Extending the Bases of Subjective Attitudinal Ambivalence: Interpersonal and Intrapersonal Antecedents of Evaluative Tension

Joseph R. Priester  
University of Michigan

Richard E. Petty  
Ohio State University

Researchers have conceptualized ambivalence as resulting from the conflicting positive and negative thoughts and feelings that a person holds toward an attitude object (intrapersonal discrepancy). They have investigated the hypothesis that perceived interpersonal attitudinal discrepancies can also contribute to feelings of subjective ambivalence beyond that determined by intrapersonal discrepancy. Study 1 revealed that the perception of attitudinal discrepancy with one's parents was associated with greater feelings of ambivalence. Studies 2 and 3 found increased ambivalence as a function of manipulated interpersonal discrepancies. Study 4 replicated and reversed the effect, revealing that interpersonal attitudinal discrepancy with a disliked other was associated with less ambivalence. Together, these studies provide support for the proposition that, because of balance processes, interpersonal relationships influence feelings of subjective ambivalence.

Attitudes are generally viewed as representing people's global evaluative responses to other people, places, products, issues, ideas, activities, and objects (e.g., Petty & Wegener, 1998). These responses are typically conceptualized and measured as lying along a bipolar continuum ranging from unfavorable to favorable (see Eagly & Chaiken, 1993). Assessment of these global evaluations alone, however, fails to capture many important features of attitudes, such as their accessibility, and affective versus cognitive underpinnings (see Petty & Krosnick, 1995, for a review). One particularly important aspect of attitudes not captured by traditional attitude assessments is the extent to which the attitude is ambivalent and characterized by evaluative tension. Although theorists and researchers have argued on numerous occasions over the past 50 years that the examination and understanding of attitudinal ambivalence are important (e.g., Chein, 1951; Costello, Rice, & Schoenfeld, 1974; Edwards, 1946; French, 1944; Green & Goldfried, 1965; Kaplan, 1972; Klopfer & Maddan, 1980; Komorita & Bass, 1967; Moore, 1973; Scott, 1966, 1969), interest in the construct has peaked recently (e.g., see Cacioppo & Berntson, 1994; Thompson, Zanna, & Griffin, 1995). Current evidence suggests that the internal conflict associated with an evaluative response (i.e., ambivalence) is important for understanding behavior (MacDonald & Zanna, 1998), information processing (Maio, Bell, & Esses, 1996), attitude persistence (Jonas, Diehl, & Bromer, 1997), and affective reactions to important events (Otnes, Lowrey, & Shrum, 1997). Given that the traditional bipolar approach to the conceptualization and measurement of attitudes does not assess the evaluative tension that might underlie an attitude, the question of how to measure ambivalence has been an important issue.

Assessment of Ambivalence

Researchers have adopted two different strategies to make inferences regarding the ambivalence or conflict underlying attitudes. The oldest and most common approach is to have individuals provide separate ratings of their positive and negative reactions toward an attitude object. These positive and negative reactions are then combined according to some mathematical model to provide an estimate of the ambivalence or conflict elicited by the attitude object. Kaplan's (1972) seminal research in this area provided a framework that standardized this approach and has been used by many researchers. Specifically, Kaplan advocated the use of 4-point unipolar scales to assess individuals' positive and negative reactions independent of each other. Kaplan's key advance was to take the traditional bipolar scale, ranging from -4 to 4, and split it into two scales—one designed to assess negativity (ranging from 0 to -4) and one designed to assess positivity (ranging from 0 to 4). Kaplan also provided a mathematical model by which to combine the positive and negative reactions so as to arrive at a prediction of the ambivalence associated with the attitude object. Although different researchers have advanced slightly different methods by which to assess positivity and negativity (e.g., Bell, Esses, & Maio, 1996; Cacioppo & Berntson, 1994; Cacioppo, Garder, & Berntson, 1997; Priester & Petty, 1996; Thompson et al., 1995) as well as different mathematical models by which to combine the positive and negative reactions (e.g., Brown & Farber, 1951; French, 1944; Priester & Petty, 1996; Scott, 1966, 1969; Thompson et al., 1995), at a conceptual level they all share the features of (a) separately as-
sessing positive and negative reactions and (b) combining these reactions by use of a model to (c) arrive at an estimation of the ambivalence hypothesized to be associated with an attitude object (for a discussion and comparison of the various mathematical models, see Breckler, 1994; Priester & Petty, 1996; Thompson et al., 1995).

A second approach to assessing the ambivalence or conflict associated with an attitude is to ask questions designed to assess the extent of the ambivalence experienced by an individual. This approach focuses on the psychological experience of ambivalence by asking people to provide ratings of their subjective feelings. An example of such an approach is that of Tourangeau, Rasinski, Bradburn, and D’Andrade (1989), who simply asked people to report whether their feelings and beliefs about some issue were one-sided or mixed (see also Sparks, Hedderley, & Shepherd, 1992). People who respond that their feelings are mixed are categorized as holding more ambivalent attitudes than those who respond that their feelings are one-sided.

Investigators have used both approaches to make inferences about ambivalence. Results from these investigations have provided evidence in support of the measures’ predictive validity as indicators of ambivalence. As an example of the former method, Bargh, Chaiken, Govender, and Pratto (1992) used Kaplan’s (1972) approach to understand how ambivalence influences attitude accessibility. Specifically, they had one group of individuals provide their positive and negative reactions to a series of attitude objects and estimated the ambivalence associated with each attitude object by combining the positive and negative reactions. A second group of individuals provided their timed reactions to the same attitude objects to measure the attitude accessibility of each object. As predicted, attitude objects associated with greater ambivalence were less accessible than attitude objects associated with less ambivalence. As an example of the latter method, Tourangeau et al. (1989) used a measure of subjective ambivalence to better understand how ambivalence influences context effects in opinion surveys. In their research, respondents who reported feeling greater ambivalence about important attitude objects were more likely to change their attitudes as a function of other questions than respondents who reported feeling less ambivalence. Thus, both approaches to the measurement of ambivalence demonstrate consequences that support their ability to act as useful indicators of ambivalence.

Recent research has examined the relationship between these two approaches. For example, Priester and Petty (1996) compared the amount of evaluative tension claimed to be experienced by individuals with the amount of ambivalence predicted by numerous mathematical models. Across multiple studies, these analyses yielded correlations ranging from .36 to .52. Thompson et al. (1995) reported similar findings, with correlations ranging from .21 to .40. One reliable finding from the ambivalence literature, then, is that ambivalence calculated from an individual’s positive and negative reactions is able to account for only a moderate amount of the variance associated with the reported psychological experience of ambivalence. From this finding a natural question arises: Why is the presumed antecedent of ambivalence (as assessed by the positive and negative personal reactions) able to account for only a moderate amount of the variance associated with the psychological experience of ambivalence?

Crisis and Resolution in the Attitude and Behavior Relationship

This situation is analogous to one that attitude researchers confronted in the 1960s and 1970s with respect to the relatively low correlations obtained between attitudes and behavior. One of the reasons for the centrality of the attitude construct in social psychology was its presumed role as an antecedent of behavior (Allport, 1935), but various studies suggested that the ability of attitudes to predict behavior was moderate at best (e.g., Berg, 1966; Bray, 1950; DeFleur & Westic, 1958; Festinger, 1964; Kuiner, Wilkins, & Yarrow, 1952; LaPierre, 1934; Linn, 1965; Warner & DeFleur, 1969; Wicker, 1969).

There were a number of responses to this challenge. One response was that low correlations signaled that attitudes and behaviors were relatively distinct constructs and thus should be unrelated. Some went so far as to suggest that because of this uniqueness and inability of attitudes to predict behavior, the attitude construct would not be very useful (e.g., see Wicker, 1969). In the ambivalence domain, this reaction is analogous to Bassili’s (1996) argument that ambivalence as assessed by positive and negative reactions (an “operative” measure) and ambivalence as assessed by self-perceptions (a “meta-attitudinal” measure) form “distinct clusters.” In Bassili’s view, operative measures of ambivalence (and other attitude strength constructs) are more important and useful than meta-attitudinal ones because they are more likely to predict other criteria.

In a different response to the aforementioned challenge, some attitude researchers (most notably Fishbein and Ajzen; see Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) examined methodological and conceptual factors that were responsible for the low attitude–behavior relationship. A methodological account for the apparent lack of relationship between attitudes and behavior focused on the appropriateness of the measures of each construct. Ajzen and Fishbein (1977) provided evidence that increased correspondence between the measures of attitudes and behaviors resulted in a stronger relationship. In the ambivalence domain, this response is analogous to enhancing the correlation between measures of ambivalence by obtaining better measures of positive and negative reactions, by obtaining better measures of the subjective experience of ambivalence, and/or by constructing better formulas by which to combine the positive and negative reactions to predict subjective ambivalence.

