
Attitude Importance as a Moderator of the Relationship Between Implicit and Explicit Attitude Measures

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The authors examined attitude importance as a moderator of the relationship between the Implicit Association Test (IAT) and explicit attitude measures. In Study 1 (N = 194), as ratings of attitude importance regarding the 2000 presidential election increased, the strength of the relationship between a Bush-Gore IAT and explicit attitude measures also increased. Study 2 provided a conceptual replication of these results using attitudes toward Coke and Pepsi (N = 112). In addition, across both studies, explicit attitude measures were better predictors of deliberative behaviors than IAT scores. In Study 3 (N = 77), the authors examined the role of elaboration as a mechanism by which attitude importance may moderate IAT–explicit attitude correlations. As predicted, increased elaboration resulted in stronger IAT–explicit attitude correlations. Other possible mechanisms by which attitude importance may moderate the IAT–explicit attitude relationship also are discussed.

Keywords: *implicit attitudes; explicit attitudes; attitude importance*

A long-standing goal of attitude research has been to identify a measure of attitudes that is impervious to self-report biases, social desirability concerns, and social norms (see Fazio, Jackson, Dunton, & Williams, 1995; Jones & Sigall, 1971). In their quest of this objective, researchers have turned to implicit measures of attitudes, which are intended to measure attitudes outside of conscious awareness and control (Fazio & Olson, 2003; Greenwald & Banaji, 1995). In the past decade, there has been a remarkable increase in the number of studies employing implicit attitude measures as researchers continue to develop new measures and to understand their properties (for a complete review, see Fazio & Olson, 2003).

If implicit attitude measures assess the same attitude construct assessed by traditional, explicit attitude measures, then in the absence of self-report biases, social desirability concerns, and social norms, implicit measures of attitudes and explicit ought to correlate strongly. The evidence for this proposition is relatively weak. A number of studies have found evidence for a significant but modest correlation between implicit and explicit measures of attitudes (Kawakami, Dion, & Dovidio, 1998; Lepore & Brown, 1997; McConnell & Liebold, 2001; Nosek, Banaji, & Greenwald, 2002; Wittenbrink, Judd, & Park, 1997). However, there is an equally large body of literature in which little or no correlation has been found between implicit and explicit attitude measures, even under relatively ideal conditions (e.g., see Karpinski & Hilton, 2001; Ottaway, Hayden, & Oakes, 2001).

Despite the large number of studies and articles on the topic, a consensus has yet to be reached regarding the relationship between explicit and implicit attitudes. In their review of the implicit attitude literature, Fazio and Olson (2003) conclude,

We already know enough to be able to say that the question has no simple answer. That is, the answer is “it depends.” . . . We need to be asking a “when” question: When, under what conditions, and for what kind of people are implicit and explicit measures related? (p. 304)

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We agree with Fazio and Olson that rather than investigating whether implicit and explicit attitudes are related, it would be more productive to investigate moderators of the implicit-explicit attitude relationship. It is the search for potential moderators of this relationship that is the focus of this research article.

Specifically, we wish to investigate moderators of the relationship between explicit measures of attitudes and the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). The IAT has quickly become the most identifiable of the implicit measures due to its ease of administration, interpretation, and the attention bestowed on it by media sources. The IAT is a measure of the differential evaluative associations with two attitude objects. The assumption underlying the IAT is that response times will be faster when two associated concepts share the same response than when the linked concepts require different responses (Greenwald & Nosek, 2001). Namely, people will be faster to respond when generally liked items are paired with positive words than when generally disliked words are paired with positive words.

Fazio's (1986, 1990) Motivation and Opportunity as Determinates (MODE) model would appear to be an ideal theoretical framework to identify moderators of the relationship between the IAT and explicit attitudes. In brief, the MODE model suggests that the magnitude of the association between attitudes and behavior measure will depend on the motivation and opportunity to consider one's attitudes. When people have the opportunity and motivation to recollect and consider their attitudes, then consciously held attitudes will guide behavior. However, in situations where people are unable to consider their attitudes or are not motivated to use their attitudes, then consciously held attitudes do not guide behavior. Thus, the MODE model suggests that explicit attitudes may guide and predict conscious, deliberative behavior. Conversely, spontaneous, nondeliberative behavior may be guided by the associations measured by implicit attitude measures such as the IAT (see Fazio & Olson, 2003; McConnell & Leibold, 2001).

Although the MODE model was initially formulated to explain relationships between attitudes and behavior, the MODE model can be easily generalized to explore the relationship between implicit and explicit attitude measures. When applied to the relationship between implicit and explicit attitudes, the MODE model suggests that when people are willing and able to consider and process all attitude-relevant information, then implicit and explicit attitude measures ought to correlate (see Fazio & Olson, 2003). In some situations, however, people may not be willing and/or able to consider all attitude-relevant information. For example, social desirability concerns may prevent people from report-

ing their attitudes on explicit prejudice and self-esteem measures (Asendorpf, Banse, & Mücke, 2002; Greenwald et al., 1998; Greenwald & Farnham, 2000; Wittenbrink et al., 1997) and, as a result, implicit and explicit measures are less likely to correlate. Likewise, if people do not have the time or cognitive resources to consider all attitude-relevant information, then implicit and explicit attitude measures are unlikely to correspond (Dovidio, Kawakami, & Gaertner, 2002). Some support for these MODE-based predictions has been found: Direct or indirect evidence suggests that motivation to control prejudice (Fazio et al., 1995), social desirability concerns (Greenwald & Nosek, 2001; Nosek & Banaji, 2002) and lack of resources to consider all attitude-relevant information (Greenwald et al., 2002) all moderate the relationship between implicit and explicit attitude measures.

Based on the logic of the MODE model, attitude importance is another candidate to be a possible moderator of the IAT-explicit attitude relationship. Attitude importance refers to the subjective sense of concern about an attitude and the psychological significance that an individual attaches to it (Boninger, Krosnick, & Berent, 1995). When an attitude domain is important to an individual, that individual is likely to "selectively seek out information relevant to it, think frequently about the attitude and relevant information, and focus that thinking on the attitude's relation to relevant knowledge and other attitudes" (Bizer & Krosnick, 2001, p. 567). As a result, important attitudes are more stable, more accessible, and more likely to be automatically activated when the attitude object is encountered than unimportant attitudes (Krosnick, 1989; Roese & Olson, 1994).

