



Disponible en ligne sur

ScienceDirect
www.sciencedirect.com

Elsevier Masson France

EM|consulte
www.em-consulte.com/en



Original article

When implicit fails: Explicit but not implicit attitudes predict choices of decided and undecided voters



Quand l'implicite échoue : les attitudes explicites (mais pas implicites) prédisent le choix des votants décidés et indécis

V. Berthet*, L. Barthélémy, J.-L. Kop

Université de Lorraine (Nancy 2), UFR Connaissance de l'Homme, 3, place Godefroy-de-Bouillon BP3397, 54015 Nancy cedex, France

ARTICLE INFO

Article history:

Received 14 May 2013
Received in revised form
25 September 2014
Accepted 30 September 2014

Keywords:

Voting intention
Implicit attitudes
Undecided voters
Implicit Association Test

Mots clés :

Intention de vote
Attitudes implicites
Votants indécis
Test d'associations implicites

ABSTRACT

Introduction. – A recent study (Frieze et al., 2012) involving two major political elections in the US and Germany reported that voting behavior was better predicted by explicit than implicit attitudes for both decided and undecided voters and that when voting behavior was predicted by implicit attitudes, the prediction was better for decided than undecided voters.

Objective. – We conducted a comparable study for the 2012 French presidential election using voter volatility as a measure of voter decidedness, in order to test the generalizability of the findings of Frieze et al. (2012).

Method. – Participants' voting intention, explicit and implicit attitudes towards the candidates Sarkozy and Hollande were collected during the 2 weeks separating the two rounds of the election.

Results. – Our findings confirm that explicit attitudes outperform implicit attitudes when predicting voting choice, but not that the relationship between implicit attitudes and voting intention is moderated by voter decidedness.

Conclusion. – Further research is needed in order to test whether the moderation of implicit attitudes by voter decidedness is a robust finding or not.

© 2014 Elsevier Masson SAS. All rights reserved.

R É S U M É

Introduction. – Une récente étude (Frieze et al., 2012) portant sur deux élections politiques majeures aux États-Unis et en Allemagne a montré que le comportement de vote était mieux prédit par les attitudes explicites que par les attitudes implicites à la fois chez les votants décidés et les votants indécis et que lorsque l'on prédit le comportement de vote uniquement par les attitudes implicites, la prédiction est meilleure pour les votants décidés que pour les votants indécis.

Objectif. – Nous avons réalisé une étude comparable pour l'élection présidentielle française de 2012 en opérationnalisant le caractère décidé des votants par la volatilité du vote entre les deux tours, afin de tester le caractère généralisable des résultats de Frieze et al. (2012).

Méthode. – L'intention de vote ainsi que les attitudes explicites et implicites des participants envers les candidats Sarkozy et Hollande ont été recueillies durant les deux semaines séparant les deux tours de l'élection.

Résultats. – D'un côté, nos résultats confirment que les attitudes explicites prédisent mieux le choix de vote que les attitudes implicites. En revanche, lorsque les attitudes implicites sont utilisées comme unique prédicteur de l'intention de vote, la prédiction est aussi bonne pour les votants décidés que pour les votants indécis.

Conclusion. – Des recherches supplémentaires doivent être menées pour tester si l'influence des attitudes implicites sur l'intention de vote est réellement différente entre les votants décidés et les votants indécis.

© 2014 Elsevier Masson SAS. Tous droits réservés.

* Corresponding author at: Laboratoire InterPsy, Université de Lorraine - EA 4432, Nancy, France.
E-mail addresses: vksberthet@gmail.com, vincent.berthet@univ-lorraine.fr (V. Berthet).

Predicting voting behavior based on attitudes represents a serious challenge for psychologists. This issue has been largely addressed using explicit attitudes, but with the advent of implicit social cognition (Greenwald & Banaji, 1995) and the Implicit Association Test (IAT) of Greenwald, McGhee, and Schwartz (1998), implicit attitudes can now be added as predictor of voting choice (Gawronski & Galdi, 2011; Nosek, Graham, & Hawkins, 2010).

The present paper investigated the role of implicit and explicit political attitudes in the prediction of voting choice for decided and undecided voters. Several studies have already scrutinized how voting behavior can be predicted based on attitudes. While most of these studies did not differentiate decided and undecided voters (Karpinski, Steinman, & Hilton, 2005; Friese, Bluemke, & Wänke, 2007; Roccoato & Zogmaister, 2010; Greenwald, Smith, Sriram, Bar-Anan, & Nosek, 2009), two notable recent studies included this distinction. The first one is that of Galdi, Arcuri, and Gawronski (2008) even though it did not truly involve voting choice but rather participants' opinions. In their study, Galdi et al. measured explicit and implicit attitudes in residents of the city of Vicenza (Italy) towards the enlargement of a US military base in their city. Importantly, participants' attitudes were assessed twice, the two measurement occasions being separated by 1 week. When performing multiple logistic regression analyses with participants' opinions measured at time 2 as criterion and implicit and explicit attitudes measured at time 1 as predictors separately for decided and undecided voters, Galdi et al. showed that while explicit but not implicit attitudes predicted *decided* participants' opinions, conversely, implicit but not explicit attitudes predicted *undecided* participants' opinions. One should note that these findings are related to participants' opinions (rather than participants' voting) on a local politics issue (rather than a major political issue such as a national election).

