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Predicting Voting Behavior with Implicit Attitude Measures: The 2002 German Parliamentary Election

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Abstract

Implicit measures of attitudes are commonly seen to be primarily capable of predicting spontaneous behavior. However, evidence exists that these measures can improve the prediction of mostly deliberate behavior as well. In a prospective study we tested the hypothesis that IAT measures of the five major political parties in Germany would improve the prediction of voting behavior over and above explicit self-report measures in the 2002 parliamentary elections. Additionally we tested whether general interest in politics moderates the relationship between explicit and implicit attitude measures. The results support our hypotheses. Implications for predictive models of explicitly and implicitly measured attitudes are discussed.

Keywords: political elections, prediction of voting behavior, Single Target Implicit Association Test, implicit-explicit consistency

Predicting Voting Behavior with Implicit Attitude Measures: The 2002 German Parliamentary Election

In recent years psychologists have been witnesses of the development of numerous new measures intended to shed light on the cognitive processes underlying widely studied concepts such as attitudes, stereotypes, or self-esteem. Among the more prominent of these measures are various priming procedures (Draine & Greenwald, 1998; Fazio, Sanbonmatsu, Powell, & Kardes, 1986), or the Extrinsic Affective Simon Task (De Houwer, 2003). One measure in particular has attracted researcher's attention, the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998). The IAT is a latency-based method for the indirect measurement of associations between various concepts. The following example illustrates an evaluative IAT in the political domain (Nosek, Banaji, & Greenwald, 2002a). Two response keys are used to categorize stimuli of four categories: two target categories (e.g., *Bush* and *Gore*) and two attribute categories (e.g., *Good* and *Bad*). If *Gore* can be categorized faster with *Good* than *Bush* with *Good*, a relative implicit preference of *Gore* over *Bush* is assumed.

At first, a good deal of research on and with the IAT has dealt with its general properties (for an in-depth overview see Nosek, Greenwald, & Banaji, in press). One major discussion evolved around the question whether or not IAT measures correspond to explicit self-report measures or not (see Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005, for a meta-analysis). By now several important moderators of this relationship have been identified (Hofmann, Gschwendner, Nosek, & Schmitt, 2005).

In determining the usefulness of a measure for psychological research, its ability to predict behavior is one of the most prominent aims. The MODE model (Fazio & Towles-Schwen, 1999) proposes that in situations when people have the motivation and

the opportunity to deliberately regulate their behavior, they will rely primarily on effortful processing to do so. This effortful processing to some extent resembles the processes involved in explicit self-report measures. On the other hand, when either motivation or opportunity to deliberate are lacking behavior will be guided primarily by less controlled processes which implicit measures try to tap into. Thus implicit measures should be particularly valuable predictors of behavior for situations in which people have limited control over their actions. Several researchers drew on this reasoning and found partial or even complete dissociation patterns in line with the MODE model when they predicted controlled and less controlled behavior by implicit and explicit measures (e.g., Asendorpf, Banse, & Mücke, 2002; Dovidio, Kawakami, & Gaertner, 2002).

However, the MODE model explicitly allows for a mixture of deliberate and spontaneous processes (Fazio & Olson, 2003) such that both contribute to the regulation of behavior to varying degrees. Thus, sometimes implicit and explicit measures contribute additively to the prediction of behavior (Perugini, 2005). Indeed, researchers have found incremental validity of IAT measures over and above explicit self-report measures in several behavioral domains. For the most part, these domains are to be considered primarily controlled behaviors, although it cannot be ruled out that to a lesser degree more impulsive processes may have played a role in the regulation of behavior as well (e.g., alcohol intake, Jajodia & Earleywine, 2003; Wiers, van Woerden, Smulders, & de Jong, 2002). Nevertheless, there is then at least some evidence for the predictive validity of IAT measures for largely deliberate behavior.

One prime exemplar for a deliberate action is political voting. Several researchers have used the IAT to implicitly measure attitudes toward presidential candidates in the U.S.. However, they either did not attempt to predict voting behavior

with the IAT (Nosek et al., 2002a), they lacked adequate sample size to run conclusive analyses on the predictive power of the measures employed (Olson & Fazio, 2004) or they assessed voting intention as a substitute for real voting behavior (Karpinski, Steinman, & Hilton, 2005). We are not aware of any published study using an IAT measure as a predictor and real voting behavior as a criterion.