The IAT and other implicit attitude measures attempt to measure automatic evaluations with an attitude object (Greenwald et al., 1998). If these evaluations are highly accessible, then people are likely to make use of this same information when they construct their explicit attitude judgments (see Wilson & Hodges, 1992). Thus, for important attitudes, implicit and explicit attitude measures may be assessing the same evaluative information. For low important attitude domains, evaluations are less accessible and, as a result, when people construct their explicit judgments, they may call to mind only a (possibly nonrepresentative) subset of the evaluations. In addition, explicit judgments may be more influenced by contextual and situational factors in low importance domains. Consequently, implicit and explicit attitude measures may assess different aspects of a person's evaluative system for attitudes of low importance. Taken together, this reasoning suggests that when people are motivated and have the opportunity to report their evaluations on explicit measures, there will be a greater correspondence between implicit and explicit attitudes for important attitudes than for unimportant attitudes.

There are two main strategies to test the attitude importance moderation hypothesis. The first involves reviewing all attitude domains used in IAT research and rating them in terms of importance. We would predict that across attitude domains, as importance increases, the relationship between the IAT and explicit attitudes should be stronger, and the available evidence is consistent with this prediction (Nosek & Banaji, 2002). However, this approach ignores individual differences in attitude importance. That is, certain attitude domains may be important to some individuals but unimportant to others. For example, the domain of flowers and insects may be unimportant to most people but very important to entomologists. A second approach is to examine these individual differences to see if they moderate the IAT explicit attitude relationship within an attitude domain. Within a single attitude domain, we would expect to find that as importance increases, the strength of the relationship between the IAT and explicit attitude measures would increase as well. By taking into account individual differences in attitude importance, this approach would seem to be better suited to test the attitude importance moderation hypothesis.

STUDY 1

The purpose of Study 1 was to identify an attitude domain that varied in importance within the sample. If attitude importance moderates the relationship between the IAT and explicit attitude measures, then we would expect to find that as attitude importance increases, the correlation between the IAT and explicit attitude measures also should increase. Because Study 1 was conducted in the fall of 2000 (directly preceding the presidential election), we reasoned that in a college sample, there would be a great deal of variability in the importance that the students attached to politics and the upcoming presidential election.

To test the hypothesis that attitude importance moderates the IAT–explicit attitude relationship for attitudes toward presidential candidates, participants completed a Bush-Gore IAT and explicit attitude measures regarding George W. Bush and Al Gore. Participants also indicated how important presidential politics was to them. If attitude importance moderates the relationship between the IAT and explicit attitude measures, then we expected to find no relationship between IAT scores and explicit attitude ratings for people who stated that the presidential election was of low importance. We also expected a strong positive correlation between IAT scores and explicit attitude ratings for people who rated the presidential election as being of high importance, regardless of their party affiliation and candidate preference. Furthermore, by having participants indicate their

intended voting choice, this study also provided an opportunity to examine the relationship between behavior intentions and implicit and explicit measures of attitudes. Based on the MODE model, we expected to find that explicit attitude measures predict intended voting behavior (a deliberate, conscious decision) better than implicit attitude measures.

Method

Participants. One hundred ninety-four students enrolled in an introductory psychology course at the University of Michigan participated in this experiment. All participants received course credit for their participation. Eighteen non-U.S. citizens were excluded from all analyses, resulting in a sample of 176 U.S. citizens who were eligible to vote in the 2000 presidential election.

Procedure. This study was conducted in the 3 weeks preceding the 2000 presidential election between the Democrat Al Gore and Republican George W. Bush. Participants were run in groups of up to five at a time with each participant seated in a separate cubical. The participants first completed a Bush-Gore IAT on a 7200 Power Macintosh computer with a 15-in. monitor (see Table 1 for specific details of the IAT). The categories pleasant and unpleasant and their associated target words were borrowed from Greenwald et al. (1998): pleasant words (*cheer, pleasure, happy, love, and peace*); unpleasant words (*death, filth, jail, murder, and ugly*). Five target words were selected to be representative of the concept Bush: *George, Republican, Texas, governor, and conservative*. Five target words also were selected to be representative of the concept Gore: *Al, Democrat, Tennessee, vice president, and liberal*.

Next, participants completed semantic differential and feeling thermometer measures regarding their attitudes toward George W. Bush and Al Gore. For the semantic differential, participants rated Bush and Gore on five bipolar dimensions: *ugly-beautiful, bad-good, unpleasant-pleasant, foolish-wise, and awful-nice*. Each dimension was rated on a 7-point scale ranging from -3 (*the negative pole*) to $+3$ (*the positive pole*), and participants were instructed to circle zero if the anchoring adjectives were irrelevant to the concept. For the feeling thermometer, participants were asked to rate how positive or negative they found Bush and Gore on a scale from 0 (*extremely negative*) to 100 (*extremely positive*).

In the last section of the questionnaire, participants answered four questions about their interest in and perceived importance of politics and the upcoming presidential election on a 9-point scale. These four items were combined into a single importance item ($\alpha = .89$). All participants then indicated their party affiliation and which candidate they would vote for if the election was

TABLE 1: Study 1: Procedure of the Gore-Bush IAT

<i>Block</i>	<i>No. of Trials</i>	<i>Function</i>	<i>Items Assigned to Left Key Response</i>	<i>Items Assigned to Right Key Response</i>
1	40	Practice	Pleasant words	Unpleasant words
2	40	Practice	Gore words	Bush words
3 ^a	40	Practice	Pleasant words + Gore words	Unpleasant words + Gore words
4 ^a	40	Test	Pleasant words + Gore words	Unpleasant words + Gore words
5	40	Practice	Bush words	Gore words
6 ^a	40	Practice	Pleasant words + Bush words	Unpleasant words + Bush words
7 ^a	40	Test	Pleasant words + Bush words	Unpleasant words + Bush words

NOTE: IAT = Implicit Association Test.

a. There was no break between blocks 3 and 4 and between blocks 6 and 7. Participants experienced them as one continuous block.

TABLE 2: Study 1: Summary Statistics for the IAT and Explicit Attitude Measures by Party Affiliation

<i>Attitude Measure</i>	<i>M</i>	<i>SD</i>	<i>d</i>	<i>t</i>	<i>p</i>
Democrats (<i>N</i> = 91)					
IAT	0.36	0.31	1.17	<i>t</i> (90) = 11.14	<.001
Feeling thermometer	46.48	27.70	1.68	<i>t</i> (90) = 16.01	<.001
Semantic differential	10.65	8.50	1.25	<i>t</i> (90) = 11.96	<.001
Republicans (<i>N</i> = 42)					
IAT	-0.13	0.37	-0.36	<i>t</i> (41) = -2.32	.025
Feeling thermometer	-30.36	35.28	-0.86	<i>t</i> (41) = -5.58	<.001
Semantic differential	-8.46	9.86	-0.86	<i>t</i> (40) = -5.50	<.001
Independent/other party (<i>N</i> = 34)					
IAT	0.05	0.30	0.17	<i>t</i> (33) = 0.99	.332
Feeling thermometer	10.88	26.21	0.42	<i>t</i> (33) = 2.42	.021
Semantic differential	1.56	5.44	0.29	<i>t</i> (33) = 1.67	.105

NOTE: Positive values indicate a bias or preference for Gore over Bush. IAT = Implicit Association Test.

held the day of the study. The participants were then thoroughly debriefed about the experiment and thanked for their participation.

