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On the nature of attitude–behavior relations: the strong guide, the weak follow

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Abstract

This study investigated the role of attitude strength as a moderator variable with regard to the direction of the relation between attitudes and behavior. The hypothesis was tested that strong attitudes guide behavior, whereas weak attitudes follow behavior in accordance with self-perception principles. The study (N = 106) consisted of two sessions. In session 1, attitudes and attitude strength (certainty, importance, centrality) towards Greenpeace were measured. One week later, participants returned to the laboratory (session 2) and were given the opportunity to donate money to Greenpeace. After the participants' decision to donate money or not, attitudes towards Greenpeace were measured again. The results were consistent with the predictions. First, strong attitudes were more predictive of donation behavior than weak attitudes. Moreover, session 2 attitudes of weak attitude participants were influenced by their donation behavior, whereas no such effect was found among strong attitude participants. Finally, strong attitudes were also found to be more stable over time than weak attitudes. The results provide a complete overview of the moderating role of attitude strength with regard to the bi-directional attitude-behavior relationship. Results are discussed in the light of attitude retrieval versus attitude-construction processes. Copyright © 2002 John Wiley & Sons, Ltd.

Do our likes and dislikes guide our behavior, or do they follow from our behavior? Do we first evaluate an object and behave consistently (e.g. David Lynch is a great film director! Let's watch his new movie), or do we first behave in a positive or negative manner towards an object, and infer our attitudes from that behavior (e.g. I have seen nearly all his movies, so I guess I like David Lynch)? The question concerning the directions of the attitude–behavior relationship has intrigued social psychologists for a long time. Without any doubt, there is ample evidence for both causal directions of attitude–behavior relations. Attitudes have been shown to affect various sorts of behavior, including environmental behavior, consumer behavior, voting behavior, contraceptive use, marijuana use, discrimination and

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many others (see for reviews, Eagly & Chaiken, 1993; Fazio, 1995; Kraus, 1995). On the other hand, it has also been demonstrated that attitudes may be inferred from behavior in accordance with self-perception principles (Bem, 1972). These self-perception effects have also been shown in a variety of domains, e.g. environmental behavior (Chaiken & Baldwin, 1981), religious behavior (Salincik & Conway, 1975), and humor (Olson, 1992).

Then, under which circumstances do attitudes influence our behavior and under which are attitudes inferred from behavior? In the present paper we argue that the *strength* of an attitude is crucial in answering this question. In an attempt to clarify the bi-directional nature of attitude–behavior relations, we aim to show that the *attitude → behavior*[1] sequence holds for strong attitudes, whereas a *behavior → attitude* sequence is applicable to weak attitudes.

The question with regard to the nature of attitude–behavior relations leads to the more general question whether attitudes should be conceptualized as mentally represented summary evaluations that can be retrieved from memory (file-drawer model), or, such as recently proposed, as temporary constructions. According to the attitudes-as-temporary-constructions approach, attitudes are construed 'on the spot' on the basis of temporarily accessible pieces of knowledge (Wilson & Hodges, 1992; Schwarz, 2000; Schwarz & Bohner, 2001). Researchers favoring a construal view on attitudes are skeptical with regard to the impact of attitudes on behavior and argue that attitudes are mainly context-dependent and therefore not stable over time (e.g. Schwarz, 2000; Schwarz & Bohner, 2001). Self-perception effects clearly fit the attitudes-as-temporary-constructions model: people may use previous or current behavior in the process of attitude construal. The concept of attitude strength may reconcile these two seemingly contrary perspectives on attitudes: strong attitudes may be retrieved, whereas weak attitudes may be construed on the spot (see also Lavine, Huff, Wagner, & Sweeney, 1998).

Attitude strength is usually defined in terms of attitudinal consequences (Krosnick & Petty, 1995): strong attitudes are persistent over time, resistant to change, and influence information processing and action. In investigating the outcomes of attitudes, researchers have focused on several attributes of attitudes that indicate the strength of an attitude, such as attitude certainty, importance, accessibility, centrality, ambivalence and several others (see for an overview, Petty & Krosnick, 1995).