Ajzen and Fishbein (1973) also advanced a more conceptual account for why attitudes and behavior often had low correlations. Specifically, they hypothesized that although attitudes should be related to behaviors when they are measured appropriately, there was more variance in behavior than that accounted for by attitudes alone. By including interpersonal (subjective norms) factors in addition to intrapersonal (attitudes) factors, Ajzen and Fishbein found an increase in the ability to predict and understand behavioral intentions and behaviors. In the ambivalence domain, this response is analogous to the proposition that in addition to intrapersonal predictors of ambivalence (i.e., the extent of one’s own positive and negative reactions to an attitude object), there are also interpersonal factors that contribute. We directly examined this proposition in the present research.
INTERPERSONAL AMBIVALENCE

Interpersonal Antecedents of the Psychological Experience of Ambivalence

In this article, we focus on the question of whether the relatively low correlation between measures of ambivalence based on one's ratings of the positivity and negativity of the attitude object and those based on the subjective experience of ambivalence can be explained by the fact that the subjective experience of ambivalence is determined by more than one's personal reactions. That is, we focus on the conceptual question of whether there are antecedents of subjective ambivalence other than one's personal reactions of positivity and negativity. This question has not been considered previously. Just as the variance accounted for in behavioral intentions and behaviors is increased by including measures of both personal and social antecedents, so too we hypothesized that the variance accounted for in the psychological experience of ambivalence may be increased by including measures of both personal and social antecedents. To clarify, the distinction between personal and social influences lies in the fact that in the former, the conflict resides within one's own thoughts and feelings (personal), whereas in the latter, the conflict resides in a discrepancy between how oneself and significant others feel (social).

Personal antecedents of conflict (intraperusal ambivalence) are captured well in the standard ambivalence measure of positive and negative reactions going back to Kaplan (1972). However, such measures do not necessarily consider the conflict between how one feels about an attitude object and how others feel about it (interpersonal ambivalence). If social factors also influence the tension associated with attitude objects, then inclusion of social antecedents should account for unique variance in the experience of attitudinal ambivalence above and beyond the variance accounted for by personal antecedents.

Priester and Petty (1996) suggested that an additional antecedent of subjective ambivalence could be the extent to which one's attitude is perceived to be discrepant from important others' attitudes. For example, if an individual holds only positive personal reactions toward safe-sex practices at the same time that the individual's partner holds a negative attitude toward safe-sex practices, the individual may experience greater evaluative tension than that predicted by the personal reactions alone. That is, even though there is no intraperusal conflict, there is interpersonal conflict. It is important that all prior ambivalence formulas would predict that little ambivalence or evaluative tension should exist as long as one's personal reactions are one-sided. However, a consideration of interpersonal factors suggests that some ambivalence would exist if there is disagreement with significant others. The cause of the ambivalence is not a conflict between one's own positive and negative reactions but between one's positive reactions and the negative reactions of an important other. In four studies, we examined the idea that social factors contribute to subjective ambivalence over and above personal factors.

Study 1

A number of empirical questions arise from our hypothesis that ambivalence can stem from both intraperusal and interpersonal factors. One question has to do with the nature of the constructs that have been measured in past research. Specifically, to what extent have prior measures of positivity and negativity captured more than just one's personal reactions? It is possible, for example, that the measures of positivity and negativity used in the past have captured personal reactions along with perceptions of interpersonal attitudinal discrepancies. For example, a person who has only personal positive reactions to an object might indicate some negative reactions as well if important others have negative reactions toward the object (cf. Minardi & Cohen, 1981). If this is the case, then any influence of the perception of interpersonal attitudinal discrepancies on subjective ambivalence should be eliminated when the impact of intraperusal factors is controlled (because the traditional measures already capture interpersonal factors).

Alternatively, the possibility exists that the perception of interpersonal attitudinal discrepancies is not captured by currently used measures of the positive and negative bases of attitudes. If this is the case, two patterns of relationship are possible. First, if the perception of interpersonal attitudinal discrepancy is not an antecedent of feelings of ambivalence, then no influence of the perception of interpersonal attitudinal discrepancy on subjective ambivalence should emerge. Second, if the perception of interpersonal attitudinal discrepancy is a unique antecedent of feelings of ambivalence, then not only should an effect of the perception of interpersonal attitudinal discrepancy on subjective ambivalence emerge, but this influence should remain even after the variance shared with intraperusal reactions is accounted for by simultaneous multiple regression analyses.

In sum, we hypothesized that prior conceptual models of attitudinal ambivalence could be inadequate because they consider only one's personal positive and negative reactions to the attitude object and fail to consider the perception of attitudinal reactions of important others. The goal of Study 1 was to empirically examine this hypothesis. Namely, we explored a previously unexamined antecedent of the psychological experience of ambivalence—the perception of interpersonal attitudinal discrepancy. Our primary hypothesis was that interpersonal factors would account for additional variance in subjective ambivalence beyond that accounted for by the personal factors postulated by existing models of ambivalence, just as social factors (i.e., norms) have been shown to account for additional variance in behavioral intentions beyond that accounted for by personal factors (i.e., attitudes; Fishbein & Ajzen, 1975).

Method

One hundred six undergraduate business students at the University of Michigan completed three booklets designed to assess their (a) positive and negative personal reactions toward 12 attitude objects (personal reactions questionnaire); (b) feelings of subjective ambivalence elicited by the 12 attitude objects (subjective ambivalence questionnaire), (c) attitudes, and (d) perceptions of their parents' attitudes toward the 12 attitude objects (interpersonal perception questionnaire). This is basically the same procedure that was used by Priester and Petty (1996), except that we used new attitude objects and included measures of interpersonal discrepancies. We selected parents as the interpersonal group because of their presumed significance for most college students. The attitude objects that we used for Study 1 were as follows: working out (e.g., aerobics, running, lifting

1 The data from 1 participant who did not complete all of the measures were dropped, resulting in the data from 105 participants being used in subsequent analyses.
weights), donating your blood, telling a white lie to your parents, watching
television, your current (or former) boyfriend or girlfriend, studying, eating
drug junk food, eating vegetables, your mother, the practice of safe sex, drinking
alcohol, and yourself. The administration of the booklets as part of a
laboratory experiment was conducted such that participants completed
unrelated material in between each of the three key booklets. All partici-
pants completed the personal reactions booklet first, followed by the
subjective ambivalence and attitudes questionnaire second, and the in-
terpersonal perception questionnaire last.\footnote{2}

**Personal Reactions Questionnaire**

Participants were asked to provide assessments of the magnitude of their
positive and negative reactions to the attitude objects in a manner identical
to that reported by Priester and Petty (1996) and similar to that used in
other ambivalence research (e.g., Thompson et al., 1995). Participants
provided assessments of the degree to which they felt (a) positivity toward
the attitude objects while ignoring any negativity and (b) negativity toward
the attitude objects while ignoring any positivity. Participants provided
their indications of positivity and negativity on 11-point unipolar scales
anchored with 0 (no positive thoughts or feelings or no negative thoughts
or feelings) and 10 (maximum positive thoughts or feelings or maximum
negative thoughts or feelings).\footnote{3}

**Subjective Ambivalence and Attitudes Questionnaire**

Participants were asked to provide indications of the amount of subjective
ambivalence elicited by the attitude objects in a manner identical to
that reported by Priester and Petty (1996) and similar to that used in
other ambivalence research (e.g., Thompson et al., 1995). Specifically, partici-
pants completed a series of scales designed to assess the extent to which
their reactions were conflicted, mixed, and indecisive with respect to the
attitude objects.\footnote{4} The three scales were anchored with 0 (feel no conflict at
all, feel no indecision at all, and completely one-sided reactions) and 10
(feel maximum conflict, feel maximum indecision, and completely mixed
reactions). The alpha coefficient for these items was .87. We also con-
ducted a factor analysis that revealed one factor with an eigenvalue greater
than 1 (Factor 1 = 2.10 and Factor 2 = 0.05). Thus, we created a measure of
the psychological experience of ambivalence by averaging each partici-
 pant’s responses to the three questions. As such, the subjective ambiva-
 lence scores could vary from 0 to 10.

In addition, participants were asked to provide their overall reaction
toward the objects. Participants provided their responses on two 9-point
bipolar scales ranging from −4 (unfavorable and negative) to 4 (favorable
and positive). The alpha coefficient for these items was .86. Thus, we
created a measure of the participants’ attitudes by averaging the two
responses.

**Interpersonal Perception Questionnaire**

Participants were asked to provide assessments of their parents’ attitudes
toward the objects. They were provided with the following instructions:
"On the next page, rate how you believe that your parents would feel about
the topics. That is, don’t provide your opinions, but instead, rate how your
parents would respond to the topics." Participants provided their responses
to each of the attitude objects on a 9-point scale anchored with −4 (bad)
and 4 (good).