The second relevant study on that topic was done recently by Friese, Smith, Plischke, Bluemke, and Nosek (2012) who investigated whether the findings of Galdi et al. (2008) extend to the context of two national political elections, the 2008 US presidential election and the 2009 German parliamentary election. Friese et al. did not really seek to replicate the results of Galdi et al. but rather to investigate the role of implicit and explicit political attitudes in future choices of decided and undecided voters. They framed this problematic through four claims:

- implicit attitudes predict voting behavior better than explicit attitudes for undecided voters;
- explicit attitudes predict voting behavior better than implicit attitudes for decided voters;
- implicit attitudes predict voting behavior better for undecided than decided voters;
- explicit attitudes predict voting behavior better for decided than undecided voters.

Note that the findings of Galdi et al. are related to claims 1 and 2. On one hand, the results of Friese et al. covered the four claims though they particularly addressed the first three claims. Performing logistic regression analyses with voting behavior as criterion and implicit and explicit attitudes as predictors separately for decided and undecided voters, Friese et al. showed on one hand that explicit attitudes alone predicted voting behavior better than implicit attitudes alone, for *both* types of voters. This result corroborates claim 2 but not claim 1 and hence is not in line with the conclusions of Galdi et al. In addition, when the two predictors were entered simultaneously in the regression, implicit attitudes did not much improve the accuracy of the prediction of voting behavior as compared to that obtained with explicit attitudes alone. This means that the incremental validity of implicit attitudes over explicit attitudes was virtually non-existent, though slightly higher

for undecided as compared to decided voters (in Study 2 but not in Study 1). On the other hand, when performing logistic regression analyses with all subjects together (decided and undecided voters), Friese et al. reported that voter decidedness moderated the influence of implicit attitudes on voting behavior in a direction such that implicit attitudes predicted voting behavior better for *decided* as compared to undecided voters (note that this interaction was found when explicit attitudes were not controlled for). This finding is actually opposite to claim 3.

Friese et al. (2012) assumed that this result could be accounted for by the moderating influence of the degree of cognitive elaboration of political attitudes on the implicit-explicit correspondence. The explanatory scheme is that:

- the higher the degree of elaboration of political attitudes, the higher implicit and explicit attitudes will be correlated;
- the higher the implicit-explicit correlation, the more implicit attitudes will be predictive but the less they will be predictive *incrementally* (Greenwald, Poehlman, Uhlmann, & Banaji, 2009).

Assuming that political attitudes are more elaborated among decided voters than among undecided voters, the implicit-explicit correspondence should be higher among decided voters as compared to undecided voters, and therefore the predictive validity of implicit attitudes should be higher among decided voters.

1. Goals of the present research

The discrepancy between the findings of Galdi et al. (2008) and those of Friese et al. (2012) regarding the prediction of the vote of decided and undecided voters calls for further investigation of that topic. We independently conducted a study similar to Friese et al. in the context of the 2012 French presidential election, which opposed the incumbent *Sarkozy* (representing the right-wing) and *Hollande* (representing the left-wing). Therefore, our study is a conceptual replication of that of Friese et al. and allows one to test the generalizability of their findings. In fact, there were several methodological differences between our respective studies. Firstly, while Friese et al. considered participants' actual vote, we considered participants' voting intention. Secondly, while Friese et al. measured voter decidedness directly through self-report, we used voter volatility as an indirect indicator of voter decidedness. In fact, the French presidential election takes place through a two-round voting system. In the first round, voters choose among several candidates (10 in the 2012 election). The second round involves only the two leading candidates of the first round and it takes place 2 weeks after the first round. Such an election system allows one to define voter volatility, which refers to whether a voter has selected the same candidate in both rounds or not. It is frequently argued that non-volatile voters can be characterized as decided ones while volatile voters correspond to undecided ones (e.g., Bybee, McLeod, Luetscher, & Garramone, 1981). As in the study of Friese et al. (2012), our study also included an attitude IAT related to the candidates and an attitude IAT related to their respective political camps (*UMP: Union pour un Mouvement Populaire* for Sarkozy and *PS: Parti Socialiste* for Hollande).