Why would attitude strength matter? First, if an attitude is strong and easily retrieved from memory, it may affect behavior (Fazio, 1995). On the other hand, if an attitude is weak and inaccessible, it will less likely guide action. Supporting the moderating role of attitude strength in the attitude → behavior relationship, several studies have shown that strong attitudes are more predictive of behavior than weak attitudes (e.g. Fazio & Williams, 1986; Sample & Warland, 1973, see for reviews Kraus, 1995; Petty & Krosnick, 1995).

Second, attitude strength should also matter with regard to behavior → attitude relations. If an attitude is easily retrieved from memory, there is no need to construct an attitude on the spot, for instance, by inferring that attitude from overt behavior (Fazio, 1987; see, however, Krosnick & Schuman, 1988). In formulating his self-perception theory, Bem (1972) speculated that people would only infer their attitudes from their overt behavior when 'internal cues are weak, ambiguous, or uninterpretable' (p. 2). In support for these notions, Chaiken and Baldwin (1981) showed that priming participants' with their own pro- or anti-attitudinal behavior affected weak attitudes (low affective-cognitive consistency), but had no effect on strong attitudes (high affective-cognitive consistency). Additionally, Wood (1982, Experiment 2) showed that environmental attitudes of participants who had little accessible knowledge about the attitude object were more influenced by agreeing to carry out a behavior than participants who were high in knowledge. In this study, self-perception effects were

[1]Because attitude–behavior relations is an ambiguous term with regard to the causal direction, we use 'attitude → behavior' to refer to an attitude–behavior relationship in which the attitude causes the behavior and we use 'behavior → attitude' to refer to an attitude–behavior relationship in which the behavior affects the attitude.

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induced by having participants agree to present a number of pro-environmental arguments to students on the campus and to ask these students to sign a petition.

Both studies support the notion that attitude strength might moderate the impact of behavioral information on evaluative responses. However, in both Chaiken and Baldwin's (1981) and Wood's (1982) research, participants inferred their attitudes on the basis of *behavioral information* that was made salient by the experimenters, rather than their own *actual behavior*. In itself, using actual behavior would provide a more valid demonstration of the behavior → attitude hypothesis, in much the same way as the use of actual behavior is more valid in studying the attitude → behavior relationship than, for instance, a behavioral intention. However, there is also a theoretical reason why it is important to include overt behavior in studying the moderation of attitude strength on self-perception effects. This concern relates to the strength of the behavioral manipulation. The procedures to induce self-perception effects in the studies described were, although elegant, rather subtle. It is conceivable that behavior may also influence strong attitudes, if stronger behavioral manipulations were used, such as explicit, overt behavior. In other words, previous research may have resulted in a moderation of attitude strength because the manipulations used to induce self-perception effects were relatively weak. Previous studies have shown that the influence of overt behavior on attitudes is much stronger than the influence of information (Regan & Fazio, 1977; Wu & Shaffer, 1987). Thus, using overt behavior instead of indirect behavioral information to induce processes of self-perception would provide a stricter test of the influence of attitude strength on behavior → attitude relations. One goal of the present study was to extend the previous studies by investigating the moderation of attitude strength on self-perception effects by using overt behavior.

A second goal of the present study was to provide a complete illustration of the influence of attitude strength on attitude-behavior relations. Thus far, the attitude → behavior and the behavior → attitude link have never been investigated together in one single study. In doing so, we aimed to provide a 'classical example' of the consequences of attitude strength with regard to behavior.

OVERVIEW

The present study consisted of two separate sessions. In a first session, a pre-measure of the participants' attitude and the strength of the attitude towards Greenpeace were assessed. One week later participants were given the opportunity to donate money to Greenpeace in the laboratory. After the participants' decision whether or not to donate money, the attitude was assessed once more. By measuring attitudes before and after the participants' overt behavior, we were able to focus on both the attitude → behavior relation and the behavior → attitude relation within one study. Moreover, we extended previous studies on self-perception, by including money donation as an overt behavior to induce self-perception effects.

