

What Can Political Psychology Learn from Implicit Measures? Empirical Evidence and New Directions

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Implicit measures have become very popular in virtually all areas of basic and applied psychology. However, there are empirical and theoretical arguments that might raise doubts about their usefulness in research on political attitudes. Based on a review of relevant evidence, we argue that implicit measures can be useful to identify distal sources of political preferences in domains where self-presentation may bias self-reports (e.g., influence of racial attitudes on voting decisions). In addition, implicit measures of proximal political attitudes can contribute to the prediction of future political decisions by virtue of their capability to predict biases in the processing of decision-relevant information (e.g., prediction of voting behavior of undecided voters). These conclusions are supported by research showing that implicit measures predict real-world political behavior over and above explicit measures. The reviewed findings suggest that implicit measures may serve as a useful supplement to improve the prediction of election outcomes. Open questions and potential directions for future research are discussed.

KEY WORDS: behavior prediction, biased information processing, decision making, implicit measures, voting behavior

Self-report measures arguably represent one of the most important research tools in political psychology. To measure people's attitudes toward political issues, candidates, and parties, it seems rather straightforward to simply ask them about their opinions, beliefs, and preferences. However, some researchers have raised concerns about the limits of self-report measures for understanding the psychological underpinnings of political behavior (e.g., Burdein, Lodge, & Taber, 2006; Nosek, Graham, & Hawkins, 2010). A common criticism of self-report measures is that they are unable to capture thoughts and feelings that people are either unwilling or unable to report (Greenwald & Banaji, 1995). For example, responses on self-report measures are often distorted by social desirability and self-presentation when they involve socially sensitive topics. Moreover, the value of self-report measures seems limited for the assessment of thoughts and feelings that are outside of conscious awareness.

Over the past years, psychologists have devoted considerable efforts to overcome these problems by adopting paradigms from cognitive psychology (e.g., sequential priming tasks, response interference tasks) to measure attitudes and cognate psychological constructs (for reviews, see Gawronski, Deutsch, & Banse, 2011; Wentura & Degner, 2010). In the psychological literature, these measures are commonly referred to as *implicit measures*, whereas self-report measures are described as *explicit measures*. The most well-known examples of implicit measures are the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998) and the evaluative priming task (Fazio, Jackson, Dunton, & Williams, 1995). Other prominent examples include the extrinsic affective Simon task (De Houwer, 2003), the go/no-go association task (Nosek & Banaji, 2001), and the affect misattribution procedure (Payne, Cheng, Govorun, & Stewart, 2005). A shared characteristic of these measures is that they (1) constrain people's ability to control their responses and (2) do not require conscious awareness for the assessment of thoughts and feelings. Thus, implicit measures resemble earlier nonreactive measures in which participants are unaware of how their behavioral responses may reflect attitudes, opinions, and beliefs (Webb, Campbell, Schwartz, & Sechrest, 1966). Yet, implicit measures are different, in that the to-be-measured psychological construct is assumed to influence participants' responses in an automatic fashion (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009). Over the past decade, implicit measures have been adopted in virtually every area of basic and applied psychology (for a review, see Gawronski & Payne, 2010), including a considerable number of studies in political psychology.

Despite this ubiquitous trend, it seems justified to ask what insights political psychologists might gain from using implicit measures in their research. Skeptics might argue that the use of implicit measures in political psychology is just another example of the current obsession with response times in highly controlled lab environments, which may provide little insight into political behavior in the real world (Baumeister, Vohs, & Funder, 2007). In fact, there are empirical and theoretical reasons why political psychology might be one of the few domains where the use of implicit measures may not provide any insight that could not be gained from explicit measures. In the current article, we review these arguments, noting that they are presumably correct if they are considered in isolation. Yet, recent evidence suggests that implicit measures can be useful to identify distal sources of political preferences that are difficult to capture with self-reports (e.g., influence of racial attitudes on voting decisions). In addition, implicit measures can provide valuable insights into biases in the processing of decision-relevant information, which have important implications for the prediction of political behavior in real-world contexts (e.g., prediction of voting behavior of undecided voters). The significance of these findings is supported by a growing body of research, showing that implicit measures predict future political preferences over and above explicit measures, which might ultimately improve the prediction of election outcomes. These findings support not only the usefulness of implicit measures for political psychology; they also provide valuable insights for basic research on the relation between implicit and explicit measures. Taken together, the reviewed evidence raises multiple interesting questions for future research in political psychology, which we discuss in the final section of this review.