In sum, the two hypotheses we tested were:

- explicit attitudes alone predicted voting behavior better than implicit attitudes alone for both decided and undecided voters;
- implicit attitudes predicted voting behavior better for decided than undecided voters (voter decidedness moderated the influence of implicit attitudes on voting behavior).

2. Method

Participants started by completing two political attitude IATs, one with the two candidates qualified for the second round of the election as targets, the other one with the two corresponding political camps as targets. Then, participants responded to six self-report items in which they reported their explicit attitudes towards the two political camps and the two candidates, their vote in the first round, and their voting intention for the second round.

2.1. Participants and design

A total of 687 unpaid participants completed the experiment (352 females and 335 males; mean age 33.2 years, $SD = 13.3$ years). Participants were essentially ordinary people who responded to an announcement we posted on the main social networks (Facebook and Twitter) inviting them to participate in an online survey on the presidential election. The rest of the participants were students of the University of Lorraine who were encouraged to participate in the study.

2.2. Procedure

The experiment took place during the 2 weeks separating the two rounds of voting in the 2012 French presidential election (April 22–May 6). Participants completed the political camps IAT and the candidates IAT and then responded to six self-report items. The order of the implicit measures and the explicit measures was fixed such that the two IATs always came first. The order of two combined blocks within each of the IATs was counterbalanced across subjects. Contrary to Frieese et al. (2012) who presented the political camps IAT always first, we counterbalanced the order of the two IATs across participants such that approximately half of the participants completed the political camps IAT first and the other half completed the candidates IAT first (the IATs order was not included as independent variable in the analysis, but see Discussion).

2.3. Measures

2.3.1. Implicit measures

The sequence of trial blocks in the two IATs is outlined in Table 1. In both IATs, the target category labels were presented in white color whereas the attribute category labels were presented in green

color. Each category was represented by five stimuli. Those representing the evaluative categories were positive and negative words. In the political camps IAT, the target category labels were the words “PS” and “UMP”, which correspond to the names of the two political camps involved in the election. Each political camp was represented by four stimuli corresponding to different parts of the party logo and one stimulus depicting some politicians of the party. In the candidates IAT, the target category labels were the words “HOLLANDE” and “SARKOZY”, each candidate being represented by five head-only pictures. In order to avoid any interference between the spatial meaning of the target categories (PS and HOLLANDE representing *left-wing* while UMP and SARKOZY representing *right-wing*) and their spatial positions on the screen, the target categories were presented at the same spatial locations throughout the task which were congruent with their spatial meaning (i.e., PS and HOLLANDE appeared always on the left of the screen, UMP and SARKOZY appeared always on the right of the screen). Thus, it was the position of the attribute categories (rather than that of the target categories) that was reversed between the two combined blocks.

2.3.2. Explicit measures

After completing the IATs, participants responded to six self-report items, which appeared in a fixed order. In the first four items, they reported their explicit attitudes towards the two political camps and the two candidates. The formulation used was the same in the four items: “What is your opinion towards. . .?” (1 = *Very negative*, 7 = *Very positive*). Next, participants reported their vote in the first round. Here, the response modalities included the 10 candidates involved plus the two options “I did not vote in the first round” and “I voted blank or null in the first round”. Finally, participants reported their voting intention for the second round. At this stage, four response modalities were presented: “I will vote for Sarkozy”, “I will vote for Hollande”, “I will vote blank or null”, and “I will not vote”. Only those reporting intent to vote for Sarkozy (scored 0) or Hollande (scored 1) were included in analyses (575 participants, 83.7% of the initial sample).

Participants whose first round and second round votes were different were classified as volatile or undecided (scored 0) whereas those whose both votes were identical were classified as non-volatile or decided (scored 1). Note that participants who did not vote in the first round were therefore classified as undecided. It could be argued that these participants should be removed from the analysis, as one cannot clearly classify them as undecided or decided, but it turned out that removing these participants from

Table 1
Sequence of trial blocks in the political camps IAT and the candidates IAT.

Block	Trials	Function	Category assigned to left-key response	Category assigned to right-key response
Political camps IAT				
1	20	Practice	PS	UMP
2	20	Practice	Pleasant	Unpleasant
3	20	Practice	PS + pleasant	UMP + unpleasant
4	40	Test	PS + pleasant	UMP + unpleasant
5	20	Practice	Unpleasant	Pleasant
6	20	Practice	PS + unpleasant	UMP + pleasant
7	40	Test	PS + unpleasant	UMP + pleasant
Candidates IAT				
1	20	Practice	Hollande	Sarkozy
2	20	Practice	Pleasant	Unpleasant
3	20	Practice	Hollande + pleasant	Sarkozy + unpleasant
4	40	Test	Hollande + pleasant	Sarkozy + unpleasant
5	20	Practice	Unpleasant	Pleasant
6	20	Practice	Hollande + unpleasant	Sarkozy + pleasant
7	40	Test	Hollande + unpleasant	Sarkozy + pleasant

IAT: Implicit Association Test; PS: *Parti Socialiste* (main french left-wing political camp); UMP: *Union pour un Mouvement Populaire* (main french right-wing political camp). The presentation order of Blocks 2, 3, and 4 on one hand and Blocks 5, 6, and 7 on the other hand was counterbalanced across participants for both IATs as well as the presentation order of the IATs.

