

Relative Influences of Affect and Cognition on Behavior: Are Feelings or Beliefs More Related to Blood Donation Intentions?

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Abstract. This study tested the relative predictive power of affect and cognition on global attitude and behavioral intention within the tripartite model of attitude structure. Participants ($N = 264$) completed questionnaires that included an item regarding blood donation experience, five semantic differential items, four behavioral intention items, and one global attitude item. Participants were randomly assigned to either an affective or cognitive instruction set for the semantic differential items. As predicted, semantic differentials were more highly correlated with both global attitude and behavioral intention when completed under the affective instructions than under the cognitive instructions. In addition, donors' and non-donors' attitudes on the semantic differential scales were distinguished from one another only when they were elicited under the affective instruction set. Results provide support for the tripartite model of attitude structure. Future research should examine the relative importance of affect and cognition in less emotion-laden domains.

Key words: affect vs. cognition, attitude structure, blood donation

Historically, attitude has been defined in terms of an acquired behavioral disposition (Campbell, 1963), degree of positive or negative evaluation, or “a mental and neural state of readiness ... exerting a ... dynamic influence upon” behavior (Allport, 1935, p. 810). One widespread conceptualization of attitude is the tripartite model (Eagly & Chaiken, 1993). According to the tripartite model, an attitude is comprised of three correlated, but distinct, components: affect, cognition, and behavior. Affective measures of attitude include self-report measures of feelings about attitude objects and physiological measures such as blood pressure and heart rate. Cognitive measures may include beliefs about attitude objects and judged evaluative favorability toward attitude objects. Behavioral indices typically involve self-report measures of past behavior, behavioral intentions, or observations/reports of actual behavior (Fishbein & Ajzen, 1975).

The tripartite model of attitudes has been a popular and enduring conceptualization of attitude, though it has not been endorsed uniformly in the literature. Perhaps the best-known criticisms of the

model have focused on doubts surrounding the existence of strong links between the affective and cognitive components on the one hand and the behavioral component on the other (LaPiere, 1934; Wicker, 1969). Wicker's (1969) paper sparked the consistency controversy, challenging the assumption that people possessed stable, underlying attitudes that influence behavior. Wicker maintained that attitudes were, at best, only weakly related to overt behavior based on an average correlation of .15 between attitudes and behavior in the 42 studies reviewed. Subsequent work illustrated that correspondence between measures is an important moderator of attitude-behavior consistency (Fishbein & Ajzen, 1974; 1975), with larger correlations between attitudes (affective or cognitive) and behavior when both measures refer to the same action, target, context, and time (Fishbein & Ajzen, 1975). More recent models such as the MODE postulated by Fazio (1990) have articulated conditions under which attitudes are good predictors of decisions and behaviors. Similar to the ELM (Petty & Cacioppo, 1986), the MODE model main-

tains that there are two modes of processing, a more effortful processing mode when attitudes are less accessible or motivation is high, and a more automatic default when attitudes are highly accessible and motivation is low (Fazio, 1990; Posavac, Sanbonmatsu, & Fazio, 1997; Schuette & Fazio, 1995).

In addition to the issues surrounding whether affect and cognition are related to behavior, the tripartite model has also been questioned in terms of whether affect, cognition, and behavior are really distinct concepts. McGuire (1985), for example, questioned whether affect and cognition should be considered distinct constructs due to the strong correlations often observed between measures of these components. Few studies have sought to verify the validity of the model. The studies that have investigated the validity of the model (Breckler, 1984; Kothandapani, 1971; Mann, 1959; Ostrom, 1969; Woodmansee & Cook, 1967) typically involved obtaining measures of all three attitude components and then assessing discriminant and convergent validity. While empirical support for the tripartite model has not been consistent, a study by Breckler (1984) provided strong evidence in support of the model. In a study concerning attitudes toward snakes, Breckler (1984) found that the three-component model provided a significantly improved fit over the one-factor model, and that the components were only moderately correlated. Other research has also argued that affect and cognition are distinct components of attitude, implying that affect and cognition may have different influences on behavior (Abelson, Kinder, Peters, & Fiske, 1982; Breckler & Wiggins, 1991; Edwards, 1990; Lavine, Thomsen, Zanna, & Borghida, 1998; Millar & Millar, 1990; Zajonc, 1980).