Results

Analysis of the IAT error rate and computation of IAT scores. The data from 8 participants who had an IAT error rate of greater than 15% were removed from all analyses due to the high error rate. For the remaining 167 participants, the error rate averaged 4%, with a range of 0% to 14%.

IAT scores were computed using the newer *D* score algorithm for IAT data (Greenwald, Nosek, & Banaji, 2003). Data from all combined blocks (blocks 3, 4, 6, and 7) were used in the calculation of the IAT effect. Responses longer than 10,000 ms or less than 350 ms were eliminated and error latencies were replaced with the block mean plus an error penalty of 2 times the standard deviation of all correct responses within each stage. The average response times of blocks 3 and 4 were subtracted from the average response times of blocks 6 and

7. This quantity was divided by the standard deviation of all response times within blocks 3, 4, 6, and 7. For the resulting IAT scores, higher numbers indicate a bias for Gore compared to Bush.

The IAT and explicit attitude measures. To examine IAT and explicit attitude scores, the sample was divided by party affiliation. Ninety-one people identified themselves as Democrats, 42 as Republicans, and 34 indicated a third-party affiliation or no party affiliation. Among Democratic participants, a significant IAT bias emerged for Gore compared to Bush, *t*(90) = 11.14, *p* < .001, *d* = 1.17 (see Table 2). These participants also displayed a preference for Gore over Bush on the feeling thermometer and semantic differential measures, *t*s > 11, *p*s < .001, *d*s > 1.24. Among Republican participants, the reverse pattern was observed, although the effect sizes were not as strong (see Table 2). Republicans showed a significant Bush IAT bias, *t*(41) = -2.32, *p* = .03, *d* = -.36. On both explicit attitude measures, Republican participants showed a significant preference for Bush compared to Gore, *|t*|s > 5, *p*s < .001, *|d*|s > .85. For all three measures,

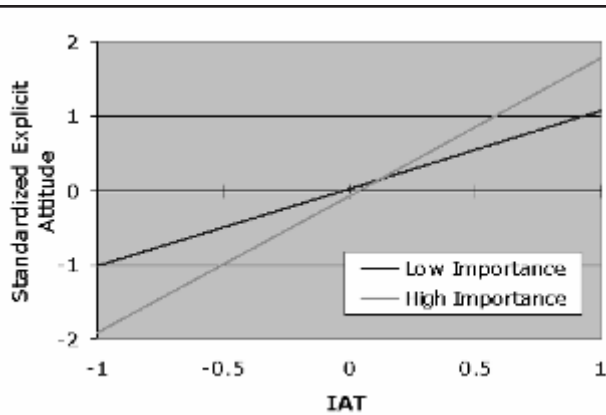


Figure 1 The relationship between the Implicit Association Test (IAT) and explicit attitude measures of the 2000 U.S. presidential candidates for high and low importance participants ($N = 167$).

the responses of Republicans and Democrats differed significantly, $t_s > 8$, $p_s < .001$, $d_s > 1.40$. Finally, for completeness, the participants who indicated either a third party affiliation or no party affiliation also were examined. These participants revealed no IAT bias or semantic differential preference for either candidate, $t_s < 1.68$, $p_s > .10$, $d_s < .30$. However, their feeling thermometer ratings revealed a significant preference for Gore over Bush, $t(33) = 2.42$, $p = .02$, $d = .42$.

The moderating role of attitude importance on the relationship between the IAT and explicit attitudes. Across all participants, the feeling thermometer and semantic differential ratings were highly correlated, $r(164) = .90$, $p < .001$. Thus, these two measures were standardized and averaged to create a single explicit attitude index. Overall, a strong correlation emerged between the IAT and the explicit attitude measures, $r(164) = .61$, $p < .001$. This correlation also was significant, although not as strong for Democrats, $r(89) = .30$, $p = .005$, Republicans, $r(39) = .39$, $p = .012$, and those with an other party preference or no party preference, $r(33) = .44$, $p = .012$.

Next, a test of the moderating role of attitude importance on the IAT–explicit attitude relationship was performed for all participants (see Baron & Kenny, 1986). This analysis revealed a significant IAT \times Importance interaction, $t(162) = 2.62$, $p = .02$, indicating that importance moderated the relationship between the IAT and explicit attitudes (see Figure 1). For the purpose of graphical presentation and follow-up tests, regression lines were calculated for values one standard deviation above and below the mean rating of importance. Follow-up tests revealed a positive relationship between the IAT and explicit attitudes both when importance was low, $r =$

.29, and when importance was high, $r = .60$. The significant Importance \times IAT interaction indicates that the relationship between the IAT and explicit attitude measures was significantly stronger when importance was high than when importance was low.

We have presented this analysis as evidence that attitude importance moderates the IAT–explicit attitude relationship. However, there are (at least) two possible alternative explanations for these results. First, it is possible that as attitude importance increases, all attitude measures correlate more strongly. In other words, these findings may have little to do with the theoretical relationship between implicit and explicit attitudes and more to do with attitude structures in general and how they vary with attitude importance. If this alternative explanation is true, then as attitude importance increases, the strength of the relationship between the semantic differential and feeling thermometer measures also should increase. We examined whether attitude importance moderated the relationship between the semantic differential and feeling thermometer and found no support for this hypothesis, $t(162) = .40$, $p = .69$. Second, it may be the case that attitude extremity, rather than attitude importance, may moderate the IAT–explicit attitude relationship. To investigate this possibility, a measure of IAT extremity was calculated by taking the absolute value of IAT scores, and a measure of explicit attitude extremity was calculated by taking the absolute value of the explicit attitude composite. For both of these measures, higher numbers indicate more extreme attitudes. The test for the moderating effect of attitude importance on the IAT–explicit attitude relationship was repeated, controlling for both implicit and explicit attitude extremity. In this analysis, the IAT \times Importance interaction remained significant, $t(162) = 2.13$, $p = .04$, and the pattern of the interaction (as displayed in Figure 1) was unchanged.