Table 2
Descriptive statistics and zero-order correlations between voting intention, the two implicit attitude measures, and the two explicit attitude measures, separately for decided and undecided voters.

	Mean	SD	1	2	3	4	5
Decided voters (<i>n</i> = 275)							
1. Voting intention	.70	.46	–				
2. IAT _{camps}	.25	.61	.69	–			
3. IAT _{candidates}	.21	.55	.69	.76	–		
4. Explicit _{camps}	1.69	3.50	.90	.69	.69	–	
5. Explicit _{candidates}	1.66	3.80	.92	.68	.68	.95	–
Undecided voters (<i>n</i> = 277)							
1. Voting intention	.79	.40	–				
2. IAT _{camps}	.37	.52	.60	–			
3. IAT _{candidates}	.29	.47	.58	.71	–		
4. Explicit _{camps}	2.12	2.57	.84	.64	.62	–	
5. Explicit _{candidates}	2.08	2.69	.86	.63	.59	.90	–

IAT: Implicit Association Test. All correlations in the table are significant at $P < .001$, two-tailed.

the analyses ($n = 19$, 3.4% of the final sample) did not significantly change the results. One might also argue that the real volatile voters are those who really reversed their vote between the two rounds (like voting Sarkozy in the first round and Hollande in the second), but virtually no participant did that. Note that participants were not asked about their potential involvement in trade unions, which could be one limit of this study.

3. Results

3.1. Preliminary analyses

Participants who had an IAT error rate greater than 25% in one of the two IATs (2.61% in the political camps IAT and 2.09% in the candidates IAT) or had more than 10% of their trials with RTs less than 300 ms (0.87% in both IATs) were removed from data analyses. This led to a final sample of 552 subjects (96% of the subjects who reported intent to vote for Sarkozy or Hollande). IAT scores were computed using the *D* score algorithm for IAT data (Greenwald, Nosek, & Banaji, 2003). Positive IAT scores indicated a preference for Hollande (PS) over Sarkozy (UMP). As in Friese et al. (2012), we defined a single indicator for each explicit attitude as the difference between the two corresponding ratings, with positive scores indicating a preference for Hollande (PS) over Sarkozy (UMP).

3.2. Descriptive statistics and correlations

Table 2 indicates the descriptive statistics (means and standard deviations) and the correlations between the five measures (voting intention, the two implicit measures, and the two explicit measures) separately for decided and undecided voters. The means of the five variables in the two groups showed that the overall sample was clearly left-wing oriented. This was apparent both at the political camp and the candidate levels. Spearman-Brown corrected split-half reliabilities of IAT scores were high for decided voters ($r_{tt \text{ camps}} = .89$, $r_{tt \text{ candidates}} = .83$) and undecided voters ($r_{tt \text{ camps}} = .83$, $r_{tt \text{ candidates}} = .82$).

Correlations between the five measures were high overall (ranging from .58 to .95). Firstly, the explicit measure on political camps and the one on candidates were very highly correlated (.95 and .90 for decided and undecided voters, respectively), suggesting that these measures basically provided the same information. Secondly, the political camps IAT and the candidates IAT were strongly correlated (.76 and .71 for decided and undecided voters, respectively). This implicit-implicit correspondence was not significantly higher among decided voters as compared to undecided voters ($z = 1.27$, NS, two-tailed). Thirdly, each IAT correlated substantially with the corresponding explicit measure, among decided voters ($r_{\text{camps}} = .69$,

$r_{\text{candidates}} = .68$) and undecided voters ($r_{\text{camps}} = .64$, $r_{\text{candidates}} = .59$). As the two explicit measures were extremely correlated, each IAT correlated roughly as much with the other explicit measure as with the corresponding explicit measure. Moreover, the implicit-explicit correspondence was marginally higher among decided voters as compared to undecided voters but only at the candidate level ($r_{\text{candidates}} = .68$ versus $.59$, $z = 2.34$, $P = .08$).