In a study that was primarily concerned with attitude importance as a moderator of the relationship between explicit and implicit attitude measures, Karpinski et al. (2005, Study 1) assessed the implicit preference for George W. Bush vs. Al Gore. They used the resulting IAT score to predict voting intention for the presidential elections between these two candidates that took place several weeks after the study. The IAT was a highly significant predictor of voting intention in a logistic regression, but became non-significant when the IAT was entered simultaneously with two separate explicit self-report measures. Thus, part of the variance explained by the IAT when entered alone in the regression was shared variance with the explicit attitude measures. In the combined regression analysis at least some of this variance was explained by the explicit measures, leading to a non-significant increment of the IAT in the prediction of voting intention.

Overview

We set out to investigate the predictive power of IAT scores for voting behavior in the 2002 German parliamentary election. In contrast to Karpinski et al. (2005) our study aimed at predicting real voting behavior in the rather complex German parliamentary system, compared to the U.S. system. During three months before the elections we assessed participants' attitudes toward the major political parties in

Germany and asked for their voting intention (first phase). Self-reported voting behavior was collected during two weeks after the election (second phase).

Out of a wide spectrum of political parties, five parties could reasonably be expected to enter the parliament. Two of them were particularly strong, the conservative Christian-democratic and Christian-social alliance (CDU/CSU) and the Social-democratic party (SPD). The Liberals (FDP) and the Green Party (Bündnis90/Die Grünen) attracted considerably fewer voters. After the German reunification, a fifth party entered the spectrum, the successors of the former East German socialist party (PDS).

The original IAT is limited to assess only *relative* preferences of two objects (Greenwald & Farnham, 2000). Given an IAT score one can only infer a preference of one attitude object over the other. That does not mean that the participant's evaluation of the less preferred object is negative per se. More importantly for the present purpose, if one wants to compare the associations toward more than two target categories, relative preferences are not an efficient way to do so. Therefore, for the present research we used the Single Target IAT (ST-IAT, Wigboldus, Holland, & van Knippenberg, 2004). The ST-IAT follows a similar procedure as the original IAT, but it uses only one target category instead of two. If response latencies are faster when categorizing the target category with a positive attribute category than with a negative attribute category, a positive association toward this target concept is assumed.[1]

Our hypotheses were as follows: Drawing on an additive model of explicit and implicit attitude measures we expected the respective ST-IAT to show incremental predictive validity in the prediction of self-reported voting behavior over and above an explicit self-report measure for the five parties.

As a supplement we investigated a second hypothesis. In their first study Karpinski et al. (2005) found attitude importance to moderate the relationship between explicit and implicit attitude measures of George W. Bush and Al Gore. The relationship was closer when attitude importance (interest and perceived importance of politics and the upcoming elections) was high than when importance was low. We sought an extension of this finding to five different political parties with a different sample in another country.

Method

Participants

All data collection was carried out on the Internet for two reasons. First, most participants value the perceived anonymity on the Internet when sensitive domains such as political attitudes are concerned (Nosek, Banaji, & Greenwald, 2002b). Second, we aimed at recruiting a larger and more representative sample than a lab study would have allowed.

Participants were recruited by a multi-modal strategy (banners and hyperlinks on Web pages of universities, political parties and Web labs; emails and newsgroup postings; search engine entries; flyers; newspaper articles; television broadcasts; and radio interviews). 10,063 Internet users started the examination, many of whom were probably looking for general information regarding political parties and the election. 8527 users started taking the ST-IATs and 4296 users completed the whole sequence. After checking for technical quality, such as double participation, missing data, and self-reported low quality of data (1456), we filtered for under age participants, insufficient knowledge of German, non-eligible voters, and missing informed consent (284). Thus, we were left with 2556 complete data sets in the first phase (retention rate

of 25% – a typical figure in Web-based research, but quite high, given the length of the examination). Hence, on the whole the sample decreased as expected within the course of the study, probably due to loss of motivation, technical problems, or other disturbances such as self-reported disruption by other persons during participation (see below). 1753 of these participants (69%) returned for the second phase. Their data were allocated according to anonymous codes supplied within the first phase. For the main analyses, we excluded participants who either supplied no voting intention or did not vote in the actual elections leading to 1548 data sets. On average, our sample was older than typical student populations (M_{age} = 31.48 years, SD = 11.47), and male participants preponderated (67.7%). Control questions indicated educational diversity of participants, comprising a great variety of academic and non-academic professions. The sample was highly representative in terms of regional provenance. The proportions of participants stemming from each of the 16 German states resembled the proportions in the population, thereby including the relative amount of participants coming from the eastern or western part of Germany, respectively.