Predicting voting choice. This study also presented an opportunity to investigate the relationship between the IAT, explicit attitudes, and voting choice. Although actual voting choice in the 2000 presidential election was not collected, participants indicated the candidate for whom they intended to vote. A logistic regression to predict voting preferences revealed that the IAT was a significant predictor of intended voting choice, $p < .001$. Similarly, both the semantic differential and the feeling thermometer ratings were significant predictors of intended voting choice when entered into separate regression equations, $p_s < .001$ (see top of Table 3). However, when the IAT, the feeling thermometer, and the semantic differential were entered as simultaneous predictors of voting choice, only the feeling thermometer

TABLE 3: Study 1: Logistic Regression Predicting Voting Behavior

<i>Measure</i>	β	χ^2 WALD	P Value
Each variable in a separate regression			
IAT	4.45	33.52	<.001
Feeling thermometer	0.09	31.45	<.001
Semantic differential	0.39	25.32	<.001
All variables entered simultaneously			
IAT	1.35	1.72	.189
Feeling thermometer	0.61	10.43	.001
Semantic differential	0.33	5.56	.018
Each variable in a separate regression controlling for party affiliation			
IAT	2.34	1.79	.181
Feeling thermometer	0.09	5.40	.020
Semantic differential	0.35	6.82	.009

NOTE: IAT = Implicit Association Test.

and semantic differential ratings predicted the choice, $ps < .02$; the IAT was not a significant predictor of voting choice, $p = .18$ (see middle of Table 3).

Although the IAT by itself did predict voting choice, this finding is potentially misleading. In terms of voting behavior, Democrats tended to vote for the Democratic candidate (in this case, Gore) and Republicans tended to vote for the Republican candidate (in this case, Bush). As a consequence, any measure on which Republicans and Democrats score differently would predict voting behavior. On a Bush-Gore IAT, Democrats tended to show a pro-Gore bias, whereas Republicans tended to show a pro-Bush bias. Likewise, because Democrats tended to have positive IAT scores, whereas Republicans had negative scores, the IAT should, and did, predict voting. In other words, because Democrats and Republicans scored very differently on the IAT, the IAT predicted their voting behavior. But apart from identifying a person as either a Republican or a Democrat, did variability in the IAT explain any variability in voting choice? To investigate this question, we controlled party identification in three separate logistic regressions predicting voting behavior from the IAT and explicit attitude measures (see bottom of Table 3). This analysis revealed that both the feeling thermometer and semantic differential ratings remained significant predictors of voting choice, $ps \leq .02$ but the IAT no longer predicted the choice, $p = .18$.

Discussion

In Study 1, we examined the strength of the relationship between IAT and explicit attitude measures of the 2000 presidential candidates. Overall, a strong correlation was observed between the IAT and the explicit measures, consistent with the findings of Nosek et al. (2002).

However, as predicted, the strength of this relationship was moderated by attitude importance. When presidential politics were rated to be unimportant, a medium-sized relationship between the IAT and explicit attitudes emerged. But when presidential politics were important, then a stronger relationship emerged between the IAT and explicit attitudes.

It is somewhat surprising that a significant, medium-sized relationship was observed between the IAT and explicit attitude measures even among individuals who rated presidential politics as being of low personal importance. However, it may have been the case that in the weeks leading up to the presidential election, presidential politics were at least moderately important to most individuals. At that time, messages regarding the upcoming election saturated the environment, appearing on television and radio advertisements, on news reports, in telephone solicitations, and even in conversations on campus. As a result, a moderate-sized correlation would be expected (and was observed) between the IAT and explicit attitude measures even for "low" importance individuals.

Study 1 also provided an opportunity to examine the relationship between the implicit and explicit measures of attitudes and intended voting choice. Both the IAT and explicit attitude measures individually predicted voting choice intentions. However, only explicit attitude measures uniquely predicted voting intentions, and only explicit attitude measures predicted voting intentions after controlling for political affiliation. Even when political affiliation or IAT scores were controlled, changes in explicit attitude ratings were associated with changes in voting choice. Conversely, the IAT revealed no information beyond party affiliation. Once party affiliation or explicit preferences were controlled, variability in the IAT was not associated with voting choice.

These findings are consistent with the MODE model of the relationship between attitudes and behavior. Because voting choice intentions and behaviors are thoughtful, deliberative processes, we would expect explicit attitude measures to be better predictors than implicit measures of attitudes. Implicit attitudes are expected to be better measures of less conscious, less deliberative behaviors (e.g., see McConnell & Leibold 2001). The only behavior measured in this study was a thoughtful, deliberative decision and, thus, we would expect (and we found) the explicit attitude measures to be the better predictors of this behavior.

STUDY 2

Overall, Study 1 provided strong evidence for attitude importance as a moderator of the relationship between

the IAT and explicit attitude measures. However, this finding may not generalize to other attitude domains. Attitudes toward presidential candidates may be unique from other attitude domains in some important dimension. Some of the strongest IAT–explicit attitude measure correlations reported are in the domain of presidential politics (see Nosek et al., 2002). It is unknown if these results will replicate in other domains, where correlations between the IAT and explicit attitude measures tend to be smaller in size.

The primary goal of Study 2 was to replicate the findings of Study 1 in an attitude domain where the overall strength of the IAT–explicit attitude relationship would be more moderate in size. Studies that have examined the relationship between the IAT and explicit attitudes in consumer domains have tended to find small-to-moderate-sized correlations (Maison, Greenwald, & Bruin, 2001). To investigate the moderating role of attitude importance, we also needed to select an attitude domain that varied in its importance in the college student population. We reasoned that attitudes and associations toward Coca-Cola and Pepsi-Cola products would be appropriate. First, soda is a consumer product so we would expect to find small-to-moderate correlations between a Coke-Pepsi IAT and explicit attitude measures toward Coke and Pepsi. Second, in a college student population, we expected to find a great deal of variability in the personal importance of soda preferences. We expected to find some individuals—people who do not drink soda or who do not distinguish between Coke and Pepsi products—for whom soda attitudes would be relatively unimportant. From personal experience, we also have encountered a number of individuals who consider themselves to be either Coke drinkers or Pepsi drinkers and who act as if they would explode if forced to drink an alternative soda. For these people who have incorporated the soda they drink into their identity, we would expect soda attitudes to be very important.

In Study 2, participants completed a Coke-Pepsi IAT and explicit attitudes of Coke and Pepsi products. To test the key hypothesis that attitude importance moderates the IAT–explicit attitude relationship, participants also completed a measure of soda importance. Finally, participants indicated if they would choose a free Coke or Pepsi product so that we could continue to examine the relationship between the IAT, explicit attitude measures, and behavioral intentions.

Method

Participants. One hundred twelve students enrolled in an introductory psychology course at Temple University participated in this experiment. All participants received course credit for their participation.