We expected both the attitude → behavior and the behavior → attitude relation to be moderated by attitude strength. First, it was hypothesized that strong attitudes would have a greater impact on behavior than weak attitudes. That is, we expected session 1 attitudes to predict donation behavior for participants with strong attitudes, but not (or less so) for participants with weak attitudes. Second, it was predicted that only participants with weak attitudes, but not those with strong ones, would infer their attitudes from their decision to donate money to Greenpeace. More specifically, we expected a positive relationship between behavior and session 2 attitudes for participants with relatively weak attitudes on session 1. Although, a correlation between session 2 attitudes and behavior might also be expected for participants with strong attitudes as well, this effect was expected to be absent after statistically controlling for session 1 attitudes.

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METHOD

Participants

One hundred and six undergraduate students from the University of Nijmegen participated in the study. Members of Greenpeace who did not donate money were excluded from the analysis. These participants ($n = 5$) had a good reason not to donate money, as they already paid membership fees. Participants received 10 Dutch guilders (about 4 US dollars) for their participation.

Procedure

The study was split into two sessions with a one-week interval. In session 1, attitude and strength measures towards Greenpeace were collected via a computerized questionnaire. This questionnaire included these measures for 32 attitude objects among which was Greenpeace. The purpose of the latter and the one-week interval between session 1 and session 2 was to disguise Greenpeace as the target attitude object.

One week later, the participants returned to the laboratory for an unrelated study. When the participants had completed the tasks within this study, they were brought to a room adjacent to the waiting room. There they were paid 10 Dutch guilders in two coins of DFl. 2.50 and 5 separate guilders. Directly after being paid, the participants were told by the experimenter that he was also conducting a small study for Greenpeace. Participants were explained that they could donate money to Greenpeace if they wanted. A collection box was present in the room, and the experimenter made sure that the participant was aware of this. Then the experimenter asked the participant to fill out a small questionnaire including the session 2 attitude measure. Subsequently, the experimenter left the room, leaving the participant behind with the questionnaire and the collection box. After they made their donation (or not) and filled out the questionnaire participants were debriefed, thanked and dismissed.

In order to study self-perception effects it is crucial that the behavior preceded the session 2 attitude assessment. To ensure this order, the first item on the session 2 questionnaire asked for the amount of money that was donated. Previous pilots already indicated that the vast majority of the participants donated money before they turned to the questionnaire. However, by including the money item on the questionnaire participants were virtually forced to make their decision first and (for those who wanted to) to put money in the collection box before they indicated their attitude. Indeed, on random occasions, the experimenter checked from a distance and noted that participants who donated money did so before they completed the questionnaire (which is not surprising since participants had money they had received as payment for participation still in their hands).

Measures

In session 1, participants reported their attitude towards Greenpeace on an 11-point scale (1 = *very negative* to 11 = *very positive*). In addition, four self-reported strength measures were included: 'How certain are you about your attitude towards Greenpeace?' (1 = *very uncertain* to 11 = *very certain*); 'How important is the issue of Greenpeace to you personally?' (1 = *very unimportant* to 11 = *very important*); 'My attitude towards Greenpeace provides a good description of myself' (1 = *totally disagree* to 11 = *totally agree*), 'My attitude towards Greenpeace represents my personal important values' (1 = *totally disagree* to 11 = *totally agree*). These four items were taken from Pomerantz,

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Chaiken, and Tordesillas (1995). They were aggregated into one general strength score for each participant (alpha = 0.76; cf. Lavine et al., 1998).

The questionnaire administered in session 2 consisted of four items. The first item asked for the amount of money the participant had put in the collection box ($M = 0.83$ DFL, $SD = 0.85$). Afterwards, we compared the total amount of the money that was present in the collection box with the total of the self-reported amount of money across all participants. These data matched exactly, indicating that participants had been honest in their responses. Most participants donated either nothing ($n = 42$), or one guilder ($n = 39$). Some participants ($n = 20$) gave more than one guilder with a maximum of DFL 2.50. Based on their behavior, we divided participants into one group who did not donate money and another group of participants who donated money. That is, behavior was coded as a dichotomous variable.