As a gratification, we supplied a lottery of 15 vouchers for an Internet-media-shop (worth 10 € each) for participants in the first phase and raffled a city tour (value 100 €) among respondents in the second phase.

Procedure and Materials

The study split into two phases, one period of three months before and one period of two weeks after the German parliamentary elections (September 22nd, 2002).

First phase. After some initial information about the study purpose, the second Web page requested comprehensive socio-demographic data. On the third page, we requested the *explicit attitude measure* for all five parties presented in one fixed order as

one unitary block of questions (CDU/CSU, SPD, GREEN, FDP, PDS; "How do you evaluate the following parties *overall*?"; 8-point rating scale ranging from "very negative" to "very positive") as well as *voting intention* ("Whom will you vote for in the German parliamentary elections on September 22nd, 2002?"; response options: CDU/CSU; SPD; FDP; GREEN; PDS; other party; I don't know yet; I will not vote; I will cast an invalid ballot; I will not be allowed to vote). Also, we assessed an item relating to attitude importance, *general interest in politics* ("How much are you interested in politics *in general* besides the parliamentary elections?"; 8-point rating scale ranging from "very interested" to "very uninterested"). Moreover, we asked some other questions not relevant for the present purpose.

Next, we assessed the implicitly measured attitudes toward the parties with the ST-IATs that are described below.[2] Succeeding questions asked participants about multiple participations and their impression about the quality of their generated data (due to disturbances in any way, interruption of the session, or loss of motivation during the course of the assessment). We also checked for substantial experience with the IAT, and asked for an email-address (for the invitation to take part in the second phase of the study) that was stored separately from the participants' data, an anonymous code (consisting of letters and numbers related to participant's personal background and family), plus informed consent regarding the use of the anonymized data. A final page provided background information, feedback on the sample's average results of the ST-IATs as well as hyperlinks to further resources of Internet research, the IAT and supporting web pages. Participation in the first phase of the study took about 20 minutes.

Second phase. After the election, participants received an email with an invitation to participate in the second phase of the study, in which they were to answer a 1-minute questionnaire. Participants logged in with their code and supplied an answer to the main dependent variable, *voting behavior*: "Which party did you vote for in the German parliamentary elections 2002?". Possible answer categories were: CDU/CSU; SPD; FDP; GREEN; PDS; other party; I did not vote; I cast an invalid ballot; I was not allowed to vote. After some control questions, participants had the chance to receive their individual ST-IAT results and to voluntarily take part in a retest of the ST-IATs (results reported in Bluemke & Friese, 2006b).

ST-IATs. The ST-IATs were programmed as a Java Applet for a client-sided measurement of response latencies. Participants received 20 training trials for the evaluative words. Each ST-IAT consisted of two combined blocks of trials, one block in which party stimuli and negative stimuli had to be sorted on one response key of the computer keyboard (and positive stimuli to another key). The second block coupled party and positive stimuli (and left the other response key solely for negative stimuli). The respective task was explained to participants before each block started, and the category labels remained visible on top of the screen. Each evaluative category was represented by five different positive and negative words, respectively. Political parties were represented by five stimuli as well. We used the official party emblem together with photos and names of well-known party members that enjoyed a high presence in the media during the election campaign (cf. Appendix). Each block consisted of 35 trials in which a stimulus was chosen from the stimulus lists with each stimulus presented at least twice. Although each ST-IAT employed only three categories, the proportion of left-hand and right-hand responses was held approximately equal (4:3 in

one combined block and 3:4 in the other combined block). After making a categorization error, a red cross was displayed until the correct response was given.