Procedure. The participants were tested in groups of up to three individuals at a time. Each participant was seated at a small table containing only a computer. First, the participants completed the Coke-Pepsi IAT on a Gateway desktop with a 1.5 Gz Pentium 4 processor using Medialab and Direct RT software. The IAT procedure was identical to the procedure used in Study 1, with the exception of the target words and concepts. Five target words (*brilliant, diamond, joy, sunrise, and truth*) were chosen to represent the category pleasant and five target words (*awkward, failure, hate, slum, and stink*) were chosen to represent the category unpleasant. The category labels Coke and Pepsi replaced the labels of Gore and Bush, respectively. Pictures, no larger than 2 in. × 2 in., were selected to be associated with Coke and Pepsi. These pictures included the logos and pictures of six packs and 2-liter bottles of regular and diet Coke and Pepsi products.

Next, participants completed semantic differential and feeling thermometer measures regarding their attitudes toward Coke and Pepsi, identical to those used in Study 1 except that the target concepts were changed to Coke and Pepsi. Participants also reported their attitudes toward Coke products and Pepsi products on two-item 6-point rating scales ($\alpha_{\text{Coke}} = .65$ and $\alpha_{\text{Pepsi}} = .77$). For each of the explicit measures, higher numbers indicate more positive attitudes toward Coke and Pepsi products. In addition, a measure of soda preference was computed by subtracting ratings of Pepsi from ratings of Coke such that higher numbers indicated a preference for Coke compared to Pepsi.

To measure soda importance, participants were asked about their soda identity. Participants indicated their agreement or disagreement on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*) to the following questions: “Drinking Coke (and Coke products) is an important aspect of my identity” and “All of my friends know that I am a ‘Coke’ person” ($\alpha_{\text{Coke}} = .67$). These questions were repeated with Pepsi as the target soda ($\alpha_{\text{Pepsi}} = .72$). A measure of soda identity was obtained by averaging ratings of Pepsi identification with ratings of Coke identification. Participants with a soda identity score of 1 ($n = 47$) were labeled as low (soda) importance individuals, and participants with a soda identity score of greater than 1 ($n = 62$) were labeled as being high in soda importance.¹ Individuals in the high importance group reported that Coke and Pepsi were more relevant to their identity than did individuals in the low importance group.

Next, participants answered a behavioral intention question. Participants indicated how they would respond to an offer of a free Coke or Pepsi product (indifference and refusal also were response options). Last, participants were thoroughly debriefed about the experiment and thanked for their participation.

TABLE 4: Study 2: Summary Statistics for the IAT and Explicit Attitude Measures by Soda Preference

Attitude Measure	M	SD	d	t	p
Coke drinkers ($N = 36$)					
IAT	0.19	0.26	0.70	$t(35) = 4.21$	<.001
Semantic differential	6.61	7.98	0.82	$t(35) = 4.96$	<.001
Feeling thermometer	29.03	30.51	0.95	$t(35) = 5.71$	<.001
Rating scale	1.34	1.61	0.84	$t(35) = 5.06$	<.001
Pepsi drinkers ($N = 47$)					
IAT	-0.08	0.37	-0.22	$t(46) = -1.54$.131
Semantic differential	-4.58	5.56	-0.82	$t(46) = -5.64$	<.001
Feeling thermometer	-18.82	18.91	-0.99	$t(45) = -6.75$	<.001
Rating scale	-0.93	1.11	-0.83	$t(46) = -5.70$	<.001
No soda preference ($N = 26$)					
IAT	0.08	0.27	0.30	$t(25) = 1.51$.143
Semantic differential	-0.12	1.58	-0.07	$t(25) = -0.37$.713
Feeling thermometer	-2.92	6.28	-0.46	$t(24) = -2.32$.029
Rating scale	-0.23	0.67	-0.35	$t(25) = -1.77$.090

NOTE: Positive values indicate a bias or preference for Coke over Pepsi. IAT = Implicit Association Test.

Results

Analysis of the IAT error rate and computation of IAT scores.

The data from one participant who had an IAT error rate of greater than 15% were removed from all analyses due to the high error rate. For the remaining 111 participants, the error rate averaged 3.5%, with a range of 0% to 15%. IAT scores were computed using the *D* score algorithm as described in Study 1.

The IAT and explicit attitude measures. Overall, IAT scores revealed no bias for Coke or Pepsi, $M = .04$, $d = .14$, $t(110) = 1.52$, $p = .13$. Likewise, the three explicit attitude measures revealed no overall difference in preference for Coke and Pepsi, $d_s < .04$, $|t|s < 1$, $ps > .73$. The sample was then divided into three groups on the basis of the behavioral intention item into Coke drinkers ($N = 36$), Pepsi drinkers ($N = 47$), and those with no preference ($N = 26$). Within these three groups, the expected differences in soda biases and preferences generally emerged (see Table 4). Coke drinkers displayed a bias for Coke over Pepsi on the IAT, $d = .70$, and a slightly larger preference for Coke on all explicit measures, $d_s > .81$, whereas Pepsi drinkers showed no significant IAT bias, $d = -.22$, but a significant preference for Pepsi on all explicit measures, $d_s < -.81$. Those who indicated no soda preference showed no IAT bias, $d = .30$, and mixed results on the explicit measures, tending toward a Pepsi bias, $-.46 \leq d_s \leq -.07$.

As was found in Study 1, the explicit attitude measures correlated strongly with intercorrelations ranging from $r = .72$ to $r = .88$. Thus, the three measures were standardized and averaged to form a single explicit attitude measure. Across all participants, this measure of explicit soda

preferences correlated significantly with the soda-IAT measure, $r(105) = .29$, $p < .01$. This medium-sized correlation suggests that we were successful in finding an attitude domain with a more moderate IAT–explicit attitude correlation than was observed in Study 1.

The moderating role of attitude importance on the relationship between the IAT and explicit attitudes. In this study, soda importance was measured by assessing the extent to which Coke and Pepsi were part of a person's identity. We reasoned that if the distinction between Coke and Pepsi was integrated into a person's identity, then soda preferences were important to that individual. To examine if attitude importance moderated the relationship between the IAT and explicit measures of soda, we regressed IAT scores, attitude importance, and their interaction on the standardized explicit attitude variable. As expected, this analysis revealed a significant IAT \times Attitude Importance interaction, $t(103) = 1.96$, $p = .05$ (see Figure 2). Follow-up tests revealed that the correlation between the IAT and the explicit attitude measure was stronger for the high importance individuals, $r(59) = .39$, $p < .01$, than it was for the low importance individuals, $r(44) = -.02$, $p = .89$.