**Results**

**Data Analysis Strategy**

We adopted the following data analysis strategy for all multiple
regression analyses. We created a participants variable by dummy
coding. Dummy coding provides a means by which all of the
observations given by a participant can be grouped as a category.\footnote{5}
The dummy-coded participants variable was then entered into the
multiple regression analysis with the other variables of interest.

The introduction of the participants variable into the multiple
regression analysis provided an elegant means of examining
within-participant effects in that it (a) corrected the degrees of
freedom, (b) accounted and corrected for the variance attributable
to individual differences, and (c) used a more precise error term
(i.e., with the variance attributed to individual differences re-
moved; see Pedhazur, 1982, pp. 551–572, for additional informa-
tion on this approach; see Skowronski, Thompson, Betz, & Shann-
on, 1991, for an example of this data analytic approach).

**Data Reduction**

**Predicted subjective ambivalence.** To calculate the amount of
subjective ambivalence predicted by the prior theories of ambiva-
 lence that focused solely on personal factors, the numbers of
positive and negative reactions were transformed to equivalent
measures of conflicting reactions (whichever of the reactions was
less in number) and dominant reactions (whichever of the reactions
was greater in number). These conflicting and dominant reactions
were then combined to provide the subjective ambivalence predic-
tion according to the Gradual Threshold Model of Ambivalence
(Priester & Petty, 1996). In this model, ambivalence is equal to

\[ 5C^p - D^{1/6} \]

where \( C \) is equal to the magnitude of conflicting reactions, \( D \) is
equal to the magnitude of dominant reactions, \( p \) is less than 1 (0.5
in the present instance), and a constant of 1 is added to \( C \) and \( D \).
We selected the Gradual Threshold Model of Ambivalence be-
cause the rationale for this order was as follows: Priester and Petty (1996)
found no differences in results as a function of questionnaire administra-
tion order for the personal reactions and subjective ambivalence booklets.
Because the point of this study was to determine whether interpersonal
attitudinal discrepancy increased the variance accounted for in subjective
ambivalence, the strongest test of the hypothesis was established by having
the participants provide their indications of this variable after they had
completed the other booklets.

\footnote{2} The rationale for this order was as follows: Priester and Petty (1996)
found no differences in results as a function of questionnaire administration
order for the personal reactions and subjective ambivalence booklets.
Because the point of this study was to determine whether interpersonal
attitudinal discrepancy increased the variance accounted for in subjective
ambivalence, the strongest test of the hypothesis was established by having
the participants provide their indications of this variable after they had
completed the other booklets.

\footnote{3} These reactions could also be used to provide an additional indicator of
the participants’ attitudes. Specifically, the response provided on the unipo-
lar negative scale subtracted from the response provided on the unipo-
lar positive scale (see Kaplan, 1972) provides an attitude measure that
varies from −10 (equivalent to a response of 10 negative reactions and 0 positive
reactions) to 10 (equivalent to a response of 0 negative reactions and 10
positive reactions). The correlation between this derived attitude measure
and the attitude measure obtained with the bipolar scales was .88.

\footnote{4} We chose these three indicators to measure ambivalence because of
their relationship to the commonly accepted tripartite model of attitudes
(Ostrom, 1969; i.e., "conflicted" for affect, "mixed" for cognitive, and
"indecisive" for behavioral).

\footnote{5} Although it is common to use dummy coding for dichotomous vari-
ables, dummy coding can be used for variables consisting of any number
of levels. Dummy coding can be used as long as all observations can be
categorized as belonging to mutually exclusive and exhaustive groups
(Cohen & Cohen, 1983). In the present case, each observation could be
categorized as belonging to 1 and only 1 participant.
cause of its ability to predict subjective ambivalence from personal factors as well as or better than competing theories (see Priester & Petty, 1996).

**Interpersonal attitudinal discrepancy.** We calculated the absolute value of the difference (i.e., the discrepancy) between the attitudes of the participants and the perceived attitudes of their parents to provide an indicator of the key perception of interpersonal attitudinal discrepancy hypothesized to contribute to subjective ambivalence. This perception of interpersonal attitudinal discrepancy measure could vary from 0, obtained when the two measures were equivalent (i.e., there was no discrepancy), to 8, obtained when one measure was equal to -4 and the other measure was equal to 4 (i.e., there was maximum discrepancy).

**Is There an Influence of Interpersonal Attitudinal Discrepancy?**

To examine whether the perception of interpersonal attitudinal discrepancy was associated with subjective ambivalence, we performed a multiple regression analysis using interpersonal attitudinal discrepancy (and the dummy-coded participants variable) as the independent variable and subjective ambivalence as the dependent variable. The results of this multiple regression analysis revealed a significant influence of interpersonal attitudinal discrepancy on subjective ambivalence, F(1, 1154) = 85.1, p < .0001, suggesting that greater interpersonal attitudinal discrepancy does result in increased subjective ambivalence (β = 0.56).

**Is This Influence Unique?**

To examine whether the perception of interpersonal attitudinal discrepancy accounted for unique variance in subjective ambivalence above and beyond that accounted for by personal reactions, we performed a simultaneous multiple regression analysis. Simultaneous multiple regression analysis allows for the examination of the influences of more than one independent variable on a dependent variable. It is important that simultaneous multiple regression analysis controls for the correlation between the independent variables and the joint influence of the independent variables on the dependent variable. Thus, simultaneous multiple regression analysis allows for the examination of the unique influences of each of the independent variables while controlling for the other variable or variables. In the present instance, we used the personal antecedents of ambivalence (i.e., positive and negative reactions), as predicted by the Gradual Threshold Model of Ambivalence; the perception of interpersonal attitudinal discrepancy (in addition to the dummy-coded participants variable); and the Personal × Interpersonal Antecedents interaction term as independent variables.

This regression analysis yielded two significant effects. First, there was an effect for personal reactions, \( \beta = 1.15, F(1, 1153) = 421.4, p < .0001 \), replicating past research in this regard. It was more interesting that an effect emerged for the perception of interpersonal attitudinal discrepancy, \( \beta = 0.41, F(1, 1153) = 61.2, p < .0001 \). The latter finding suggests that there was a unique influence of the perception of interpersonal attitudinal discrepancy on the psychological experience of ambivalence above and beyond that accounted for by personal reactions. These results are consistent with the idea that the perception of interpersonal attitudinal discrepancy and one’s personal positive and negative reactions represent independent antecedents of subjective attitudinal ambivalence.

**Conclusion**

The primary purpose of Study 1 was to examine a heretofore unexplored antecedent of subjective ambivalence—the perception of interpersonal attitudinal discrepancy. Past theories conceptualized attitudinal ambivalence as resulting from the conflict between the positive and negative thoughts and feelings that an individual possesses with respect to an attitude object. However, the ability of the previously proposed models to account for the variance associated with subjective ambivalence has been limited. The present research examined whether extrapersonal factors might also contribute to the psychological experience of ambivalence, thus accounting, at least in part, for such moderate correlations. We hypothesized that social factors, such as the perception of interpersonal attitudinal discrepancy, could serve as one such extrapersonal antecedent to ambivalence. The results of Study 1 supported the hypothesis by providing evidence that the perception of increased attitudinal discrepancy with one’s parents was associated with greater feelings of ambivalence. It is important that this relationship remained even after we accounted for the influence of personal reactions. Thus, the results of Study 1 provide initial support for the idea that interpersonal attitude relationships can influence the feelings of tension or conflict associated with attitudes independent of personal positive and negative reactions.

**Unresolved Issues: Alternative Explanations**

Although the results of Study 1 are consistent with the hypothesis that the perception of interpersonal attitudinal discrepancy influences the subjective experience of ambivalence, two unresolved issues emerged. First, the nature of the relationship between a student who has recently gone to college and his or her parents might be unique and atypical in its ability to prompt feelings of evaluative tension. The transition to college is a time of change from dependence to independence for students. Perhaps the results of Study 1 occurred because we tapped into the evaluative tension associated with the unique separation from parents rather than

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6 Analyses were also conducted using various other models designed to predict subjective ambivalence (i.e., Kaplan, 1972; Katz & Hass, 1988; Scott, 1966; Thompson et al., 1995). However, none of these analyses yielded results that diverged from the analyses using the Gradual Threshold Model.

7 This interpersonal attitudinal discrepancy score is based on the bipolar attitude measure of the participants’ attitudes. A discrepancy score based on the attitude measure derived from the positive and negative reactions was also calculated (after adjusting the parents’ and participants’ attitude measures to correct for initial scale differences). The two discrepancy measures were highly correlated (r = .76).

