, 51*, 515-530.

Sherman, R. C., Buddie, A. M., Dragan, K. L., End, C. M., & Finney, L. J. (1999). Twenty years of *PSPB*: Trends in content, design, and analysis. *Personality and Social Psychology Bulletin, 25*, 177-187.

Sparks, P., Hedderley, D., & Shepherd, R. (1992). An investigation into the relationship between perceived control, attitude variability and the consumption of two common foods. *European Journal of Social Psychology, 22*, 55-71.

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* (pp. 361-386). Mahwah, NJ: Lawrence Erlbaum.

Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues, 25*, 41-47.

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). Hillsdale, NJ: Lawrence Erlbaum.

Zaller, J., & Feldman, S. (1992). A simple theory of the survey response: Answering questions versus revealing preferences. *American Journal of Political Science, 36*, 579-616.

Received November 24, 1998
Revision accepted August 25, 1999