Because we were interested in interindividual differences, we used a fixed random order of stimulus presentation for all participants in each ST-IAT (cf. Egloff & Schmukle, 2002), thereby keeping task-switching costs constant (cf. Mierke & Klauer, 2001). The five ST-IATs were administered in randomized order. In addition, we controlled for the side on which the first party was presented (right or left response key) and whether it was coupled with positive or negative first.[3]

Results

Data Preparation

In line with earlier IAT research, we discarded error trials and recoded latencies faster than 300 ms and slower than 3000 ms to the respective values. After calculating the mean and the standard deviation of the reaction times across all five ST-IATs for each participant, we *z*-standardized the latencies individually, thereby adjusting for interindividual differences in response latency level and latency variation (see Bluemke & Friese, 2006a). This standardization is similar to the *D*-algorithm proposed by Greenwald, Nosek, & Banaji (2003), but does not use error penalties. We omitted 10.6% of the participants, because they committed 20% errors or more in at least one of the ten blocks of the ST-IATs, leaving 1386 subjects for all the analyses related to ST-IATs. Mean error rate was 3.9%. An inspection of the trial latencies indicated that the first trial of each block deviated strongly from the general mean (*z*-values > 1.0). The first trial was therefore dropped in each block. ST-IAT effects were defined as the difference between the mean latency in the party + negative and party + positive block. A negative ST-IAT effect indicates that a participant responded faster to a political

party and negative words than to the same political party and positive words, which can be interpreted as an unfavorable spontaneous reaction to the respective party.

We used the fivefold nominal variables voting intention to calculate five separate binary variables indicating whether or not a participant intended to vote for a specific party or not. A similar procedure was applied to the variable voting behavior. In addition, we z-standardized all continuous variables, namely the five explicit attitude measures, the five ST-IATs and the variable general interest in politics.

Reliability of the ST-IATs

For each ST-IAT, we calculated the odd-even reliability based on the item-wise latency differences between the two combined blocks. This led to the following Spearman-Brown-corrected reliability estimates for the CDU/CSU (r_{tt} = .76), FDP (.66), SPD (.71), GREEN (.68), and PDS ST-IAT (.67).

Prediction of voting behavior

To test our first hypothesis that the ST-IATs show incremental predictive validity over and above a self-report measure, we followed a threefold strategy. First, similar to Karpinski et al. (2005), we regressed voting intention on the explicit attitude measure and the ST-IAT for each party separately. In a second step we regressed self-reported voting behavior on the same variables. In a final third step, we predicted voting behavior with voting intention and the ST-IAT. This last analysis was intended to be the strictest test of the hypothesis, because voting intention can be assumed to be even more closely related to real voting behavior than the sole explicitly measured attitude toward a particular party (Fishbein & Ajzen, 1975).

Step 1: Voting intention, explicit attitude measure, and ST-IAT. In five binary logistic regressions we predicted the intention to vote for a particular party or not with

the explicit attitude measure of this party and the respective ST-IAT (see Table 1).[4] The explicit attitude measures were strong predictors of voting intention. The ST-IATs were somewhat weaker predictors, but still highly significant in four out of five cases. The FDP ST-IAT showed only marginally significant incremental validity.

Step 2: Voting behavior, explicit attitude measure, and ST-IAT. In a second step, the explicit attitude measure of a party and the respective ST-IAT served as predictors of self-reported voting behavior (see Table 2). A similar pattern emerged as the one found in step 1. The explicit attitude measures were strong predictors of actual voting behavior. Still, all five ST-IATs showed incremental predictive validity.

Step 3: Voting behavior, voting intention, and ST-IAT. In a last step, we used the intention to vote for a particular party and the respective ST-IAT to predict voting behavior. In these regressions, we expected voting intention to be particularly closely related to voting behavior (Fishbein & Ajzen, 1975). The data presented in Table 3 show evidence for this expectation. The intention to vote for a party is a strong predictor of self-reported voting behavior as indicated by very high values for the *WALD* criterion for all five voting intentions. Nevertheless, all five ST-IATs turned out to improve the prediction significantly.