8 We conducted a correlational analysis to examine the relationships among the independent variables. The correlation between personal reactions and subjective ambivalence was .55. The correlation between interpersonal attitudinal discrepancy and subjective ambivalence was .27. The correlation between personal reactions and interpersonal attitudinal discrepancy was .16. Given the within-participants design, all of the correlations were statistically reliable.
more general influences of interpersonal attitudinal discrepancy. In addition, the selection and use of several of the attitude objects in Study 1 (e.g., practicing safe sex, telling white lies to one’s parents) might be particularly susceptible to parent–child tension, and thus their use could have increased our effects.

Second, the nature of the data collection raises an important issue. Given the correlational nature of the design, it is not possible to make inferences concerning the causal relationship between the perception of interpersonal attitudinal discrepancy and subjective feelings of ambivalence. Although our hypothesis that the perception of interpersonal attitudinal discrepancy is an antecedent of evaluative tension is plausible, other possibilities exist. For example, it could be that the subjective experience of ambivalence toward an attitude object leads individuals to report increased interpersonal attitudinal discrepancy, rather than vice versa.9

Studies 2 and 3

We conducted two studies to address the issues that emerged from Study 1. In Study 2, participants were randomly assigned to one of two conditions in which they read that positively regarded others (nonparents) either supported or opposed a proattitudinal issue (state-assisted tuition). After reading this information, participants provided measures of their feelings of subjective ambivalence toward the issue. Study 3 replicated this design with one addition. Whereas Study 2 used the same measure of subjective ambivalence as that used in Study 1, Study 3 counterbalanced this measure with an additional measure of ambivalence to ensure that our findings were not specific to one way of assessing ambivalence.

If the influence found in Study 1 was restricted to the unique experience of college students feeling tension during their transition to independence from their parents, a similar effect of interpersonal attitudinal discrepancy should not emerge in Studies 2 and 3. In a similar manner, if interpersonal attitudinal discrepancy cannot be a cause of subjective feelings of ambivalence, a similar effect of interpersonal attitudinal discrepancy should not emerge in Studies 2 and 3. Finally, if the results of Study 1 were due to the specific measure used to assess subjective experience, there should emerge an interaction, such that the influence of interpersonal attitudinal discrepancy emerges on one, but not both, of the different ambivalence measures used in Study 3.

In contrast, if interpersonal factors can influence subjective ambivalence, then only a main effect should emerge. That is, when people learn that positively regarded others disagree with them, greater attitudinal ambivalence should be experienced than when people learn that positively regarded others agree with them. We further expected that this main effect would emerge on both measures of ambivalence.

Method

Fifteen undergraduate students enrolled in an introductory psychology course at Ohio State University (OSU) participated in Study 2 in exchange for course credit. Eighteen undergraduate students participated in Study 3. In Study 2, participants were randomly assigned to one of two conditions (others’ opinion: agree vs. disagree). In Study 3, participants were randomly assigned to one of four conditions in a 2 (others’ opinion: agree vs. disagree) × 2 (order of ambivalence measure) mixed factorial design, in which the first variable was between participants and the second variable was within participants. All participants were provided with a booklet entitled “Social Issues Survey—Ohio State Legislature.” The first page of the booklet provided information on the social issue of state-supported tuition. The information stated that the legislature was considering the issue of state-supported tuition as part of its budget hearings. The information explained that students at OSU receive support from the state because the state helps pay most of the cost of the students’ education.

For example, students who qualify for in-state tuition receive, on average, $12,000 of support from the state each year. Students who pay for out-of-state tuition receive, on average, $7,000 of support from the state per year. So, state-supported tuition means that families and students pay much lower tuition each year.

Pilot testing revealed that OSU students were almost universally in favor of state-supported tuition. All booklets stated that a positively regarded group of other students had evaluated the social issue. Specifically, the booklets stated that “a select group of top O.S.U. students were interviewed at length by a research company in order to determine how these Ohio State University representatives felt about the issue. After careful consideration and discussion, the students voiced their opinion.” The booklet then presented a select group’s opinion. The second page of the booklet used in Study 2 contained an ambivalence measure, and the second and third pages of the booklet used in Study 3 contained ambivalence measures.10

Others’ Opinion

Participants were informed that the select group of top OSU students either supported or opposed state-supported tuition. In the support conditions, participants read that “the select group of top O.S.U. students felt that state-supported tuition is an excellent program and should be continued” (nondiscrepant with students’ views). In the opposed conditions, participants read that “the select group of top O.S.U. students felt that state-supported tuition is a poor program and should be eliminated” (discrepant with students’ views).

Ambivalence Measure

In Study 2, participants received the ambivalence measure from Priester and Petty (1996) that was also used in Study 1.11 In Study 3, participants received this measure and also completed a measure of subjective ambivalence developed by Jamieson (1993) and used in other research on ambivalence (e.g., Thompson et al., 1995). This measure included six items, of which three were reverse coded. Examples of the specific items are “My head and heart seem to be in disagreement on the issue of state-supported tuition” and “I do not find myself feeling torn about

9 Another concern, which was raised by a reviewer of this article, was that the measure of subjective ambivalence used in Study 1 was somehow overly susceptible to nonpersonal reactions (although it was, of course, also susceptible to personal reactions).

10 Other measures unrelated to the primary hypotheses (e.g., attitude toward the social issue and attitude toward the select group of top OSU students) are not presented.

11 The alpha coefficients associated with this subjective ambivalence measure were .67 for Study 2 and .87 for Study 3. We also conducted factor analyses, revealing one factor with an eigenvalue greater than 1 for both studies (Factor 1 for Study 2 = 1.4, Factor 2 for Study 2 = 0.4; Factor 1 for Study 3 = 1.9, Factor 2 for Study 3 = 0.1).
state-supported tuition, my feelings go in one direction only.\textsuperscript{12} These scales were anchored with \(-3\) (strongly disagree) and \(3\) (strongly agree). The alpha coefficient for these items was .88. We also conducted a factor analysis, revealing one factor with an eigenvalue greater than 1 (Factor 1 = 3.5 and Factor 2 = 0.7). Thus, we created a measure of the psychological experience of ambivalence by averaging each participant’s responses to the six questions.

Results

Study 2

In Study 2, the measure of ambivalence was subjected to an analysis of variance. As we predicted, those participants who read that the positively regarded others opposed state-supported tuition indicated greater feelings of evaluative tension toward the issue \((M = 5.8)\) than those participants who read that the positively regarded others supported state-supported tuition \((M = 3.0)\), \(F(1, 13) = 5.7, p < .04\).

Study 3

In Study 3, the measures of ambivalence were subjected to a mixed-design analysis of variance. As we predicted, a main effect emerged, \(F(1, 16) = 5.4, p < .04\), revealing that participants who were informed that the positively regarded others agreed with them reported less ambivalence \((M = -0.6)\) for the Study 1 measure and \(M = -0.6\) for the new measure\) than the participants who were informed that the positively regarded others disagreed with them \((M = 0.4)\) for the Study 1 measure and \(M = 0.4\) for the new measure\).\textsuperscript{13} In addition, as we predicted, there was no interaction between others’ position and ambivalence measure, \(F(1, 16) = 0.2, p > .6\).

Conclusion

Recall that we conducted Studies 2 and 3 to address three specific issues that emerged from Study 1. The first issue concerned whether the influence of the perception of interpersonal attitudinal discrepancy uncovered in Study 1 was due to the specific situation of a student differentiating himself or herself from parents or was indicative of a more general interpersonal process. The results of Studies 2 and 3 found that college students reported greater feelings of evaluative tension when their attitudes were discrepant from positively regarded other students. Thus, the findings of Studies 2 and 3 suggest that the influence of interpersonal attitudinal discrepancy was not specific to feelings of conflict that arose in students because of separation from parents. Instead, it appears as if evaluative tension was influenced when individuals held attitudes that were discrepant from relevant others, whether those others were parents or fellow college students.

The second issue concerned the causal relationship between interpersonal attitudinal discrepancy and feelings of evaluative tension. Given the correlational design of Study 1, it was impossible to infer whether the perception of interpersonal attitudinal discrepancy caused feelings of evaluative tension, as we hypothesized. In Studies 2 and 3, we manipulated whether individuals experienced interpersonal attitudinal discrepancy, and the results provide support for the notion that interpersonal attitudinal discrepancy is a causal antecedent of feelings of evaluative tension.\textsuperscript{14}

The third issue concerned the generality of the measure that we used to assess subjective ambivalence in Study 1. The results of Study 3 provide convergent validity for the measure of subjective ambivalence used in Study 1 in that the manipulated influence of interpersonal attitudinal discrepancy emerged equivalently for both measures of subjective ambivalence.

Unresolved Issue: Underlying Mechanism

Although the results of our first three studies demonstrate that interpersonal attitudinal discrepancy influences feelings of ambivalence (above and beyond intrapersonal factors), they do not provide clear evidence of why this effect emerged. At least three possible explanations exist for why such an influence might occur.