Even assuming that the distinction between cognition and affect is a clear one, it still remains to be seen how these components differ in their influence on behavior. In a provocative article, Zajonc (1980) argued that feeling and thinking are two independent systems. Contrary to many researchers who have maintained that affective processing occurs only after cognitive processing takes place (Berlyne, 1967; Epstein, 1983; Fiske & Neuberg, 1990; and Lazarus, 1984), Zajonc (1980) contended that affect *precedes* cognition. As an example of this viewpoint, one often "feels" a certain way about an attitude object before one knows anything about it. Zajonc maintained that the affective system is fast, basic, and so inescapable that it might be characterized as the default source of attitudes. The cognitive system, in contrast, is slower and more controlled. Therefore, feelings about an attitude domain may be processed more quickly than our thoughts, thereby dominating our actions and decisions. Subsequent research has demonstrated that affect has a relatively stronger influence on behavior than cognition (Breckler & Wiggins, 1991; Edwards, 1990; Lavine et al., 1998).

In one study, Abelson et al. (1982) assessed affect, cognition, and a global rating of attitude toward presidential candidates. For example, people were asked to decide if George Bush had ever made them feel angry (affect) and later asked to decide how well a given trait described George Bush (cognitive). The global attitude measure was used as an indicator of behavior/behavioral intention due to the fact that it had correlated highly with voting behavior in past research. Abelson et al. (1982) found that the affective measure was a significantly better predictor of global attitude than was the cognitive measure. Although this study provided further support for both the tripartite distinction and the idea that affect might be more closely related to behavior than cognition, it is possible that this outcome could have been due to differential quality of the affective and cognition measures (e.g., perhaps the given trait judgment was not a good measure of the cognitive component).

More recent research has focused on the role that affect and cognition play in attitude change. Millar and Millar (1990) maintained that attitudes are either affectively or cognitively based, depending upon which component may be more salient to particular individuals. For example, one person may possess positive attitudes toward blood donation due to beliefs in social responsibility, while another person might attribute his negative feelings about blood donation due to anxiety. The results of Millar and Millar's study suggested that emotion-laden attitudes were more vulnerable to cognitive attempts at persuasion, while cognitive-dominant attitudes were more vulnerable to emotional persuasion attempts.

Edwards (1990) also posited that one component of attitude (affect or cognition) was dominant, but attributed the difference to how the attitudes were formed. In a study in which she created new affective or cognitive attitudes, Edwards (1990) found a pattern of results different from Millar and Millar's. She found that attitudes formed on the basis of affect were influenced more by affective persuasion attempts, but that attitudes formed via cognitions were equally influenced by affect-based and cognitive-based persuasion. In a related study, Breckler and Wiggins (1991) found that participants' cognitive responses were related to only affect before a persuasion attempt, but related significantly to only thoughts after the persuasion attempt. Although the results of these studies do not fit a consistent pattern, this research clearly indicates that relations among the three components of attitude are complex and that affect and cognition have different influences on behavior.

The differential predictive power of affect and cognition in six behavioral domains was investigated in two studies conducted to gather further support for the tripartite model (Breckler & Wiggins, 1989).

Within each behavioral domain, Breckler and Wiggins (1989) asked participants to evaluate both their beliefs and their feelings on semantic differential items, and also to indicate their opinions on a single global attitude measure. When assessing cognition (evaluation), the instructions asked participants to think about blood donation and to indicate their beliefs about it. In contrast, the affective instructions asked participants to "indicate how blood donation makes you feel," (p. 257). Identical anchors (Bad/Good, Wise/Foolish, Important/Unimportant, Selfish/Unselfish, and Safe/Unsafe) and 7-point scales were used for both affect and cognition items, with participants completing the stems "Blood donation is . . ." (cognition) and "Blood donation makes me feel . . ." (affect). The global attitude was measured by asking participants to rate their attitude toward blood donation using a scale that ranged from -3 (dislike very much) to 3 (like very much), with 0 corresponding to "neutral."