General interest in politics as a moderator of the relationship between the explicit attitude measures and the ST-IATs. Analogous to the findings by Karpinski et al. (2005) relating to attitude importance we expected general interest in politics to moderate the relationship between explicit attitude measures and the ST-IATs.[5] Using multiple linear regressions, we regressed the standardized explicitly measured attitude on the corresponding ST-IAT, interest in politics and the interaction between these two variables for each party (Baron & Kenny, 1986). For all five parties, the respective

interaction terms were significant (CDU: $t(1564) = 2.40$, $p = .017$; FDP: $t(1564) = 5.10$, $p < .001$; SPD: $t(1564) = 4.09$, $p < .001$; GREEN: $t(1564) = 2.72$, $p < .007$; PDS: $t(1564) = 2.03$, $p < .042$). We calculated separate regression lines for values one standard deviation below and one standard deviation above the mean rating of interest in politics. These analyses indicated higher correspondence between the explicit measure and the respective ST-IAT for participants with higher interest in politics (CDU: $\beta_{low} = .43$ vs. $\beta_{high} = .54$; FDP: $\beta_{low} = .23$ vs. $\beta_{high} = .47$; SPD: $\beta_{low} = .26$ vs. $\beta_{high} = .46$; GREEN: $\beta_{low} = .35$ vs. $\beta_{high} = .49$; PDS: $\beta_{low} = .30$ vs. $\beta_{high} = .41$). Thus, we conceptually replicated the findings by Karpinski et al. (2005) with general interest in politics as a moderator instead of attitude importance.

Discussion

Drawing on additive models of the relation between explicit and implicit measures of attitudes on the prediction of behavior, we expected independent ST-IATs of the five major political parties to improve the prediction of voting behavior in the 2002 German parliamentary elections. In a large-scale Internet study we found evidence for these expectations. First, incremental validity was revealed over and above an explicit attitude measure in the prediction of the intention to vote for a particular party. In a second step the same pattern was found for the prediction of self-reported voting behavior. Finally, all five ST-IATs improved the prediction of voting behavior over and above voting intention. In each step, five independent analyses formed this pattern, one for each party.

With a second hypothesis we sought a conceptual replication of Karpinski et al.'s (2005) finding of the moderating role of attitude importance on the relationship between explicit and implicit attitude measures. Using general interest in politics as a

moderator we found evidence for the hypothesis independently for all five different parties. Higher interest in politics went along with a higher relationship between the explicitly measured attitude toward that party and the respective ST-IAT.

A closer inspection of the *WALD* criterions in table 2 reveals that the value of the explicit attitude measure of the PDS is quite strong, but it is the least dominant one compared to the other parties. At the same time, the PDS ST-IAT shows the highest value for the *WALD* criterion among the five ST-IATs. At the time of this study the PDS was still frequently associated with its predecessor, the negatively viewed socialist party SED in the former German Democratic Republic. Speculatively, social desirability concerns might have played a role during the assessment of the explicit attitude measure for this party, but less so for the largely automatic measurement with the ST-IAT. Yet, this argument would only hold if social desirability played a weaker role when asking for actual voting behavior after the election. Thus, this finding remains somewhat inconclusive and awaits further research.

The present data are encouraging with regard to the ST-IAT as a new implicit measure in social cognitive research. All five ST-IATs exhibited satisfactory reliability, which is remarkable given the specific conditions in this study. Every participant completed five ST-IATs in random order, and each combined block contained only 35 stimuli. This number is rather low compared to other IAT research. It is due to our striving for keeping the procedure in a reasonable timeframe in order not to lose too many participants due to loss of motivation. Recent evidence provided by Karpinski and Steinman (in press) on the Single Category IAT (SC-IAT) indicates that reliabilities may even be expected to rise when the number of critical trials is raised to around 70. The SC-IAT is a procedure that is very similar to the ST-IAT. The most obvious

difference is the presence of a 1500 ms time window in the SC-IAT that is not included in the ST-IAT. Karpinski and Steinman (in press) did not find this time window to have any substantial influence on the reliability of the measure while the number of trials per block had.

Regularly, satisfactory reliability of a measure is not an end in itself but rather a means to its validity. The present research provides evidence for the predictive validity of the ST-IAT. We would like to stress that this study was truly prospective in a sense that the collection of predictor and main criterion were separated by a time span ranging from one day to up to three months. What is more, in addition to requesting the intended voting behavior we asked our participants for their actual behavioral choice. This second point of measurement took place only shortly after the elections (in a span of two weeks). The emphasis on the distinction between behavioral intention and actual behavior is not just hairsplitting. Effectively, about 15% of our participants reported ending up voting for another party than the one they had intended to vote for. Further enhancing the external validity of the study, we applied individual ST-IATs to all five major political parties in Germany which where characterized by naturally varying degrees of support, publicity and familiarity of their main representatives. Elsewhere, we report further evidence regarding convergent and discriminant validity of the ST-IAT (Bluemke & Friese, 2006b;[6] cf. Karpinski & Steinman, in press).