Agreement Effects

One explanation for the influence of interpersonal attitudinal discrepancy on subjective ambivalence stems from the finding that individuals prefer situations in which there is agreement between themselves and others (see Cacioppo & Petty, 1981; Zajonc & Burnstein, 1965). This finding has been referred to as an “agreement effect” (Zajonc, 1968). In short, individuals have been found to notice and prefer situations in which they are in agreement with others to situations in which they disagree with others, presumably because disagreement per se can cause interpersonal conflict. Our operationalization of interpersonal attitudinal discrepancy tapped directly into the amount of disagreement of the participants with their parents (Study 1) or the peer group of students (Studies 2 and 3). Given our operationalization, a potentially parsimonious explanation of why interpersonal attitudinal discrepancy is associated with greater feelings of evaluative tension may be the simple and robust finding that disagreement (or anticipated disagreement) with others is psychologically uncomfortable (Asch, 1955; Cialdini, 1987) and that this discomfort influences feelings of ambivalence. Thus, attitudinal discrepancy with one’s parents and other college students results in heightened feelings of evaluative tension, and this ambivalence may occur because of the agreement effect.

Balance Effects

A second explanation for the influence of interpersonal attitudinal discrepancy on ambivalence is derivable from balance theory. The finding that interpersonal relationships can influence attitudes is not new. Heider (1946, 1958) and others (e.g., Cartwright & Harary, 1979; Harary, Norman, & Cartwright, 1965; Insko, 1984; Osgood & Tannenbaum, 1955; Wiest, 1965) have provided theoretical and empirical insight into the influence of

\textsuperscript{12} The order in which participants completed the ambivalence measures was counterbalanced. Preliminary results revealed that the order of booklet completion did not interact with any of the results and thus is not discussed further.

\textsuperscript{13} To facilitate comparison across scales, both measures of ambivalence were standardized prior to the analysis of variance.

\textsuperscript{14} Of course, the results of Studies 2 and 3 do not disallow the possibility that feelings of subjective ambivalence may also influence perceptions of interpersonal attitudinal discrepancy.
such relationships. The principle on which this theoretical perspective rests is that individuals prefer situations in which they agree with liked others and disagree with disliked others. As a result, a state of interpersonal attitudinal balance is achieved when one holds attitudes that are similar to those of friends or when one holds attitudes that differ from those of enemies. In a similar manner, a state of interpersonal attitudinal imbalance exists when one holds attitudes that differ from those of friends or when one holds attitudes that are similar to those of enemies. The balance effect is independent of the agreement effect described earlier (see Zajonc, 1968).

Thus, balance theory provides a possible explanation for the influence of the perception of interpersonal attitudinal discrepancy on feelings of evaluative tension. Past research (e.g., Jordan, 1953) has found support for the notion that imbalanced triads result in these three-element situations (i.e., involving the person, another person, and an attitude object) being rated as more uncomfortable than balanced situations. It is possible that, in addition, interpersonal attitudinal discrepancy can result in feelings of heightened tension with respect to the attitude object itself in addition to (or instead of) the entire three-element situation. To make this distinction more clear, past theory and research on balance theory have focused on the psychological discomfort associated with the three-element triad and how that discomfort can cause changes in the evaluations of any one of the components of the triad to restore balance. In contrast, our reasoning suggests that interpersonal attitudinal discrepancy can result in psychological tension being associated specifically with the attitude object itself (i.e., one element in Heider's [1958] classic P-O-X triad). Although this hypothesis has not previously been advanced or tested, the prediction is congruent with the balance theoretical framework. It is also worth noting that prior theories of both interpersonal (e.g., Heider, 1958) and personal (e.g., Festinger, 1957) balance have suggested that these processes should occur more for topics with high importance than for topics with low importance. Thus, balance theory might suggest that the influence of interpersonal attitudinal discrepancy on the psychological experience of ambivalence should emerge more for issues of high importance than for issues of low importance.

Consistency Effects

A third and less interesting explanation for the influence of the perception of interpersonal attitudinal discrepancy on subjective ambivalence follows from consistency pressures or impression management motivation. That is, the effect may have emerged because of individuals' desire to appear consistent to themselves or to others (Tedeschi, Schlenker, & Bonoma, 1971). In Study 1, participants were asked to provide the attitudes of their parents after providing indications of their feelings of subjective ambivalence. It is possible that their responses to their parents' attitudes were influenced by the awareness of how they responded to the subjective ambivalence questions. That is, after expressing evaluative tension, the participants may have demonstrated consistency by reporting that their parents held attitudes inconsistent with their own. In Studies 2 and 3, participants were aware that their respected peers held attitudes different from theirs. This awareness may have influenced their report of subjective ambivalence because the measures were taken very close in time.

Study 4

We conducted our final study to examine the question of which psychological explanation best accounts for the influence of the perception of interpersonal attitudinal discrepancy on the psychological experience of ambivalence. Specifically, we hypothesized that the influence could have resulted from the discomfort associated with disagreement with others (i.e., the agreement effect) or interpersonal attitudinal balance processes. In addition, the balance theory explanation further suggests that the impact of interpersonal factors on ambivalence should be greater for high-importance issues than for low-importance issues.

To distinguish between the agreement and the balance explanations, in Study 4 we manipulated the nature of the relationship of the individual with whom one agreed or disagreed. Specifically, we asked participants to provide the attitudes of both positively and negatively evaluated others. Recall that Balance Theory offers the prediction not only that balance is achieved by agreeing with positively evaluated others but also that balance is achieved by disagreeing with negatively evaluated others. Thus, if interpersonal balance processes account for the effect of interpersonal factors on subjective ambivalence, it should be possible to reverse the effect of interpersonal attitudinal discrepancy when the other individual is negatively evaluated. However, if the influence of interpersonal attitudinal discrepancy stems from the tension associated with the disagreement with others per se (i.e., the agreement effect), the result that the perception of interpersonal attitudinal discrepancy produces feelings of ambivalence should hold even when the other is negatively evaluated. Thus, it is possible to explore the cogency of these two alternative explanations for the results of the first three studies by examining the influence of the perception of interpersonal attitudinal discrepancy for both positively and negatively evaluated others.

To address the question of whether the influence of the perception of interpersonal attitudinal discrepancy emerges more for attitude objects associated with high importance, we asked participants to report how important they believed the attitude objects to be. Thus, the question of whether topic importance moderates the influence found in Study 1 could be directly tested by comparing the influence of the perception of interpersonal attitudinal discrepancy on subjective ambivalence for topics associated with high versus moderate and low importance.

Finally, to address the question of whether the influence of interpersonal attitudinal discrepancy is the result of consistency pressure or impression management motivation, we introduced a 1-week delay. Participants provided all responses except for their report of others' attitudes at one session and then returned 1 week later to provide their assessments of others' attitudes. By separating the measures in time, consistency pressures should be much less salient.

Several results were possible for Study 4. If the impact of the perception of interpersonal attitudinal discrepancy on subjective ambivalence is the result of agreement effect processes, an interpersonal attitudinal discrepancy effect should emerge that is unmoderated by whether the discrepancy is with a liked or a disliked other. If disagreements on important issues are more troublesome than disagreements on unimportant issues, then an Interpersonal Attitudinal Discrepancy × Topic Importance interaction should emerge. If, however, the effect of the perception of interpersonal
attitudinal discrepancy on subjective ambivalence is the result of balance processes, an Interpersonal Attitudinal Discrepancy × Nature of the Interpersonal Relationship × Topic Importance interaction was expected. This three-way interaction would reveal (a) that the perception of greater interpersonal attitudinal discrepancy is associated with increased feelings of ambivalence when the relationship is positive and that the perception of greater interpersonal attitudinal discrepancy is associated with decreased feelings of ambivalence when the relationship is negative and (b) that these effects should be greater for attitude issues that are high rather than moderate or low in importance. Study 4 was also designed to provide another test of whether interpersonal factors contribute to subjective ambivalence above and beyond the traditionally measured positive and negative personal reactions that people have to attitude objects. Finally, if the results of the first three studies are due to consistency pressure, there should emerge no influence of interpersonal attitudinal discrepancy with the introduction of the 1-week delay.

Method

In Study 4, 134 undergraduate business students at the University of Michigan completed booklets similar in nature to the booklets used in Study 1. The administration of the booklets, as part of a laboratory experiment, was conducted such that participants completed the booklets in the following order: personal reactions, subjective ambivalence, issue importance, and attitude indicators. Participants returned for a second session 1 week after the first session and completed the interpersonal perception questionnaire booklet.

Personal Reactions Questionnaire

Participants completed the personal reactions questionnaire to determine their own positive and negative reactions to the attitude objects. This questionnaire was similar in nature to the questionnaire used in Study 1, although the attitude objects were mostly different (see Table 1). Specifically, participants provided responses to two unipolar scales anchored with 0 equal to no positive (negative) thoughts and feelings and 10 equal to maximum positive (negative) thoughts and feelings.