Results from Breckler and Wiggins' (1989) first study supported the tripartite model in that both affect and evaluation had strong correlations with the global measure of attitude, but were not highly correlated with each other. Furthermore, a second study that focused on blood donation attitudes showed that affect was more strongly associated with a scale measuring behavioral tendencies than were beliefs. Breckler and Wiggins' studies provided a strong test of the tripartite model - Study One showed that affect and cognition were distinct constructs which were both related to global attitudes and Study Two showed affect to be a better predictor of behavioral tendencies than cognition.

However, it is worth noting that Study Two employed a within-subjects design. Because participants rated both their feelings and their beliefs about each attitude domain on the same semantic differential scales, the possibility of a demand characteristic exists. Whitley (1996) discussed various participant roles that participants enact, including the good, the negative, and apathetic participant (p. 222). It is possible that "good participants" in Breckler and Wiggins' studies deduced the hypothesis under investigation, compared their relative affect and evaluation in the domains investigated, and reported differences due to a contrast effect. Participants might have responded differently simply because they were asked to consider both feelings and thoughts. One feature of the present study is that it serves as a conceptual replication of the study of Breckler and Wiggins (1989) by using a between-subject design as opposed to a within-subject design. Use of a between-subjects design will likely minimize sensitization effects (Whitley, 1996), and since many behavior change interventions rely on attitude change techniques, it would be useful to know if the success of such inter-

ventions might depend on whether the affective or cognitive component is targeted. If the affective component is more closely related to behavioral intentions, interventions might very well be more effective if they focus on making people feel more positively about blood donation as opposed to providing positive beliefs about donating blood.

The present study was intended to clarify the relative predictive power of feelings and beliefs on behavioral indicators of blood donation. For the purposes of this study, the terms "affect" and "feeling" are used synonymously, and the terms "belief" and "cognition" are used interchangeably. In keeping with Breckler and Wiggins (1989), feelings and beliefs were assessed on identical bipolar scales, and a global measure of attitude toward blood donation was included. In contrast to the research of Breckler and Wiggins' (1989), however, participants responded to either the feeling scale or the belief scale, not both. Our behavioral indicators included reports of past blood donation behavior and behavioral intention measures of the type used in behavioral prediction research (see Ajzen & Fishbein, 1980). Responses were obtained from college students shortly before a campus blood drive, about which the participants were notified and asked to attend. One intention item directly assessed if participants expected to donate blood in the upcoming on-campus blood drive. Behavioral intentions are very important in applied contexts, serving as predictors of or precursors to behavior. If one type of attitude measure is more directly related to intention, it might very well be the case that the same measure would be more highly related to behavior. Thus, professionals interested in predicting blood donation or attempting to change blood donation attitudes or behaviors might want to target the particular attitudinal component most closely associated with intentions.

As a result of the previous literature, we predicted that the affective measure would correlate more highly with the global index of attitude and the behavioral indicators than would the cognitive measure. Also, based on research showing that previous experience can impact on attitude-behavior relations, it was expected that attitude-behavior consistency would improve as participants had greater experience donating blood (Fazio, 1989; Lee, Piliavin, & Call, 1999). Finally, we predicted that method of evaluation (affective vs. cognitive instructions) would interact with donation experience (nondonors vs. blood donation veterans) in determining attitudes. Specifically, we predicted that donors would have significantly more positive attitudes than nondonors in the affective instruction set, whereas evaluations obtained under the cognitive instructions would not distinguish donors from non-donors as well as attitudes elicited via the affective instructions.