Our findings of the ST-IAT's incremental validity in the prediction of voting behavior are especially noteworthy. After all, political voting is a prime exemplar of a deliberate action and implicit measures are often regarded to be particularly valuable in the prediction of less controlled, not deliberate behavior (Fazio & Olson, 2003). We do not feel that our data are at odds with this claim. In all presented analyses it was evident

that the explicit self-report measures were not only significant, but clearly the dominant predictor in the equation. Instead, we would like to emphasize a view on the matter proposed by Perugini (2005). He puts forward three different predictive models of explicitly and implicitly measured attitudes. One model resembles the double dissociation pattern outlined above. According to this model explicit attitude measures should be especially successful in predicting controlled, deliberate behavior while implicit attitude measures are thought to predict less controlled, impulsive behavior. Another model postulates an interactive influence in a way that the joint influence of both implicitly and explicitly measured attitudes on behavior is strongest in those cases when both predictors are congruent. The third model is an additive model. It assumes both kinds of attitude measures to explain different portions of variance in the criterion, the size of the respective portions varying between behaviors.

Importantly, Perugini (2005) explicitly states that these models are not meant to be mutually exclusive. Quite contrary, he assumes that there will be "conditions and behaviours that can be explained preferentially by any of these models. In other words, the key information to be sought concerns the ideal and boundary conditions for the validity of each model rather than a 'survival of the fittest' competition" (p. 41). Consistent with this view, evidence exists for all three models in the literature as described at the outset of this paper (see Perugini, 2005, for a study corroborating the interactive model). Thus, the point we are trying to make is not that an additive prediction model of explicitly and implicitly measured attitudes is generally to be regarded as superior to any other model. Rather we feel that an additive model might be a useful approach for the specific circumstances of political elections as described in this paper. For other circumstances, the case might well be different.

We can only speculate on the boundary conditions that can help to explain in which cases an additive prediction model will be successful and in which cases it will not be. One property that has been assigned to IAT measures is their ability to grasp particularly affective responses to attitude objects (Hofmann, Gawronski et al., 2005). Consequently, it might be assumed that these measures will be more successful in predicting behavior that is at least in part influenced by affective components. We recently found evidence that is consistent with this reasoning (Friese, Hofmann, & Wänke, 2006). The act of voting is a decidedly deliberate act. However, that does not preclude that affective influences might play a role in the processes that lead to the decision which party an individual decides to vote for. Hence, next to cognitive determinants, affective influences may be reflected in a highly deliberate and controlled action such as political voting. Of course, this explanation is post hoc and needs to be tested empirically before any further speculation would be warranted.

Concluding we would like to underline the major finding of this research: Implicit measures such as the ST-IAT are capable of improving the prediction of behavior over and above explicit self-report measures alone. The identification of the exact conditions under which this incremental validity unfolds best awaits further research.

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Footnotes

[1] A very similar measure has recently been introduced by Karpinski & Steinman (in press), termed the Single Category IAT.

[2] As explicit measures were assessed prior to the ST-IATs, order effects between explicit and implicit measures might have affected the results. However, we are not aware of any studies investigating the impact of order effects on the predictive validity of implicit measures. In their meta-analysis Hofmann, Gawronski et al. (2005) did not find a significant order effect on the implicit-explicit correlation.

[3] Balancing compatible and incompatible blocks as well as using a random order of ST-IATs could impair the measurement of individual differences. Although balancing potentially reduces criterion correlations, we decided to balance the order of blocks, because we did not want the conclusions drawn about reliability and validity of this new measure to rest on one specific make-up of the ST-IAT. Moreover, the literature was silent concerning the reliability of five consecutive implicit measures. We presented the five ST-IATs in random order, because we suspected that reliability coefficients could drop with increasing ST-IAT position due to fatigue effects. This would have led to a confounding of reliability with specific target parties.

[4] When entered as a single predictor, the ST-IATs were highly significant in all 15 regressions reported in step 1 through step 3 (all ps $< .001$).

[5] Because neither voting intention nor actual voting behavior were involved in these analyses, we included those participants as well who did not supply data to either one or both of these variables. Thus, 1568 data sets including both explicit and implicit measures were available.