Table 1
Attitude Objects and Importance Ratings for Study 4

<table>
<thead>
<tr>
<th>Attitude object</th>
<th>Mean importance</th>
<th>Topic importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affirmative action</td>
<td>5.2</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Donating your blood</td>
<td>5.3</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Entering an MBA program</td>
<td>6.6</td>
<td>High</td>
</tr>
<tr>
<td>Legalized abortion</td>
<td>6.3</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Listening to presidential debates</td>
<td>4.4</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Telling white lies to your parents</td>
<td>3.0</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Voting for Clinton</td>
<td>4.6</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Voting for Dole</td>
<td>3.4</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Voting in elections</td>
<td>6.3</td>
<td>Moderate-low</td>
</tr>
<tr>
<td>Your boyfriend or girlfriend</td>
<td>6.6</td>
<td>High</td>
</tr>
<tr>
<td>Your mother</td>
<td>9.1</td>
<td>High</td>
</tr>
<tr>
<td>Yourself</td>
<td>8.7</td>
<td>High</td>
</tr>
</tbody>
</table>

Note. For importance, higher scores indicate higher importance. MBA = master of business administration.

Subjective Ambivalence, Issue Importance, and Attitude Indicators

Participants completed a booklet designed to assess subjective ambivalence, importance of the attitude objects, and attitudes toward the objects. Participants completed the three 11-point scales designed to assess subjective ambivalence that were used in Study 1. These scales were anchored with 0 (all one-sided thoughts, feel no conflict at all, and feel no indecision at all) and 10 (completely mixed, feel maximum conflict, and feel maximum indecision). As in Study 1, we combined these measures by averaging the three responses to yield a measure of subjective ambivalence that could vary from 0 (minimal subjective ambivalence) to 10 (maximum subjective ambivalence). Participants completed two 9-point scales for each attitude object to provide an indication of their overall attitude toward each of the objects. These scales were anchored with −4 (unfavorable and negative) and 4 (favorable and positive). The alpha coefficient for these two items was .94. Thus, they were averaged to provide an indicator of the participants’ attitudes toward the objects. Finally, participants indicated how important they believed each attitude object to be by completing an 11-point scale anchored with 0 (not at all important) and 10 (extremely important).

Interpersonal Perception Questionnaire

One week after the first experimental session, participants returned for a second session and completed a booklet designed to assess their perception of interpersonal attitudinal discrepancy with their parents, a liked other, and a disliked other. Participants were instructed that in this booklet they were to supply the responses of others whom they knew, rather than their own responses. Participants were first asked to take a moment to bring to mind the person that you like most in the entire world, other than your family members. This is the person who, above everyone else, you like to spend time with and feel happy when you are with.

Participants were then asked to write the initials of this person. On the following page, they reported the attitudes of this person on 9-point scales anchored with −4 (bad) and 4 (good). Participants then read that they should take a moment to bring to mind the person that you dislike the most in the entire world. This is the person who, above everyone else, you hate to spend time with and feel very unhappy when you are with.

After the participants wrote the initials of this disliked other, they provided indications of the disliked other person’s attitudes on the 9-point scales. Finally, participants were asked to provide their estimation of how they believed their parents felt about the attitude objects on the same 9-point scales.

Results

Data Reduction

Ambivalence and interpersonal attitudinal discrepancy. As in Study 1, the positive and negative reactions were transformed to

15 The data from 3 participants who did not complete all of the measures were dropped, resulting in the data from 131 participants being used in subsequent analyses.

16 The alpha coefficient associated with the subjective ambivalence measure was .83. We also conducted a factor analysis, revealing one factor with an eigenvalue greater than 1 (Factor 1 = 1.9 and Factor 2 = 0.1).
equivalent conflicting and dominant reactions. From these reactions, the ambivalence predicted by the Gradual Threshold Model of Ambivalence was calculated to provide an indicator of the personal antecedents of subjective ambivalence. Also as in Study 1, the absolute value of the difference (i.e., discrepancy) between the attitudes of the participants and their perception of attitudes of the other individual (i.e., friend, enemy, or parents) was calculated to provide an indicator of the perception of interpersonal attitudinal discrepancy. Because both of these attitude indicators were assessed on 9-point scales, the interpersonal attitudinal discrepancy measure could vary from 0, obtained when the two measures were equivalent (i.e., there was no discrepancy), to 8, obtained when one measure was equal to −4 and the other measure was equal to 4 (i.e., there was maximum discrepancy).

Classification of the nature of relationships. The construct of interest that we sought to examine in Study 4 was whether the valence (i.e., positive or negative) of the relationship moderated the impact of the perception of interpersonal attitudinal discrepancy on subjective ambivalence. As such, a question arose as to whether the nature of the relationship variable should be treated as being constituted by three (friend, enemy, and parents) or two (positive and negative) levels. To examine whether any differential influence of parent versus friend existed, we conducted an initial simultaneous regression analysis. This analysis was conducted to determine whether it was justified, for conceptual simplicity, to collapse the parents and friends into one level. This analysis used the dummy-coded participants variable, personal reactions, interpersonal attitudinal discrepancy, topic importance, and the nature of the relationship (for only the parents’ and friend’s responses) as the independent variables and the subjective ambivalence index as the dependent variable. Neither of the key interactions (i.e., Interpersonal Attitudinal Discrepancy × Type of Relationship or Interpersonal Attitudinal Discrepancy × Type of Relationship × Topic Importance) was significant ($F_3 < 1$). These results suggest that there was no difference between the interpersonal attitudinal discrepancy when the other was a parent or a friend. Consequently, we collapsed the parents’ and friend’s responses into one positive level. Thus, in subsequent analyses, the nature of the relationship was constituted by two levels: positive (friends and parents) and negative (enemies).

Data Analysis Strategy

We adopted the following analytic strategy. As in Study 1, we created a participants variable by dummy coding participants, thus allowing for a within-participant analysis. All participants provided their responses (i.e., attitude, subjective ambivalence, personal reactions) to 12 attitude objects. For each of these 12 attitude objects, participants also provided the attitude for the three different types of relationship (from which the interpersonal attitudinal discrepancy measure was obtained)—parents, friends, and enemies. Thus, 36 sets of observations (12 attitude objects × 3 types of relationship) were examined for each participant. For each of these 36 observations, a variable was created by the use of dummy coding to represent whether the relationship was positively evaluated (parents or friends) or negatively evaluated (enemies).

Analyses

To examine whether the influence of the perception of interpersonal attitudinal discrepancy was moderated by the importance of the topic and the valence of the interpersonal relationship, we conducted a multiple regression analysis. The analysis was as follows:

Subjective Ambivalence = Participant + Intrapersonal (Intra) + Interpersonal (Inter) + Relationship (Rel) + Importance (Imp)
+(Intra × Inter) + (Intra × Rel) + (Intra × Imp)
+(Inter × Rel) + (Inter × Imp) + (Rel × Imp)
+(Intra × Inter × Rel) + (Intra × Inter × Imp)
+(Intra × Rel × Imp) + (Inter × Rel × Imp)
+(Inter × Inter × Rel × Imp),

with Participant equal to the dummy-coded participants variable, Intrapersonal equal to the ambivalence predicted from the intrapersonal reactions questionnaire using the Gradual Threshold Model formula, Interpersonal equal to the amount of interpersonal attitudinal discrepancy, Relationship equal to the dummy-coded variable representing the nature of the interpersonal relationship (positive or negative), and Importance equal to the importance rating provided by each participant for each attitude object.

As suggested by Cohen and Cohen (1983), we used a hierarchical approach such that a series of regression analyses increasing in complexity were conducted, interpreting only the highest order terms in each analysis. Thus, we conducted an initial analysis to examine main effects; followed by an analysis examining the main effects and two-way interactions (interpreting only the two-way interactions); followed by an analysis examining the main effects and two- and three-way interactions (interpreting only the three-way interactions); followed by an analysis examining the main effects and two-, three-, and four-way interactions (interpreting only the four-way interaction).

The results of the regression analyses are reported in Table 2. Inspection of Table 2 reveals that, as we expected, intrapersonal reactions predicted subjective ambivalence.\textsuperscript{17} In addition, more ambivalence was associated with more important issues. Of greatest interest, these main effects were qualified by the Interpersonal Attitudinal Discrepancy × Relationship Type × Topic Importance interaction predicted by interpersonal balance processes.