Method

Participants

We randomly assigned 264 student volunteers to either the affective or cognitive condition (132 in each). The participants completed the measures in return for credit in a variety of undergraduate classes. Of those participants, one person was omitted because she did not complete the measures, but participants were retained if they provided partial data. Two people failed to complete the semantic differential items, two people failed to complete the behavioral intention items, and six people failed to answer the global attitude question. Participants' mean age was 22.6, and the sample consisted of 179 women and 83 men (demographic data was missing for one person). In addition, the sample was fairly diverse in terms of ethnic background (60.5% Caucasian, 25.1% African-American, 8% Asian, 1.5% Latino, and 4.6% mixed race).

Questionnaire

The questionnaire included demographic questions, one item concerning past blood donation behavior, five semantic differential items, four behavioral intention items, and one global attitude measure. The questionnaires were identical with the exception of the instructions and question stem for the semantic differential items. For these items, participants were asked to focus on either their thoughts or their feelings about blood donation, depending on instruction set condition. The instructions for the task, the semantic differential items, and the global attitude measure pertaining to blood donation were obtained directly from Breckler and Wiggins (1989).

The behavioral intention measures asked participants to indicate how likely they were to engage in certain behaviors related to blood donation and were measured on 7-point scales ranging from (1) extremely unlikely to (7) extremely likely. The intention items were: I would donate blood in the near future; I would donate blood the next time I have an opportunity; I wish to donate blood as soon as possible; and I will give blood at the Student Commons during the blood drive next week.

Design and Procedure

The experimental was a one-way (instructional set: cognitive versus emotional) between-subjects design. In addition, past blood donation experience was also used to classify participants for some analyses. Parti-

cipants completed the questionnaires five to ten days before a large blood drive took place in the central student activity area (the Student Commons). After participants completed the questionnaires, they were given a debriefing form that included the date, time, and location of the blood drive. Furthermore, the experimenter verbally asked participants to donate blood in the blood drive.

Results

After coding the semantic differential items such that higher numbers indicated positive attitude toward blood donation, the items were subjected to a reliability analysis. The reliability for these items was quite good ($\alpha = .85$). Because the reliability for those in the affect condition ($\alpha = .83$) was very similar to the reliability for those in the belief condition ($\alpha = .79$), the semantic differential items were combined into one measure. The internal consistency of the behavioral intention items was also high ($\alpha = .85$), but the reliability for the scale varied depending upon condition (.95 for affect and .76 for beliefs). The scale was much improved for the belief condition when the third item (I wish to donate blood as soon as possible) was removed. Consequently, we combined three items to create the behavioral intention index, yielding an overall reliability of .92, an affect condition reliability of .93 and a cognition condition reliability of .90.

For the item measuring previous donation experience, two categories were created, donors ($n = 110$) and non-donors ($n = 150$). We collapsed the distinction between novice and veteran donors because there were too few participants who had donated blood four or more times (veteran donors).

The correlations among the semantic differential index, the global item, the behavioral intention index, and the donation experience item, both within each condition and overall, are found in Table 1. Participants who attended to their affect reported attitude scores that were significantly more related to the global measure of attitude ($r = .56$) than did those who attended to their cognitions ($r = .34$), $z = 2.18$, $p = .015$ (Weinberg & Goldberg, 1979). In addition, behavioral intention was more highly correlated with the semantic differential attitude measure in the affective condition ($r = .48$) than in the cognitive condition ($r = .29$), $z = 1.78$, $p = .038$. Furthermore, donation experience was more highly related to the semantic differential measure in the affective instruction condition ($r = .36$) than in the cognitive instruction condition ($r = .04$), $z = 2.67$, $p = .004$.