[6] We would like to avoid any ambiguity about the two related ST-IAT papers. In Bluemke & Friese (2006b) we introduce data from several studies dealing with reliability and validity of ST-IAT measures. Using data from the present study we investigate more closely issues not discussed here, for example, the relation between implicit and explicit measures as a function of political closeness of the parties to each other, or test-retest reliability of the ST-IATs. We do not report original analyses of the one manuscript in the respective other.

Table 1

Step 1: Logistic Regression Predicting Voting Intention with one Explicit Attitude Measure and a ST-IAT

Measure		β	χ^2 *WALD*	*p*
CDU				
	CDU explicit attitude measure	2.70	224.89	< .001
	CDU ST-IAT	.42	11.99	< .001
SPD				
	SPD explicit attitude measure	1.67	230.27	< .001
	SPD ST-IAT	.31	15.97	< .001
GREEN				
	GREEN explicit attitude measure	2.34	230.14	< .001
	GREEN ST-IAT	.22	6.86	.009
FDP				
	FDP explicit attitude measure	2.72	204.32	< .001
	FDP ST-IAT	.18	2.76	.096
PDS				
	PDS explicit attitude measure	1.96	109.27	< .001
	PDS ST-IAT	.48	9.98	.002

Note. ST-IAT = Single Target-Implicit Association Test.

Table 2

Step 2: Logistic Regression Predicting Voting Behavior with one Explicit Attitude Measure and a ST-IAT

Measure		β	χ^2 *WALD*	*p*
CDU				
	CDU explicit attitude measure	2.62	235.10	< .001
	CDU ST-IAT	.36	9.32	.002
SPD				
	SPD explicit attitude measure	1.71	228.44	< .001
	SPD ST-IAT	.23	8.99	.003
GREEN				
	GREEN explicit attitude measure	2.00	238.23	< .001
	GREEN ST-IAT	.19	5.43	.020
FDP				
	FDP explicit attitude measure	2.38	183.74	< .001
	FDP ST-IAT	.32	8.88	.003
PDS				
	PDS explicit attitude measure	1.82	100.71	< .001
	PDS ST-IAT	.72	20.58	< .001

Note. ST-IAT = Single Target-Implicit Association Test.

Table 3

Step 3: Logistic Regression Predicting Voting Behavior with Voting Intention and a ST-IAT

Measure		β	χ^2 *WALD*	*p*
CDU				
	Intention to vote for the CDU	5.11	384.35	< .001
	CDU ST-IAT	.66	19.87	< .001
SPD				
	Intention to vote for the SPD	4.28	499.53	< .001
	SPD ST-IAT	.24	5.59	.018
GREEN				
	Intention to vote for the GREEN	4.44	457.07	< .001
	GREEN ST-IAT	.36	12.16	< .001
FDP				
	Intention to vote for the FDP	5.17	338.89	< .001
	FDP ST-IAT	.534	14.45	< .001
PDS				
	Intention to vote for the PDS	5.69	192.22	< .001
	PDS ST-IAT	1.02	21.85	< .001

Note. ST-IAT = Single Target-Implicit Association Test.

Appendix

Stimuli representing the evaluative categories and the five political parties

Category	Stimuli
positive	love [Liebe], joy [Freude], paradise [Paradies], gift [Geschenk], holiday [Urlaub]
negative	poison [Gift], stink [Gestank], disease [Krankheit], disaster [Katastrophe], death [Tod]
CDU/CSU	Angela Merkel (photo), Wolfgang Schäuble (words), party emblem, Edmund Stoiber (words), Friedrich Merz (photo)
FDP	Wolfgang Gerhardt (photo), Hans-Dietrich Genscher (words), party emblem, Guido Westerwelle (words), Jürgen Möllemann (photo)
SPD	Franz Müntefering (photo), Rudolf Scharping (words), party emblem, Gerhard Schröder (words), Peter Struck (photo)
Green Party	Rezzo Schlauch (photo), Jürgen Trittin (words), party emblem, Renate Künast (words), Joschka Fischer (photo)
PDS	Gabi Zimmer (photo), Lothar Bisky (words), party emblem, Gregor Gysi (words), Sahra Wagenknecht (photo)

Note. Words in brackets constitute the original German positive and negative stimuli.