To decompose this three-way interaction, we conducted two separate sets of hierarchical multiple regression analyses, one for high-importance issues and one for moderate or low-importance issues. Recall that we had predicted that the balance processes should occur more for high-importance topics than for low-importance topics. It is important to note that we chose attitude objects that, prima facie, represented a broad spectrum of impor-

\textsuperscript{17} That a main effect for interpersonal attitudinal discrepancy did not emerge is consistent with the notion that the type of relationship may attenuate, or even reverse, the influence.
Table 2
Multiple Regression Analysis Results for Study 4

<table>
<thead>
<tr>
<th>Predictor</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>130,458</td>
<td>10.6</td>
<td>.0001</td>
</tr>
<tr>
<td>Intrapersonal antecedents (Intra)</td>
<td>1,458</td>
<td>1,849.8</td>
<td>.0001</td>
</tr>
<tr>
<td>Interpersonal antecedents (Inter)</td>
<td>1,458</td>
<td>0.7</td>
<td>.4</td>
</tr>
<tr>
<td>Topic importance (Imp)</td>
<td>1,458</td>
<td>169.7</td>
<td>.0001</td>
</tr>
<tr>
<td>Relationship valence (Rel)</td>
<td>1,458</td>
<td>0.8</td>
<td>.8</td>
</tr>
<tr>
<td>Intra × Inter</td>
<td>1,457</td>
<td>1.6</td>
<td>.2</td>
</tr>
<tr>
<td>Intra × Imp</td>
<td>1,457</td>
<td>1.2</td>
<td>.3</td>
</tr>
<tr>
<td>Intra × Rel</td>
<td>1,457</td>
<td>0.4</td>
<td>.5</td>
</tr>
<tr>
<td>Inter × Imp</td>
<td>1,457</td>
<td>4.5</td>
<td>.03</td>
</tr>
<tr>
<td>Inter × Rel</td>
<td>1,457</td>
<td>8.4</td>
<td>.004</td>
</tr>
<tr>
<td>Imp × Rel</td>
<td>1,457</td>
<td>1.6</td>
<td>.2</td>
</tr>
<tr>
<td>Intra × Inter × Imp</td>
<td>1,457</td>
<td>2.4</td>
<td>.1</td>
</tr>
<tr>
<td>Intra × Inter × Rel</td>
<td>1,457</td>
<td>4.9</td>
<td>.03</td>
</tr>
<tr>
<td>Inter × Imp × Rel</td>
<td>1,457</td>
<td>0.4</td>
<td>.5</td>
</tr>
<tr>
<td>Inter × Imp × Rel</td>
<td>1,457</td>
<td>15.4</td>
<td>.0001</td>
</tr>
<tr>
<td>Intra × Inter × Imp × Rel</td>
<td>1,457</td>
<td>6.0</td>
<td>.01</td>
</tr>
</tbody>
</table>

tance. Given such a broad range of topic importance, we chose to examine the influence of inter- and intrapersonal antecedents for high versus moderate and low topic importance. To provide an indicator of topic importance that could be used to separate high-importance and moderate or low-importance topic issues, we calculated the mean importance rating for each attitude object. These importance ratings are listed in Table 1. The analyses for high and moderate or low topic importance attitude objects are reported in Table 3. Inspection of Table 3 reveals that, as we predicted, the critical two-way interaction between the perception of interpersonal attitudinal discrepancy and the nature of the interpersonal relationship emerged only for the high-importance and not for the moderate or low-importance topic issues.

To understand the two-way interaction between the perception of interpersonal attitude discrepancy and the nature of the relationship that emerged for high-importance topics, we examined the impact of the perception of interpersonal attitudinal discrepancy on subjective ambivalence (while controlling for the influence of personal antecedents) for each type of relationship for the high-importance issues. The results of these two analyses are reported in Table 4. Inspection of Table 4 reveals that, consistent with Study 1, for the positively evaluated relationships, there was a positive and significant influence of the perception of interpersonal attitudinal discrepancy on subjective ambivalence (β = 0.17). Table 4 also reveals that this effect of the perception of interpersonal attitudinal discrepancy was significantly reversed when the other was disliked (β = -0.08). Specifically, when the other individual was disliked, greater ambivalence was associated with less attitudinal discrepancy. That is, just as we feel greater evaluative tension (i.e., ambivalence) when we disagree with others whom we like, so too we feel greater evaluative tension when we agree with others whom we dislike.

Inspection of Table 4 also reveals a number of other interactions, but most important, all of the two- and three-way interactions were qualified by a significant four-way interaction among all of the independent variables. To better understand the nature of this interaction, in Table 5 we present the betas associated with the influence of interpersonal attitudinal discrepancy on subjective ambivalence by topic importance, relationship valence, and personal reactions. As one can see in Table 5, the nature of this four-way interaction was that the influence of interpersonal attitudinal discrepancy was moderated by the nature of the relationship and the importance of the topics (as we predicted and explained previously), and in addition, this three-way interaction increased in strength as the amount of ambivalence due to personal factors (conflict between one's own positive and negative reactions to the attitude object) increased. As Table 5 shows, none of the betas that estimated the influence of the perception of interpersonal attitudinal discrepancy on subjective ambivalence associated with topics

18 To examine the cogency of using moderate and low as one category, we examined whether any differential influence of low versus moderate importance was obtained on the hypothesized relationships. We conducted an initial simultaneous regression analysis. This analysis used the dummy-coded participants variable, intrapersonal reactions, interpersonal attitudinal discrepancy, the nature of the relationship, and topic importance (for attitude objects with only low and moderate importance) as the independent variables and the participants’ ambivalence index as the dependent variable. Neither of the key interactions (Interpersonal Attitudinal Discrepancy × Topic Importance or Interpersonal Attitudinal Discrepancy × Type of Relationship × Topic Importance) was significant.

19 Topic importance was categorized on a group level for reasons of statistical analysis. Through the use of topic to provide an indicator of importance, each participant provided equal numbers of observations for each level of importance. That is, each participant provided 12 observations (4 attitude objects × 3 relationships) for the attitude objects with high importance and 24 observations (8 attitude objects × 3 relationships) for the attitude objects with low or moderate importance. As such, it was possible to estimate the interactions between relationship type and other variables. Topic importance was also categorized on a group level because there was considerable agreement in the sample on the importance of the issues.

20 There was no statistical difference in the variance of subjective ambivalence as a function of topic importance (variance = 5.4 for high importance and variance = 5.1 for moderate and low importance).

21 As suggested by the preliminary analyses, this influence of interpersonal attitudinal discrepancy emerged equally for parents, β = 0.22, F(132, 391) = 12.3, p < .0005, and friends, β = 0.25, F(132, 391) = 14.24, p < .0002.
of low or moderate importance were significant, whereas the betas associated with topics of high importance show that the positive influence associated with positively evaluated others and the negative influence associated with negatively evaluated others were strongest for the conditions under which the attitude objects were associated with high conflict among one’s personal reactions. That is, interpersonal factors had an impact only on important issues, and the impact was greater the more ambivalent the person’s own reactions were to the object. When a person felt little ambivalence from personal factors, interpersonal discrepancies were not important. In sum, personal reactions became a moderator of the impact of interpersonal factors on subjective ambivalence only when issue importance was considered (i.e., personal reactions moderated the impact of interpersonal reactions for high- but not for low-importance issues).²²

### Discussion

Our final study was conducted to answer the questions that emerged from Studies 1–3. Recall that three potential psychological processes were advanced to understand the results of these studies. That is, we hypothesized that interpersonal balance, agreement processes, or consistency pressures underlie the impact of the perception of interpersonal attitudinal discrepancies on subjective ambivalence. To compare these explanations, we manipulated the valence of the other individual in a relationship with the participant, and we introduced a 1-week delay to the assessment of others’ attitudes.

As predicted by the interpersonal balance process rather than the agreement effect, the valence of the relationship moderated the influence of the perception of interpersonal attitudinal discrepancy on subjective ambivalence. Study 4 discovered that, as in Studies 1, 2, and 3, disagreement with liked others was associated with accentuated feelings of attitudinal ambivalence. However, Study 4 also found that disagreement with disliked others was associated with reduced feelings of attitudinal ambivalence. Thus, the results of Study 4 replicate the findings of Studies 1–3 and provide evidence that this influence was the result of interpersonal balance processes. The balance account also predicted that the effect of interpersonal attitudinal discrepancy on subjective ambivalence would emerge more for topics associated with high rather than moderate or low importance. The results of Study 4 supported this hypothesis.

### General Discussion

**Interpersonal Influence on Evaluative Tension**

These studies provide support for the existence of a previously unexplored antecedent of subjective attitudinal ambivalence. As we reviewed earlier, numerous prior studies have explored the intrapersonal antecedents of ambivalence, and all available studies have shown that these intrapersonal factors influenced subjective feelings of ambivalence. In the present studies, we found that the perception of interpersonal attitudinal discrepancy influenced the amount of subjective ambivalence above and beyond the influence predicted by models based on personal antecedents of ambivalence. This finding helps, in part, to explain why past research has found that one’s personal positive and negative reactions to an attitude object are only moderately correlated with subjective ambivalence.