As with Study 1, we also examined two alternative explanations for these results. First, it is possible that the moderating effect of attitude importance on the IAT–explicit attitude relationship could be accounted for by the fact that as attitude importance increases, all attitude measures correlate more strongly. To investigate this possibility, we examined all possible pairs of the three explicit measures of soda preferences and tested whether attitude importance moderated any of these relationships. In none of these cases did attitude impor-

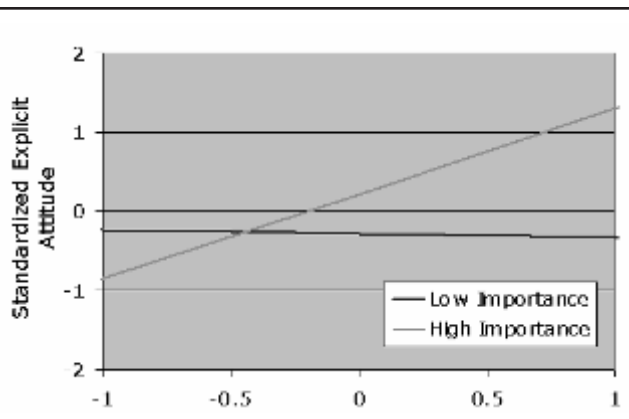


Figure 2 The relationship between the Implicit Association Test (IAT) and explicit attitude measures of sodas for high and low importance participants ($N = 111$).

tance moderate the relationship between the explicit attitude measures, p s $> .35$. Second, self-report measures tend to be more extreme for high than low importance individuals, and attitude extremity could account for the observed effects rather than attitude importance. Measures of extremity were obtained by taking the absolute value of IAT scores and the explicit attitude composite. When these measures of extremity were added to the regression model testing for the moderating effect of attitude importance, the $\text{IAT} \times \text{Attitude Importance}$ interaction remained significant, $t(103) = 2.12$, $p = .04$, and the shape of the interaction (as shown in Figure 2) remained unchanged. Thus, these results provide a conceptual replication of the Study 1 results, indicating that attitude importance moderates the relationship between the IAT and explicit attitudes.

Prediction of behavioral intentions. If offered a free soda, participants indicated whether they would select a Coke product, a Pepsi product, or if they had no preference. Thus, it was possible to examine if IAT scores and explicit attitude preferences predicted the soda selection. For these analyses, only individuals who indicated they would select a Coke or Pepsi product were considered.

First, separate logistic regressions were conducted using the IAT and the explicit attitude measure to predict the choice of a Coke or Pepsi. This analysis revealed that both the IAT, $\chi^2_{\text{WALD}}(1) = 10.79$, $p < .01$, and the explicit attitude measure, $\chi^2_{\text{WALD}}(1) = 10.35$, $p < .01$, significantly predicted the choice of soda. Next, the IAT and explicit attitude measures were entered simultaneously in a logistic regression to predict the choice of soda. Whereas explicit attitudes continued to predict the soda selection, $\chi^2_{\text{WALD}}(1) = 9.51$, $p < .01$, the IAT failed to significantly predict the choice, $\chi^2_{\text{WALD}}(1) = 2.58$, $p = .11$.

IAT scores did not significantly predict the choice of soda above and beyond explicit soda preferences.

Discussion

The results of Study 2 provide a strong conceptual replication of Study 1. First, we found that attitude importance moderated the relationship between a soda IAT and explicit attitudes of sodas. As attitude importance increased, the correlation between the IAT and explicit attitude measures also increased. In this case, a nonsignificant, near-zero IAT–explicit attitude correlation was observed for the low importance individuals; it was only for high importance individuals that any IAT–explicit attitude correlation emerged. Second, although IAT scores predicted the choice of a Coke or Pepsi product, the IAT scores failed to predict the behavior once explicit attitudes were controlled. Explicit attitudes, however, significantly predicted the soda choice, even once IAT scores were controlled. As was found in Study 1 and as was predicted from the MODE model, explicit attitude measures were a better predictor of a thoughtful, deliberative behavior than the IAT measure.

Studies 1 and 2 provide strong evidence that the strength of the IAT–explicit attitude relationship increases as attitude importance increases. However, these studies do not pinpoint an underlying mechanism for this effect. One possibility is that attitude importance may moderate the IAT–explicit attitude relationship through attitude elaboration. Frequent elaboration may lead to chronic accessibility of the evaluative associations, and these accessible associations may be used to construct explicit attitude judgments. Elaboration also may increase IAT–explicit attitude correlations through the automatization of responses to explicit scales or because implicit and explicit processes may be similarly influenced by elaboration (see Nosek & Banaji, 2002). Attitude elaboration was not assessed in Studies 1 or 2; thus, the purpose of Study 3 was to directly test the hypothesis that attitude elaboration is a mechanism by which the strength of the implicit-explicit attitude relationship may be increased.

STUDY 3

We hypothesized that attitude elaboration would result in stronger IAT–explicit attitude correlations. As in Study 2, attitudes toward Coke and Pepsi were selected to be the attitude objects of interest. We randomly assigned participants to elaborate on their soda attitudes or to elaborate on an irrelevant attitude (attitudes toward automobiles) by providing participants with 5 min to write about their attitudes. Participants then completed a Coke-Pepsi IAT and explicit attitudes measures

TABLE 5: Study 3: Summary Statistics for the IAT and Explicit Attitude Measures by Soda Preference and Elaboration

Attitude Measure	No Elaboration (N = 36)		Elaboration (N = 36)		Bonferroni Post Hoc Test for Difference
	M	SD	M	SD	
Soda IAT					
Coke drinkers (N = 25)	0.20	0.34	0.44	0.31	$t(66) = 1.77, p = .22$
Pepsi drinkers (N = 26)	-0.02	0.37	-0.09	0.36	$t(66) = 0.48, p = .95$
No soda preference (N = 21)	0.16	0.35	0.36	0.30	$t(66) = 1.38, p = .49$
Explicit soda preferences					
Coke drinkers (N = 25)	0.45	0.46	0.88	0.67	$t(66) = 1.81, p = .21$
Pepsi drinkers (N = 26)	-0.60	0.50	-0.88	0.81	$t(66) = 0.94, p = .72$
No soda preference (N = 21)	0.19	0.15	0.42	0.50	$t(66) = 1.37, p = .49$

NOTE: Positive values indicate a bias or preference for Coke over Pepsi. IAT = Implicit Association Test.

of soda preferences. If attitude elaboration increases the strength of the IAT–explicit attitude relationship, then participants who elaborated on their soda attitudes ought to display a greater IAT–explicit attitude correlation than participants who elaborated on their attitudes toward automobiles.

Method

Participants. Seventy-seven students enrolled in an introductory psychology course at Temple University participated in this experiment. All participants received course credit for their participation.

Procedure. The participants were tested in groups of up to three individuals at a time. Participants were randomly assigned to the soda elaboration or a control condition. Participants in the soda elaboration condition were handed a sheet of paper and were given 5 min “to explain your attitudes toward Coke and Pepsi.” Participants in the control condition were given similar instructions with automobiles replacing Coke and Pepsi.