3.3. Logistic regression analyses

In these analyses, we investigated the prediction of voting intention by the two implicit and the two explicit measures. For the sake of comparability, we followed the same logic and results presentation as Friese et al. (2012):

- we performed two separate logistic regression analyses, one including the implicit and explicit political camps-related measures as predictors, the other one including the candidates-related measures (all of which were *z*-standardized);
- in each analysis, we investigated first the claims that implicit attitudes predict voting intention better than explicit attitudes for undecided voters (claim 1) whereas explicit attitudes predict voting intention better than implicit attitudes for decided voters (claim 2), and we examined secondly the claims that implicit attitudes predict voting intention better for undecided than decided voters (claim 3) whereas explicit attitudes predict voting intention better for decided than undecided voters (claim 4).

3.3.1. Political camps

Table 3 shows the results of three logistic regression models separately for decided and undecided voters. The first two models included one predictor: the implicit measure in model 1a and the explicit measure in model 1b. In the third model, the two measures were entered as predictors simultaneously. The results of models 1a and 1b revealed that both implicit and explicit attitudes towards political camps significantly predicted voting intention among decided and undecided voters. However, explicit attitudes were a better predictor than implicit attitudes for decided voters (Nagelkerke's $R^2 = .946$ and $.619$, respectively) and also for undecided voters (Nagelkerke's $R^2 = .880$ and $.501$, respectively).

Moreover, we found no evidence of incremental predictive validity of implicit attitudes over explicit attitudes. Results of model 2 showed that when entered simultaneously with explicit attitudes, implicit attitudes did not significantly contribute to the prediction of voting intention, neither for decided voters nor for undecided voters (one might note that the implicit attitude measure was a significant predictor for *decided* voters). Indeed, comparison of models 1b and 2 showed that after accounting for explicit attitudes, implicit

Table 3

Results of the logistic regression analyses involving the political camps-related predictors, separately for decided and undecided voters.

Step	Variable	B	SE	Wald-Z	P-value	Exp(B)	Nagelkerke's R^2	% CCC
Decided voters ($n = 275$)								
1a	Constant	1.612	.235	6.853	<.001	5.013	.619	91.9
	IAT _{camps}	2.453	.293	8.389	<.001	11.623		
1b	Constant	4.074	1.126	3.618	<.001	58.792	.946	99.6
	Explicit _{camps}	7.181	1.589	4.520	<.001	1314.222		
2	Constant	4.583	1.411	3.249	<.01	97.807	.955	99.5
	IAT _{camps}	1.366	.613	2.230	<.05	3.920		
	Explicit _{camps}	6.917	1.751	3.952	<.001	1009.288		
Undecided voters ($n = 277$)								
1a	Constant	2.081	.243	8.586	<.001	8.012	.501	88.5
	IAT _{camps}	1.906	.247	7.709	<.001	6.726		
1b	Constant	4.052	.718	5.641	<.001	57.512	.880	99.0
	Explicit _{camps}	5.021	.868	5.785	<.001	151.563		
2	Constant	3.989	.715	5.576	<.001	54.001	.880	99.0
	IAT _{camps}	.230	.438	.524	.6	1.259		
	Explicit _{camps}	4.812	.926	5.196	<.001	122.977		

IAT: Implicit Association Test; B: regression weight; SE: standard error of the regression weight; Exp(B): odds ratio; CCC: correctly classified cases. All explanatory variables were z-standardized separately for decided and undecided voters.

attitudes increased Nagelkerke's R^2 only by 0.9 percentage points for decided voters and 0 percentage points for undecided voters. Contrastingly, comparison of models 1a and 2 showed that after accounting for implicit attitudes, explicit attitudes increased Nagelkerke's R^2 by 33.6 percentage points for decided voters and 37.9 percentage points for undecided voters.

Next, we probed claims 3 and 4 by running logistic regression analyses jointly for decided and undecided voters (Table 4). Step 1 showed that the implicit measure significantly predicted voting intention (Nagelkerke's $R^2 = .572$). Step 2 included the implicit measure, voter decidedness, and the interaction between the two variables as predictors of voting intention (Nagelkerke's $R^2 = .572$). Noteworthy, the IAT \times Decidedness interaction was not significant. Adding the explicit measure in step 3 resulted in Nagelkerke's R^2 increasing substantially (.925), the implicit measure being no longer a significant predictor, and the IAT \times Decidedness interaction still not being significant. Adding the two remaining two-way interactions (Explicit \times Decidedness and IAT \times Explicit) as predictors in step 4 did not improve the prediction (Nagelkerke's $R^2 = .925$). The explicit measure was actually the only significant predictor of voting intention in models 3 and 4.

3.3.2. Candidates

Performing the same analysis with the candidates-related measures provided virtually the same pattern of findings. As apparent in Table 5, both implicit and explicit attitudes towards candidates were significant predictors of voting intention among decided and undecided voters (models 1a and 1b), explicit attitudes being a better predictor than implicit attitudes for decided voters (Nagelkerke's $R^2 = .950$ and .627, respectively) and undecided voters (Nagelkerke's $R^2 = .925$ and .470, respectively).