The next two items on the questionnaire asked for membership of Greenpeace and for intention to become a member of Greenpeace, which was irrelevant for the present research. The final item was the second attitude measure. Participants were asked to evaluate the work of Greenpeace on a 1 to 10 scale.

RESULTS

First, in order to determine the moderating role of attitude strength on the attitude → behavior relationship, behavior was regressed on the standardized scores for session 1 attitude and attitude strength, and the attitude × attitude strength interaction term. This analysis resulted in a significant attitude × attitude strength two-way interaction, beta $= 0.23$, $t(97) = 2.35$, $p < 0.03$. Subsequently, simple regression slopes were calculated for strength scores one standard deviation above the mean and one standard deviation below the mean (Aiken & West, 1991). These results indicated a significant relation between attitude and behavior for strong attitude participants, $beta = 0.36$, $t(97) = 2.08$, $p < 0.05$, but not for weak attitude participants, $beta = -0.10$, $t(97) = -0.78$, *ns*.[2]

Second, in order to determine the moderating role of attitude strength on the behavior → attitude relationship, session 2 attitudes were regressed on attitude strength, behavior (coded as –1 and 1), the strength × behavior interaction term, and the session 1 attitude score. This analysis revealed a main effect of behavior, $beta = 0.27$, $t(97) = 3.43$, $p < 0.001$, and session 1 attitudes, $beta = 0.53$, $t(97) = 5.71$, $p < 0.001$, indicating that session 2 attitudes were positively correlated with donation as well with session 1 attitudes. More importantly, the strength × behavior interaction term was also significant, $beta = -0.20$, $t(97) = -2.51$, $p < 0.02$. Again, we used simple slope analyses to show the nature of the strength × behavior interaction. As predicted, among participants with weak attitudes, session 2 attitudes were significantly predicted by behavior, $beta = 0.48$, $t(97) = 4.47$, $p < 0.001$. However, for strong attitude participants, the relation between behavior and session 2 attitudes was not significant, $beta = 0.06$, $t(97) = 0.53$, *ns*.

Third, we also analyzed the moderating role of attitude strength on attitude stability over time. If weak attitudes were changed by behavior, they should also be less predictive of session 2 attitudes. In order to test these ideas, session 2 attitudes were regressed on session 1 attitudes, attitude strength and the attitude × attitude strength interaction term. This regression analysis revealed a main effect of session 1 attitudes, beta = 0.56, $t(97) = 5.43$, $p < 0.001$, and a significant attitude × attitude strength two-way interaction, beta = 0.15, $t(97) = 1.87$, $p = 0.06$. The regression analyses revealed that strong

[2]The use of logistic regression instead of standard regression analyses showed exactly the same pattern of results.

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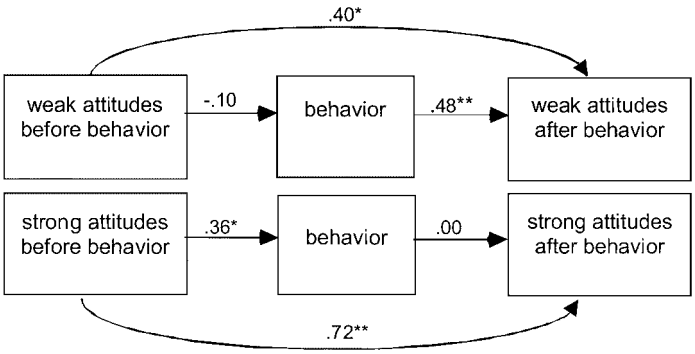


Figure 1. Standardized betas in a regression model depicting the influence of attitude strength on the attitude–behavior behavior–attitude relations
$^{*}p < 0.05$, $^{**}p < 0.01$.

attitudes were more stable over time than weak attitudes, beta = 0.72, $t(97) = 4.85$, $p < 0.001$, and beta = 0.40, $t(97) = 3.40$, $p < 0.01$, respectively.