In addition, the results of Study 4 provide theoretically informative boundary conditions regarding the influence of the perception of interpersonal attitudinal discrepancy. In short, our findings that this influence is experienced most for high-importance topics

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²² Thus, the two-way interaction of personal and interpersonal factors was not significant in either Study 1 or Study 4.
and that the valence of the relationship moderates whether the influence is positive or negative suggest that the psychological mechanism that is responsible is related to interpersonal balance processes. That is, feelings of evaluative tension are influenced by the psychological processes associated with the desire to agree with liked others and to disagree with disliked others (i.e., Balance Theory).

Previous research on interpersonal balance processes has found that interpersonal attitudinal discrepancy (i.e., imbalance) causes feelings of tension and discomfort with the entire situation (or gestalt). This discomfort has been found to motivate change in any one of the three elements comprising the situation (i.e., one’s attitude toward the issue, one’s attitude toward the other person, or the other person’s attitude toward the issue) so as to restore balance. Thus, past research focused on how interpersonal relationships can be out of balance, how this balance is associated with discomfort, and how this discomfort about the imbalanced situation can produce changes in attitudes. In the present research, we found that interpersonal attitudinal discrepancy can result in tension with respect to one of the individual elements comprising the situation. To be clear, past research focused on the tension associated with the interpersonal system (the triad; e.g., Jordan, 1953), whereas the present research focused on the more specific elemental tension associated with the attitude objects involved in the triad.

As an example, imagine that (a) a son hates his stepfather at the same time that (b) he loves his mother, (c) who at the same time loves her husband (the son’s stepfather). Classic balance theory would predict that such an interpersonal relationship would result in feelings of discomfort in the son and that over time he would come to either like his stepfather or dislike his mother (or convince his mother to dislike or leave his stepfather). The present research suggests that such a situation might result in specific ambivalence experienced toward either the stepfather or the mother. This specific evaluative tension might then attenuate the normal influence of attitude on behavior (vs. a case in which the liking or disliking is not associated with tension). So, in the present example, Hamlet might have been less likely to kill his stepfather (whom he truly disliked) and at the same time have found it difficult to act in a loving manner toward his mother (whom he truly loved) because of his feelings of ambivalence, resulting from perceptions of interpersonal attitudinal discrepancy.

With this new perspective on interpersonal relationships and evaluative tension, several new questions arise. For example, an empirical question arises as to which aspect of the interpersonal relationship will be associated with the heightened feelings of evaluative tension (e.g., because of the interpersonal imbalance, would Hamlet feel more ambivalence directed toward his stepfather or his mother?). It is possible that if an individual is usually in

<table>
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<th>Predictor</th>
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Table 5

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</tr>
</tbody>
</table>
agreement with a specific liked other, an attitude object toward which there is disagreement might assume most of the ambivalence, whereas if an individual is usually in disagreement with a specific liked other, an attitude object toward which there is disagreement might not be particularly ambivalent, but the attitude toward the liked other will instead be associated with the evaluative tension. In sum, our framework suggests that it could be useful to examine the overall tension associated with an imbalanced situation (as in standard balance research; e.g., Jordan, 1953) and also to investigate the extent to which this overall tension is a simple sum of the ambivalence of the component parts or is orthogonal to it. If the tension associated with the situation is dependent on the ambivalence of the component parts, then one can further study the determinants of which elements are primarily responsible for the overall ambivalence (e.g., ambivalence toward one’s mother or stepfather in our example).

We should also note that the present research has focused on the perception of interpersonal attitudinal discrepancy. To wit, Studies 1 and 4 assessed the degree to which individuals perceived that important others agreed or disagreed with them, rather than assessing the actual attitudinal discrepancy by measuring the attitudes of those important others. Although it is likely that actual and perceived interpersonal attitudinal discrepancies are highly related, interesting questions arise as to how actual discrepancy influences perceived discrepancy, particularly as a function of the valence of the relationships. For example, we might perceive discrepancies to be larger than the actual discrepancy for disliked rather than liked others.

**Multiple Antecedents of Evaluative Tension**

Although we have documented a source of attitudinal ambivalence that was not considered by prior models, we do not mean to imply that subjective ambivalence is the result of only personal reactions and the perception of interpersonal attitudinal discrepancies. Rather, the importance of the present research is to provide evidence for an initial extrapersonal antecedent of attitudinal ambivalence. Evidence for this extrapersonal antecedent raises the question of whether other processes might also influence the psychological experience of ambivalence. Several additional antecedents of subjective ambivalence seem theoretically sensible. Preliminary evidence already exists suggesting that additional variance can be accounted for in subjective ambivalence by articulating additional personal factors. McGregor, Newby-Clark, and Zanna (1999) used response latencies to unipolar probes (i.e., how quickly individuals responded to the question of how much they liked and disliked an object) in place of the typical unipolar extremity responses (i.e., how much, from 0 to 4, individuals liked an attitude object). Their results suggested that the accessibility of the personal reactions accounted for additional variance beyond that accounted for only by the extremity of the personal reactions.

Another potential influence on the subjective experience of ambivalence was offered by Priester and Petty (1996). They suggested that individuals may anticipate positive or negative reactions as a function of the magnitude of the personal reactions that they possess. That is, individuals may suspect that there exist unknown negative aspects of an attitude object if they know of only a few positive aspects and may suspect that there exist unknown positive aspects of an attitude object if they know of only a few negative aspects. These anticipated conflicting reactions may also serve as an antecedent of the psychological experience of ambivalence, especially in circumstances in which an individual possesses unipolar ambivalence (i.e., only positive or only negative reactions). More important for the present circumstances is the point that the experience of ambivalence is the result of not just the personal reactions that an individual possesses toward an attitude object. Our studies provide evidence for a social influence on subjective ambivalence. Additional variables, both social and personal, are viable possibilities as additional antecedents to the subjective experience of evaluative tension.

**Future Research**

At least two questions emerged from this research that are worthy of future research. Perhaps the most intriguing question concerns by which set of indicators ambivalence should be conceptualized and measured. As we discussed previously, both ambivalence as measured by intrapersonal reactions and ambivalence as measured by subjective feelings have been able to predict consequences in prior research. One line of reasoning suggests that the intrapersonal reactions approach may be the preferred method in that it relies more on operational processes less likely to be influenced by extraneous factors (Bassili, 1996). It is equally possible, however, that given the multiple antecedents associated with the feelings of subjective ambivalence, the use of a more global construct that directly assesses the feelings of evaluative tension may be more effective in predicting some ambivalence-related attitude phenomena. Thus, in contrast to Bassili’s findings, the present data provide the first indication that there could be conditions under which metameasures rather than operative measures are preferred.

The question of when to use objective versus subjective measures of psychological constructs is not unique to ambivalence. Such a question arises when one considers the influence of knowledge. For example, some researchers have used measures designed to assess the amount of knowledge that individuals objectively possess through such techniques as listing information (e.g., Wood, 1982; Wood, Kallgren, & Prentler, 1985) or quizzes (Lusk & Judd, 1988; Sidanius, 1988; Wilson, Kraft, & Dunn, 1989; Zaller, 1990). Other researchers have used measures designed to assess the extent of subjective feelings of knowledge (i.e., how much knowledge individuals feel they possess; e.g., Davidson, Yantis, Norwood, & Montano, 1985). These different approaches to the assessment of knowledge raise the possibility that objective and subjective knowledge may differ. It is possible that individuals who possess little objective knowledge may nevertheless feel like experts, whereas experts sometimes may feel as if they lack knowledge on an issue. In a similar manner, the objective possession of positive and negative evaluative reactions to an attitude object may differ from the psychological experience of subjective experience. Future research should examine under what conditions each approach provides a more useful assessment of the underlying construct, whether it is knowledge, ambivalence, or the other myriad factors associated with attitudes.

A second question concerns the cultural mechanisms that underlie the experience of ambivalence. Recent research (Peng & Nisbett, 1999) has suggested that the experience of conflict may be culturally moderated, such that conflict between positive and neg-
ative reactions may be more troublesome to individuals from the United States than to individuals from China. Such a finding raises the question of whether the mathematical models that predict feelings of subjective ambivalence based on an individual’s positive and negative reactions can be culturally moderated. That is, individuals from cultures that prefer a balance between positivity and negativity (e.g., China) may experience subjective feelings of ambivalence under very different conditions than individuals from cultures that prefer one-sided reactions (e.g., the United States; also see Bagozzi, Wong, & Yi, 1999). It is also worth noting that the present studies, conducted with students from the United States, revealed that intrapersonal reactions accounted for more variance than interpersonal attitudinal discrepancy. Is it possible that the relative influence of intra- versus interpersonal antecedents on subjective ambivalence differs depending on whether an individual is from an independent or interdependent culture (Markus & Kitayama, 1991)? Future research will tell. It is important that these cultural moderators to the experience of evaluative tension may well provide further information as to the psychological mechanisms underlying such tension.

References


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