While the previous donation experience variable can serve as a behavioral indicant, it might also impact the relations between attitudes and future beha-

Table 1. Correlations Among Indices of Attitude Under Affective and Cognitive Instruction Sets

| Measure | 1 | 2 | 3 | 4 |
|-----------------------------------------------|---|-------|-------|-------|
| Affective Instructions (<i>n</i> = 131) | | | | |
| 1. Semantic Differential | – | .56** | .48** | .36** |
| 2. Global | | – | .56** | .06 |
| 3. Behavioral Intention | | | – | .25** |
| 4. Donation Experience | | | | – |
| Cognitive Instructions (<i>n</i> = 132) | | | | |
| 1. Semantic Differential | – | .34** | .29** | .04 |
| 2. Global | | – | .50** | .26** |
| 3. Behavioral Intention | | | – | .46** |
| 4. Donation Experience | | | | – |
| Both Instruction Conditions (<i>N</i> = 264) | | | | |
| 1. Semantic Differential | – | .45** | .31** | .15* |
| 2. Global | | – | .52** | .15* |
| 3. Behavioral Intention | | | – | .37** |
| 4. Donation Experience | | | | – |

Note. The semantic differential index was the only measure for which participants were directed to attend to either their beliefs or their feelings about blood donation. * $p < .05$, ** $p < .01$.

vior (Fazio, 1989). To test whether attitude-behavior consistency improved as participants had greater experience donating blood, correlations were computed for each donation group. The semantic differential index and the global item were used as attitude measures, while behavioral intention was used as the behavioral measure. Although blood donors' behavioral intentions were more highly correlated with the semantic differential index ($r = .37$) than were non-donors' intentions ($r = .20$), the correlations were not significantly different from one another, $z = 1.46$, $p = .072$. Similarly, using the global index, blood donors' attitudes were more predictive of behavioral intention ($r = .54$) than were non-donors' attitudes ($r = .45$), but again, the correlations were not significantly different from one another, $z = .89$, $p = .187$.

Finally, a 2×2 analysis of variance (ANOVA) was conducted to determine if method of evaluation (affective vs. cognitive instructions) interacted with donation experience (non-donors vs. donors) in determining responses to the semantic differential items. The predicted interaction was significant, $F(1, 254) = 9.15$, $p = .003$. Specifically, blood donors had significantly more positive attitudes when thinking about their feelings about blood donation ($M = 5.6$) than did non-donors ($M = 4.8$), $F(1, 125) = 18.27$, $p < .001$, but the donors and non-donors were not significantly different from one another in the cognitive instruction condition ($M = 6.2$ and $M = 6.1$, respectively), $F = .177$, $p = .674$. Apparently, the attitudes of donors and non-donors were distinguished only in the affective instruction condition. Results also showed that participants' attitudes as measured

by the semantic differential were significantly more positive in the cognitive instruction condition ($M = 6.1$) than in the affective instruction condition ($M = 5.2$), $F(1, 254) = 55.6$, $p < .001$. While a main effect for donation experience was also found, in that donors were significantly more positive about blood donation ($M = 5.9$) than non-donors ($M = 5.5$), $F(1, 254) = 12.7$, $p < .001$, this effect was significant only in the affective condition as outlined above.

Discussion

With respect to blood donation, results indicated that evaluations obtained on the semantic differential measure (feelings and beliefs), global attitude and behavioral intention were all significantly related to one another. This evidence suggests strong convergent validity of the measures of the different components of attitude. However, the correlations were not strong enough to suggest that these concepts are redundant and the semantic differential measure provided different results depending on the cognitive/affective instruction manipulation, findings that provide discriminant validity.

Results provided support for the first hypothesis. Participants responding in terms of their feelings about blood donation had evaluations that were more highly correlated with the global attitude measure, their intention to donate blood, and donation experience than did those responding in terms of their beliefs about blood donation. Because both global attitude measures and behavioral intention scales have

been highly predictive of actual behavior, these correlations suggest that affect appears to have a stronger link to behavior than do beliefs, at least in the domain of blood donation. Furthermore, the tendency for past donation experience to be more strongly related to affect than cognition offers retrospective support for the greater influence of affect than cognition on blood donation behavior. The fact that this hypothesis was supported using a between-subject manipulation of affective/cognitive instruction set strengthens the existing literature.