Likewise, explicit attitudes clearly took over implicit attitudes when both were entered simultaneously as predictors of voting intention in model 2 (the IAT was a significant predictor but again, for *decided* voters). While implicit attitudes increased Nagelkerke's R^2 only by 2.0 and 0.1 percentage points for decided and undecided voters respectively, explicit attitudes substantially increased Nagelkerke's R^2 by 34.3 and 45.6 percentage points for decided and undecided voters, respectively.

Regarding claims 3 and 4, step 2 in the joint logistic regression analysis for decided and undecided voters (Table 6) revealed that the IAT's influence on voting intention (step 1: Nagelkerke's $R^2 = .560$) was not moderated by Decidedness. Adding the explicit measure in the model in step 3 greatly improved

Table 4Results of the logistic regression analyses involving the political camps-related predictors ($n = 552$).

Step	Variable	B	SE	Wald-Z	P-value	Exp(B)	Nagelkerke's R^2	% CCC
1	Constant	1.853	.169	10.98	<.001	6.379	.572	90.6
	IAT _{camps}	2.202	.191	11.55	<.001	9.043		
2	Constant	1.854	.226	8.202	<.001	6.385	.572	90.6
	IAT _{camps}	2.098	.272	7.709	<.001	8.150		
	Decidedness	.008	.340	.023	.982	1.008		
	IAT _{camps} *Decidedness	.184	.385	.478	.633	1.202		
3	Constant	3.617	.581	6.223	<.001	37.226	.925	99.5
	IAT _{camps}	.233	.473	.494	.622	1.262		
	Decidedness	1.344	.783	1.717	.086	3.834		
	IAT _{camps} *Decidedness	1.016	.738	1.375	.169	2.762		
	Explicit _{camps}	5.870	.894	6.563	<.001	354.249		
4	Constant	3.560	.660	5.396	<.001	35.163	.925	99.5
	IAT _{camps}	.247	.745	.332	.740	1.280		
	Decidedness	1.586	1.749	.906	.365	4.884		
	IAT _{camps} *Decidedness	1.015	.822	1.235	.217	2.759		
	Explicit _{camps}	5.752	1.112	5.171	<.001	314.820		
	Explicit _{camps} *Decidedness	.320	1.918	.167	.868	1.377		
	IAT _{camps} *Explicit _{camps}	-.010	.959	-.010	.992	.990		

IAT: Implicit Association Test; B: regression weight; SE: standard error of the regression weight; Exp(B): odds ratio; CCC: correctly classified cases. All explanatory variables were z-standardized.

Table 5
Results of the logistic regression analyses involving the candidates-related predictors, separately for decided and undecided voters.

Step	Variable	B	SE	Wald-Z	P-value	Exp(B)	Nagelkerke's R^2	% CCC
Decided voters ($n = 275$)								
1a	Constant	1.568	.227	6.923	<.001	4.797	.627	92.5
	IAT _{candidates}	2.578	.314	8.219	<.001	13.171		
1b	Constant	3.492	.911	3.832	<.001	32.852	.950	99.8
	Explicit _{candidates}	7.062	1.546	4.567	<.001	1166.776		
2	Constant	6.104	2.334	2.616	<.01	447.645	.970	99.9
	IAT _{candidates}	2.745	1.148	2.391	<.05	15.565		
	Explicit _{candidates}	10.367	3.746	2.767	<.01	31792.950		
Undecided voters ($n = 277$)								
1a	Constant	2.005	.231	8.699	<.001	7.426	.470	87.0
	IAT _{candidates}	1.797	.239	7.525	<.001	6.032		
1b	Constant	5.796	1.406	4.123	<.001	328.981	.925	99.6
	Explicit _{candidates}	7.426	1.771	4.192	<.001	1679.078		
2	Constant	5.636	1.399	4.029	<.001	280.339	.926	99.6
	IAT _{candidates}	.416	.766	.543	.587	1.516		
	Explicit _{candidates}	7.094	1.823	3.890	<.001	1204.717		

IAT: Implicit Association Test; B: regression weight; SE: standard error of the regression weight; Exp(B): odds ratio; CCC: correctly classified cases. All explanatory variables were z-standardized separately for decided and undecided voters.

the prediction (Nagelkerke's $R^2 = .952$). Finally, including the Explicit \times Decidedness and IAT \times Explicit interactions as predictors in step 4 did not improve the prediction of voting intention at all (Nagelkerke's $R^2 = .952$).