Participants then completed the Coke-Pepsi IAT, the semantic differential, and the feeling thermometer measures regarding their attitudes toward Coke and Pepsi, identical to those used in Study 2. As in Study 2, measures of soda preference were computed by subtracting ratings of Pepsi from ratings of Coke. The two explicit measures were strongly intercorrelated ($r = .82$) and thus were standardized and averaged to obtain a composite explicit measure of Coke-Pepsi preference. Participants indicated if they preferred to drink Coke products, Pepsi products, or had no preferences. Last, participants were thoroughly debriefed about the experiment and thanked for their participation.

Results and Discussion

The data from 3 participants who had an IAT error rate of greater than 15% were removed from all analyses due to the high error rate. For the remaining 74 participants, the error rate averaged 2.0%, with a range of 0%

to 10%. In addition, 2 participants failed to complete all the explicit measures, resulting in a complete sample of 72 participants. As in the previous studies, IAT scores were computed using the *D* score algorithm.

Overall, participants in the sample reported no explicit soda bias ($M = .08, d = .09$), $t(71) = .79, p = .43$, but displayed a significant Coke bias on the IAT scores ($M = .17, d = .46$), $t(71) = 3.91, p < .01$. However, once participants were divided into those who preferred Coke products, those who preferred Pepsi products, and those who indicated no preference, expected differences in soda biases and preferences were observed (see Table 5).² Averaging across elaboration, Coke drinkers displayed an explicit and implicit bias for Coke, $ps < .001, ds > 1.07$; Pepsi drinkers reported an explicit bias for Pepsi, $p < .001, d = -1.10$, but showed no significant IAT bias, $p < .39, d = .14$, and participants with no preference displayed an explicit and implicit bias for Coke, $ps < .015, ds > .73$. These results are largely consistent with those of Study 2, with the exception of the participants with no soda preference who reported (at least a trend for) an explicit Pepsi preference in Study 2 but reported a significant explicit Coke bias in this study. There was no significant main effect for elaboration and no significant Elaboration \times Soda Preference interaction for either IAT scores, $F(1, 66) = 2.52, p = .12$ and $F(2, 66) = 1.45, p = .22$, or explicit attitude measures, $F(1, 66) = .87, p = .35$ and $F(2, 66) = 2.54, p = .09$. The nonsignificant interaction for both measures suggested a trend such that elaboration resulted in an extremization of scores compared to scores observed in the no elaboration/control condition.

The main hypothesis of this study was that attitude elaboration would result in a stronger IAT–explicit attitude relationship. A significant IAT–explicit attitude correlation emerged for both the soda elaboration condition, $r(34) = .66, p < .01$, and the control condition, $r(34) = .33, p = .05$. As hypothesized, a directional Fisher’s test for the difference between correlations indicated that the correlation in the soda elaboration condition was significantly stronger than the correlation in the

control condition, $z = 1.82$, $p = .03$. This effect was not an artifact of the inequality in the variances of the explicit attitude measures observed in those with no soda preference. In fact, the difference between correlations between the elaboration conditions was even stronger when those with no soda preference were removed from the analysis, $r_{\text{elaboration}} = .78$, $r_{\text{control}} = .33$, $z_{\text{difference}} = 2.33$, $p < .01$. Furthermore, this result was specific to the IAT–explicit attitude relationship; the correlation between the two explicit measures of soda preference did not increase as a result of the elaboration manipulation, $z = .82$, $p = .21$.

The results of this study provide evidence for one possible mechanism by which attitude importance moderated the IAT–explicit attitude relationship. When attitudes are important, people are likely to elaborate on those attitudes (Bizer & Krosnick, 2001), and Study 3 demonstrated that when people elaborate on attitudes, the strength of the IAT–explicit attitude relationship increased. This result also is consistent with the finding that the completion of explicit attitude measures prior to implicit attitude measures increases the correlation between the measures (Bosson, Swann, & Pennebaker, 2000; but for a contrary view, see Nosek, Greenwald, & Banaji, in press). Completing explicit attitude measures requires participants to think about and elaborate on their explicitly held beliefs, and this elaboration then may guide response on subsequent implicit attitude measures.

GENERAL DISCUSSION

Across two different attitude domains, preferences for presidential candidates and soda preferences, we found that attitude importance moderated the relationship between the IAT and explicit measures of attitudes. As the importance of the attitude domain increased, the strength of the correlation between the IAT and explicit attitude measures also increased. The second main finding in these studies was that explicit attitude measures were consistently better predictors of conscious, deliberative behaviors than the IAT. Explicit attitude measures predicted presidential candidate preferences and soda preferences and continued to do so once IAT scores were taken into account. Conversely, IAT scores also predicted presidential candidate preferences and soda preferences, but these effects fell to nonsignificance once explicit attitude scores were controlled.

The Moderating Role of Attitude Importance

Previous studies examining the moderating factors of the IAT–explicit attitude relationship have looked for differences in the strength of IAT–explicit attitude correlations across a number of attitude domains

(Greenwald et al., 2002; Nosek & Banaji, 2002). For example, Nosek and Banaji (2002) found that for domains in which people are likely to elaborate on their attitudes, a stronger implicit–explicit correspondence was observed than for attitude domains with low elaboration. Such an analysis fails to account for variation of the moderating factors within an attitude domain. In the current studies, when individual differences in importance were measured, these individual differences moderated the IAT–explicit attitude relationship within each attitude domain. Within two very different attitudes domains, we found evidence that as importance of the domain increases, the strength of IAT–explicit attitude correlations also increases.

Attitude elaboration is one possible mechanism by which attitude importance may moderate the IAT–explicit attitude relationship. Attitudes that are important are likely to be elaborated, and this elaboration leads to greater attitude accessibility (Bizer & Krosnick, 2001). As a consequence, elaboration results in a greater correspondence between the IAT and explicit attitude measures (Greenwald & Nosek, 2001; Nosek & Banaji, 2002). In Study 3, a brief, 5-min period of attitude elaboration was sufficient to produce increased IAT–explicit attitude correlations. Although this effect may be temporary (it is doubtful that increased IAT–explicit attitude correlations would still be observed 1 week later), for high importance attitude domains, individuals are likely to frequently elaborate on the attitude dimension, and as a result, the increased IAT–explicit attitude correlations may become more permanent.