Contrary to the prediction that direct experience increases attitude-behavior consistency (Fazio & Zanna, 1981), the present study did not support this hypothesis. Consistencies between attitude and behavioral intention did not improve significantly as people had greater experience donating blood, although the correlations were in the predicted direction. Fazio (1989) has argued that those with direct experience (blood donors in this case) have stronger attitude-behavior correlations than those lacking direct experience (non-donors) because their attitudes are more accessible. One putative explanation for the lack of a previous experience effect in this study is that non-donors might be just as clear about why they *do not* donate blood as donors are about why they *do*. Many non-donors mentioned fear of needles as a reason for why they chose not to donate blood. This "avoidance of pain" motivation of non-donors may be just as accessible an influence on behavior as the advantages that motivate past donors (Fazio, 1989; Oswald, 1977).

Another possible explanation for this finding pertains to the young age of the sample. The mean age of the participants was 22.6, and the most frequent age reported was 19. Because the organization coordinating blood donations at the University required that donors be at least 18 years of age, many of the participants just recently became eligible for participation in blood drives. Consequently, participants' experience levels were relatively low, perhaps weakening the test of the past experience hypothesis.

One limitation that deserves mention is the possibility that the cognitive instruction set (to which participants responded "Blood donation is. . .") caused participants to focus more on the factual properties of blood donation, rather than on their beliefs about it. While this is a possibility, we maintain that the additional instructions ("Please indicate your beliefs about blood donation") were sufficient to prompt participants as to their beliefs.

The final hypothesis, that method of evaluation would interact with donation experience, was supported. While the beliefs of donors and non-donors were not significantly different from one another, donors' feelings were significantly more positive than the non-donors' feelings. Clearly, the affect/cognition

distinction was supported with respect to this prediction. These results seem consistent with Breckler and Wiggins' (1989) findings implicating previous donation experience as a variable that moderates the attitude-behavior relationship.

The results from this study provide further support for the affect/cognition distinction. Although the results were not entirely uniform, the evidence presented here suggests that feelings tend to be more related to people's overall attitude than their beliefs are, at least with respect to the area of blood donation. Due to this finding, researchers should take care to direct participants to attend to their thoughts or their feelings when administering semantic differential items to participants. It is this conclusion that probably has the most important implications for applications to the blood donation area. For example, researchers attempting to determine why people do or do not give blood might want to emphasize that respondents provide their feelings about donating, not just their thoughts about donating. Similarly, attempts to encourage blood donation through persuasion or education might be aided by a focus on affective factors (or feelings) as opposed to cognitive factors because of the stronger link between affect and behavioral intention. Based on our sample, these conclusions are most readily applicable to young people who have not donated blood extensively in the past (never or once). It is possible that these same conclusions might not extend to other groups, such as regular blood donors who are motivated by different factors than those who have not donated blood frequently (Chang, Piliavin, & Callero, 1988; Piliavin, Callero, & Evans, 1982).

Future research should examine the relative importance of affect and cognition in other attitude domains. While we studied only one behavior, blood donation, a behavior that probably engenders a great deal of affect (fear of needles or disease, good feelings about helping others, etc.), it is likely that behaviors vary in terms of whether they are driven more by affect as opposed to cognition. For example, purchasing a computer might very well be related more strongly to beliefs about usefulness and reliability than more affective concerns. Health behaviors, such as a seeking a cancer screening test, are likely to involve a variety of beliefs and feelings and as a result might be predicted better by affect or cognition (or predicted equally well by both) depending on the level of threat, knowledge about the disease, and individual difference factors (e.g., age, risk factors, etc.).

Research should also attempt to ascertain how affect and beliefs pertain to overt indexes of behavior. While the behavioral intention measures used here are usually strongly correlated with behavior (Ajzen & Fishbein, 1980), it would be useful to have empirical evidence supporting the relations between

overt behavior and both affective and cognitive attitude components. In any event, the findings of this study, along with those of Breckler and Wiggins (1989), support the tripartite model of attitudes and have cast doubt on McGuire's (1968) assertion that the components of attitude are so thoroughly interrelated that they are virtually indistinguishable from one another.

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