4. Discussion

In a recent study investigating how explicit and implicit attitudes predict voting behavior, Friese et al. (2012) found that:

- explicit attitudes predicted voting behavior better than implicit attitudes for both decided and undecided voters;
- implicit attitudes predicted voting behavior better for decided than undecided voters.

The present study investigated whether the findings of Friese et al. could be extended to the context of another major political election in another country. We replicated their approach by collecting implicit and explicit attitude measures towards political camps and candidates, and by performing multiple logistic regression analyses separately for these two sets of predictors. Contrary to Friese et al., we considered voting intention instead of voting

behavior and we measured voter decidedness based on voter volatility rather than self-report. Our research supported only the first finding of Friese et al.

On one hand, our data confirmed that explicit attitudes outperform implicit attitudes in predicting voting choice of both decided and undecided voters. In fact, explicit attitudes alone predicted more accurately voting intention than implicit attitudes alone. Moreover, contrary to Friese et al. (2012), we found no evidence of incremental predictive validity of implicit attitudes over and above explicit attitudes. Indeed, after controlling for explicit attitudes, implicit attitudes did not significantly improve the prediction of voting intention, whether considering attitudes towards political camps or attitudes towards candidates. This means that there was no part of voting intention variance accounted for by the implicit measure that was not also accounted for by the explicit measure. This result is in contradiction with the idea that "the prediction of election outcomes could be enhanced by including modern measures of automatic associations" (Galdi et al., 2008, p. 1102). However, it is perfectly consistent with Fazio's (1986, 1990) MODE model of the attitude-behavior relation according to which conscious, deliberate behavior may be guided and predicted by explicit attitudes whereas unconscious, spontaneous behavior

Table 6
Results of the logistic regression analyses involving the candidates-related predictors ($n = 552$).

Step	Variable	B	SE	Wald-Z	P-value	Exp(B)	Nagelkerke's R^2	% CCC
1	Constant	1.798	.162	11.120	<.001	6.038	.560	90.4
	IAT _{candidates}	2.191	.194	11.300	<.001	8.944		
2	Constant	1.854	.220	8.437	<.001	6.385	.564	90.4
	IAT _{candidates}	1.950	.259	7.525	<.001	7.029		
	Decidedness	-.096	.325	-.296	.767	.908		
	IAT _{candidates} *Decidedness	.461	.391	1.177	.239	1.586		
3	Constant	5.101	1.084	4.706	<.001	164.186	.952	99.8
	IAT _{candidates}	.443	.828	.535	.592	1.557		
	Decidedness	1.632	.900	1.813	.070	5.114		
	IAT _{candidates} *Decidedness	2.075	1.221	1.699	.089	7.964		
	Explicit _{candidates}	8.794	1.843	4.771	<.001	6594.558		
4	Constant	5.043	1.269	3.974	<.001	154.934	.952	99.8
	IAT _{candidates}	.254	1.275	.199	.842	1.289		
	Decidedness	1.690	2.973	.568	.570	5.420		
	IAT _{candidates} *Decidedness	2.111	1.361	1.551	.121	8.256		
	Explicit _{candidates}	8.673	2.231	3.887	<.001	5843.002		
	Explicit _{candidates} *Decidedness	.184	3.986	.046	.963	1.202		
	IAT _{candidates} *Explicit _{camps}	-.321	1.582	-.203	.839	.725		

IAT: Implicit Association Test; B: regression weight; SE: standard error of the regression weight; Exp(B): odds ratio; CCC: correctly classified cases. All explanatory variables were z-standardized.

may be driven by implicit attitudes (Fazio & Olson, 2003; Olson & Fazio, 2009). In fact, one might easily acknowledge that choosing between two candidates in a presidential election is a highly deliberate behavior. When predicting such a behavior, it turns out that explicit attitudes outweigh implicit attitudes, even among subjects who are undecided regarding their future vote.

On the other hand, contrary to Friese et al. (2012), our data revealed no evidence of Implicit \times Decidedness interaction in a way that implicit attitudes predicted voting behavior better for decided as compared to undecided voters (when explicit attitudes were not controlled for). One might obviously explain this discrepancy by the fact that voter decidedness was not measured the same way in the two studies. In the study of Friese et al., undecided voters were identified as those who responded “I don’t know yet” when asked to report their voting intention. In our study, decidedness was inferred from a discrepancy between voting behavior at the first round of the election and voting intention for the second round. It might be argued that reversing one’s vote between the two rounds of an election does not imply necessarily being an undecided voter. Thus, the way we measured voter decidedness could have overestimate the number of undecided voters. In fact, the study of Friese et al. included 303 undecided voters out of 3594 participants (8.43%, study 1) and 202 undecided voters out of 610 participants (33.11%, study 2). In our study, 277 participants out of 575 were identified as undecided voters (48.17%). Therefore, it may very well be that the consistency of the vote between the two rounds of an election is not a proper measure of voter decidedness.