Figure 1 provides a complete overview of the results. The hamburger-shaped figure illustrates the moderating role of attitude strength on the attitude → behavior relationship: strong attitudes predicted behavior whereas weak attitudes did not. On the right side of the figure the moderating role of attitude strength on the behavior → attitude link is shown: whereas weak attitudes were greatly influenced by behavior, strong attitudes remained unaffected. Finally, the figure also depicts that strong attitudes were more stable over time than weak attitudes.

DISCUSSION

The present study illuminates the role of attitude strength in its relation to behavior and expands the scope of data supporting the influential properties of attitude strength. The current research provided a 'classical example' of the consequences of attitude strength. In one single study three basic consequences of attitude strength were illustrated. Compared to weak attitudes, strong attitudes (1) have more impact on behavior; (2) are less susceptible to self-perception effects; (3) are more stable over time. Such a full analysis with regard to consequences of attitude strength has not been reported to date.

The current study contributed in yet another way. This is the first study showing that attitude strength moderates self-perception effects induced by *actual* behavior. Through the use of actual behavior (in this case money donation), we provided a more valid and strict test of the influence of attitude strength on the behavior → attitude relationship. The present results suggest that the moderation of attitude strength on self-perception effects is not limited to behavioral priming manipulations, but also accounts for potent overt behavioral manipulations.

The present results may have important implications for understanding the nature of the attitude construct. The results suggest that the traditional file-drawer models of attitudes and the model of attitudes-as-temporary-constructions apply to different levels of attitudinal strength. In line with a temporary construction perspective, weak attitudes were strongly influenced by recent donation behavior and were relatively unstable over time. As weak attitude individuals are unable to retrieve an attitude from memory, their attitudes need to be construed on the spot. In this attitude-construal process, individuals rely on information that is accessible at the time. In our case, the evaluative

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meaning of their donation behavior was highly accessible. Therefore, among weak attitude individuals, donation behavior was positively correlated with subsequent attitudes. The results of participants with a strong attitude are much more in line with the traditional file-drawer model. Strong attitudes may be retrieved from memory and influence behavior. The ability to retrieve an attitude from memory lessens the need to construct them on the spot. Therefore, strong attitudes may also be more are stable over time. Recently, Lavine et al. (1998) showed that context effects in surveys were reduced for strong attitudes individuals (see also Hodges & Wilson, 1994). Together with the present results, these findings provide evidence for the idea that the attitudes-as-temporary-constructions approach (Schwarz, 2000; Schwarz & Bohner, 2001) applies for weak attitudes, whereas the file-drawer model applies for strong attitudes.

We assume that ease of attitude retrieval is a crucial component in the effects of attitude strength on behavior and vice versa. However, we should point out that the present study was not directly aimed at investigating the process underlying the moderator effects of attitude strength. Attempts to further examine how attitude strength affects the attitude → behavior relationship and the behavior → attitude relationship seems very valuable. One way to study processes underlying the moderation of attitude strength on self-perception effects is by manipulations of attitude strength (see e.g. Fazio, 1995). Alternatively, one might more precisely measure different dimensions of attitude strength (e.g. Pomerantz et al., 1995) and focus on specialized consequences of these dimensions in relation to behavior. The nature of the dimension that moderates the attitude → behavior relation or the behavior → attitude relation may be informative of the underlying process. Such designs might be used in future research on the nature of attitude–behavior relations.

The discussion about what comes first, the attitude or the behavior, sometimes looks like a 'chicken-and-egg' debate. However, considering the recent models of attitude construction the question is still highly pertinent. Our present argument suggests an answer to this intriguing question: strong attitudes are more likely to affect behavior while weak are more likely to be shaped by behavior. To conclude then, with regard to the nature of attitude–behavior relations, it seems that strong attitudes are the guides, while weak attitudes are the followers.

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