Another possible mechanism by which attitude importance may moderate the IAT–explicit attitude relationship is selective exposure to attitude-consistent information and biased information processing (i.e., selective attention, memory, and interpretation). The presence of information that is inconsistent with one's explicit attitudes can produce cognitive dissonance (Festinger, 1957). This dissonance is an aversive state and people will take steps to reduce the conflict between their attitudes and any inconsistent information, but only when an attitude domain is of high importance (Brehm & Cohen, 1962; Festinger, 1964). When a person holds an important attitude, he or she is highly committed to a certain attitudinal position and would not want to receive inconsistent information. Thus, for important attitudes, people may expose themselves only to attitude-consistent information, may attend to attitude-consistent information more than inconsistent information, and may remember attitude-consistent information better than inconsistent information (Berent & Krosnick, 1995; Wood, 1982). As a consequence, the evaluative associations that people receive or perceive with attitude objects in their environment are likely to

match their explicitly expressed attitudes. If implicit attitude measures reflect the associative information in a person's environment (Karpinski & Hilton, 2001; Olson & Fazio, 2004), then stronger IAT–explicit attitude correlations may emerge as a result of the matching that occurs between one's perceptual environment and one's explicit attitudes.

A consequence of an individual's selective exposure to attitude-consistent information and biased information processing for high importance attitudes is that as attitude importance increases, a person is likely to obtain increasing amounts of attitude-consistent information. This information would tend to extremize both implicit and explicit attitudes. For example, a person with important pro-Bush attitudes is likely to seek out pro-Bush information, avoid anti-Bush information, interpret ambiguous information as supporting Bush, and recall more pro-Bush than anti-Bush information. As a consequence of this information, implicit and explicit attitudes are likely to become more extreme, or in this example more pro-Bush. Thus, one would expect to find a positive relationship between importance and attitude extremity. Indeed, a positive relationship between attitude importance and attitude extremity has been found in previous research (Bizer & Krosnick, 2001; Krosnick, Boninger, Chuang, Berent, & Carnot, 1993).

A secondary analysis of the data from Studies 1 and 2 provides evidence for this hypothesis at both the explicit and implicit levels. Because both the explicit attitude composites and the IAT scores were comparative measures with zero indicating neutral attitudes, a measure of attitude extremity was calculated by taking the absolute value of the explicit attitude composites and IAT scores. In Study 1, a positive correlation emerged between attitude extremity and attitude importance for both the explicit attitude measure, $r(164) = .27, p < .01$, and the IAT, $r(165) = .30, p < .01$. Nearly identical results were observed in Study 2: A positive correlation emerged between attitude importance and explicit attitude extremity, $r(105) = .32, p < .01$, and between attitude importance and IAT extremity, $r(107) = .20, p = .04$. These results do not directly test the hypothesis that attitude importance moderates the IAT–explicit attitude relationship via selective exposure to attitude-consistent information and biased information processing but are consistent with this hypothesis.

Although the results of Study 3 and the reanalysis of Studies 1 and 2 are consistent with the hypotheses that attitude importance moderates the IAT–explicit attitude through attitude elaboration and selective exposure to attitude consistent information, attitude importance was not directly manipulated in these studies. This leaves open the possibility of other causal pathways and other

possible mechanisms for this effect. For example, in some cases, attitude elaboration may cause (rather than be the consequence of) attitude importance (Roese & Olson, 1994). Furthermore, other consequences of attitude importance, such as increased accuracy (Krosnick, 1990), increased knowledge about the attitude domain (Bassili, 1996; Preslin, 1996), or some combination of these effects, also may contribute to the moderating effect of attitude importance. Future studies on whether (or how) these factors affect the IAT–explicit attitude relationship will help elucidate the nature of implicit attitudes and their relationship to explicit attitudes.

Predicting Behavior

The second main finding of the current studies is that explicit attitudes were found to be better predictors of intended voting choice and soda choice than IAT scores. For both attitude domains, IAT scores significantly predicted the behavior but became nonsignificant once explicit attitude scores were added to the analysis. A possible limitation of these data is that in both Studies 1 and 2, we did not actually observe behavior; rather, participants self-reported their intended behavior. In these domains (voting and soda preference), it is likely that intentions and behavior are closely aligned. Nevertheless, it is possible that different results may have been obtained if actual behavioral measures had been used.

These findings provide additional validation of the MODE model as a valuable theoretical model to understand the relationship between implicit attitude measures, explicit attitude measures, and behavior. When participants have the time, ability, and motivation to consider their explicit attitudes, explicit attitudes are stronger predictors of conscious, deliberative behaviors and decisions than implicit attitudes. Similarly, explicit attitudes toward apples and candy bars were observed to be better predictors of an apple–candy bar forced choice than an IAT measure (Karpinski & Hilton, 2001). Other studies have supported MODE's complimentary prediction that the IAT is a better predictor of nonconscious, spontaneous behaviors (such as speaking time and speech hesitation) than explicit attitude measures (see McConnell & Leibold, 2001).

Thus, for researchers and practitioners who are interested in predicting behavior from attitudes, our advice is to let the MODE be your guide. If one intends to predict a conscious, deliberative behavior and participants are willing and able to report their attitudes on explicit measures, then there is strong evidence that explicit attitudes can predict the behavior (see also Fishbein & Ajzen, 1974, 1975) and that IAT scores have little predictive value above and beyond explicit attitudes. Conversely, if one intends to predict spontaneous, non-conscious aspects of behavior, then implicit attitudes

measures, including the IAT, may be of greater value in predicting the behavior than explicit attitude measures.

Closing Thoughts

In this article, we focused on the relationship between the IAT, explicit attitude measures, and deliberative behavior. The IAT is one of many implicit attitude measures recently developed. Yet, studies that have examined the relationship between the IAT and other implicit attitude measures have tended to find little or no correlation among these measures (see Fazio & Olson, 2003). Findings such as these suggest the possibility of multiple classes of implicit attitudes, each with their own properties. The current studies have only examined the IAT; the results and conclusions presented here may not generalize to other implicit attitude measures.

The current research provides additional evidence that the relationship between implicit attitudes, explicit attitudes, and behavior is not straightforward. When attitudes are highly important, implicit and explicit attitudes measures correspond strongly and reveal much of the same information. Conversely, when attitudes are unimportant, implicit and explicit attitude measures are relatively independent. Researchers need to be thoughtful in their use of IAT, other implicit attitude measures, and explicit attitude measures. The relationship between the IAT, explicit attitude measures, and behavior may depend on the context, the attitude domain, and/or individual differences. Each of these aspects needs to be considered when using and interpreting any measure of attitude, including explicit attitude measures, the IAT, and other implicit attitude measures.

NOTES

1. The soda identification scores had an unusual distribution that led us to dichotomize attitude importance. If we considered soda importance as a continuous variable, nearly half of the scores were at the low endpoint of the scale and the remaining scores were approximately uniformly distributed across the rest of the scale. This distribution would have given too much influence to the high importance observations and very little influence to each of the low importance observations at the low endpoint. To avoid this problem, we dichotomized attitude importance into high and low importance groups.

2. The elaboration manipulation did not affect the variance of IAT scores, but unequal variances were observed in the explicit attitude scores. Participants with no soda preference in the no elaboration condition displayed less variability in explicit attitude scores than other participants.

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