It should be noted that we actually found evidence of the Implicit \times Decidedness interaction in a secondary analysis when including the IATs order in the set of independent variables (while Friese et al. presented the political camps IAT always first, we counterbalanced the order of the two IATs across subjects). In fact, among participants who completed the political camps IAT first, the Implicit \times Decidedness interaction was marginally significant when considering political camps-related attitudes and fully significant when considering candidates-related attitudes. This interaction was not significant among participants who completed the candidates IAT first. In other words, the Implicit \times Decidedness interaction was moderated by the order of the IATs. However, one should not give too much room to this unexpected finding, firstly because it is unexpected, secondly because such an effect is mostly significant due to the high sample size, and thirdly because it does not contribute meaningfully to the prediction of voting behavior in any case.

In sum, the fact that we found no evidence that voter decidedness moderates the influence of implicit attitudes on voting choice must be tempered by the two main limits of our research: collecting voting intention rather than voting behavior as dependent variable, and measuring voter decidedness based on voter volatility rather than self-report. Further research is needed in order to test whether the moderation of implicit attitudes by voter decidedness is a robust finding or not.

Finally, it should be highlighted that the type of research that we conducted could be inspiring for pollsters. In fact, polls are exclusively based on explicit information (self-reports). For topics on which an implicit-explicit dissociation is typically observed like race or death penalty (Nosek, 2005), assessing people’s implicit thoughts could be valuable in order to anticipate their behavior.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

References

- Bybee, C. R., McLeod, J. M., Luetscher, W. D., & Garramone, G. (1981). Mass communication and voter volatility. *Public Opinion Quarterly*, 45, 69–90.
- Fazio, R. H. (1986). How do attitudes guide behavior? In R. M. Sorrentino, & E. T. Higgins (Eds.), *The handbook of motivation and cognition: Foundations of social behavior* (pp. 204–243). New York: Guilford Press.
- Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The MODE model as an integrative framework. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23) (pp. 79–109). New York: Academic Press.
- Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology*, 54, 297–327.
- Friese, M., Bluemke, M., & Wänke, M. (2007). Predicting voting behavior with implicit attitude measures - The 2002 German parliamentary election. *Experimental Psychology*, 54, 247–255.
- Friese, M., Smith, C. T., Plischke, T., Bluemke, M., & Nosek, B. A. (2012). Do implicit attitudes predict actual voting behavior particularly for undecided voters? *PLoS ONE*, 7, e44130.
- Galdi, S., Arcuri, L., & Gawronski, B. (2008). Automatic mental associations predict future choices of undecided decision-makers. *Science*, 321, 1100–1102.
- Gawronski, B., & Galdi, S. (2011). Using implicit measures to read the minds of undecided voters. In M. Cadinu, S. Galdi, & A. Maass (Eds.), *Social perception, cognition, and language in honour of Arcuri* (pp. 203–216). Padova: CLEUP.
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, 102, 4–27.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. K. L. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, 74, 1464–1480.
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the implicit association test: 1. An improved scoring algorithm. *Journal of Personality and Social Psychology*, 85, 197–216.
- Greenwald, A. G., Poehlman, T. A., Uhlmann, E., & Banaji, M. R. (2009). Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology*, 97, 17–41.
- Greenwald, A. G., Smith, C. T., Sriram, N., Bar-Anan, Y., & Nosek, B. A. (2009). Race attitude measures predicted vote in the 2008 US Presidential Election. *Analyses of Social Issues and Public Policy*, 9, 241–253.
- Karpinski, A., Steinman, R. B., & Hilton, J. L. (2005). Attitude importance as a moderator of the relationship between implicit and explicit attitude measures. *Personality and Social Psychology Bulletin*, 31, 949–962.
- Nosek, B. A. (2005). Moderators of the relationship between implicit and explicit evaluation. *Journal of Experimental Psychology: General*, 134, 565–584.
- Nosek, B. A., Graham, J., & Hawkins, C. B. (2010). Implicit political cognition. In B. Gawronski, & B. K. Payne (Eds.), *Handbook of Implicit Social Cognition* (pp. 548–564). New York, NY: Guilford.
- Olson, M. A., & Fazio, R. H. (2009). Implicit and explicit measures of attitudes: The perspective of the MODE model. In R. E. Petty, R. H. Fazio, & P. Briñol (Eds.), *Attitudes: Insights from the new implicit measures* (pp. 19–63). New York, NY: Psychology Press.
- Roccatto, M., & Zogmaister, C. (2010). Predicting the vote through implicit and explicit attitudes: A field research. *Political Psychology*, 31, 249–274.