Empirical and Theoretical Reasons to be Skeptical

Although implicit measures have their historical roots in the mid-1980s when social psychologists adopted sequential priming tasks to study the automatic activation of attitudes (Fazio, Sanbonmatsu, Powell, & Kardes, 1986) and stereotypes (Gaertner & McLaughlin, 1983), the current surge is closely linked to the development of the IAT (Greenwald et al., 1998) in the late 1990s (for a review, see Payne & Gawronski, 2010). Over the past decade, the widespread use of implicit measures in basic research has also sparked the interest of various applied disciplines, including political psychology. For example, drawing on a review of several studies that used implicit measures

to study political preferences, Burdein et al. (2006) endorsed the adoption of implicit measures to study the psychological underpinnings of political behavior. However, most of the studies reviewed in their article simply demonstrated the effects of different stimuli and individual participant characteristics on measurement scores revealed by implicit measures (e.g., significant priming effects of different kinds of stimuli for self-identified Democrats versus Republicans; see also Lodge & Taber, 2005; Morris, Squires, Taber, & Lodge, 2003). Thus, an open question is what these findings can tell us about political behavior in the real world. In fact, there are several empirical and theoretical arguments that might raise doubts about the usefulness of implicit measures for political psychology.

One of the goals that inspired the development of implicit measures was to overcome the limits of self-report measures in assessing thoughts and feelings that are outside of conscious awareness (Greenwald & Banaji, 1995). A common argument to support the presumed validity of implicit measures in assessing unconscious attitudes is their low correlation with explicit measures (for a meta-analysis, see Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). The basic assumption is that low correlations indicate that people are unaware of the attitudes captured by implicit measures and therefore unable to report them on explicit measures. However, although low correlations are certainly consistent with this assumption, correlations between two kinds of measures can be low for a variety of reasons. In fact, a substantial body of research suggests that the commonly observed dissociations between implicit and explicit measures are due to various other factors that have little to do with lack of conscious awareness (for reviews, see Gawronski, LeBel, & Peters, 2007; Hofmann, Gschwendner, Nosek, & Schmitt, 2005). For example, correlations between implicit and explicit measures tend to be much higher when self-presentational concerns are low (for meta-analytic evidence, see Cameron, Brown-Iannuzzi, & Payne, 2012; Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Moreover, a considerable body of research has shown that minor changes in the way a question is asked in an explicit measure (e.g., asking participants to focus on their “gut feelings”) substantially increase its correlation to a corresponding implicit measure (e.g., Gawronski & LeBel, 2008; Grumm, Nestler, & von Collani, 2009; Jordan, Whitfield, & Zeigler-Hill, 2007; Smith & Nosek, 2011; see also Hofmann, Gawronski, Gschwendner, Le, & Schmitt 2005 for meta-analytic evidence). Taken together, these findings pose a challenge to the widespread assumption that implicit measures provide access to thoughts and feelings that are outside of conscious awareness. If attitudes captured by implicit measures were indeed unconscious, simple changes in context and question wording should be ineffective in increasing the correspondence between implicit and explicit measures (for a review, see Gawronski, Hofmann, & Wilbur, 2006).¹ In fact, when participants are asked to predict their scores on implicit measures, their predictions are highly accurate with correlations in the range of $r = .70$ (Hahn & Gawronski, in press).

Although these results indicate that implicit measures do not capture thoughts and feelings that are outside of conscious awareness, one could argue that their lower susceptibility to strategic influences might help to overcome the well-known problems of social desirability. Empirical support for this assumption comes from meta-analytic evidence showing that the predictive validity of explicit measures is lower for socially sensitive topics, whereas the predictive validity of implicit measures remains unaffected by self-presentational concerns (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). This pattern is particularly evident in the domain of intergroup attitudes where implicit measures (1) show rather low correlations to explicit measures and (2) outperform explicit measures in the prediction of behavior. Applied to the current question, these results suggest that

¹ One reviewer argued that this conclusion is based on the premise that conscious and unconscious attitudes are necessarily different. If the two kinds of attitudes are equivalent, explicit and implicit measures should show high correspondence even when they are differentially sensitive in capturing conscious versus unconscious attitudes. Although it is certainly possible that conscious and unconscious attitudes converge, this argument implies a rejection of corresponding self-reports as a valid criterion for conscious awareness, making any claims about unconscious attitudes unfalsifiable.

implicit measures are particularly useful for research on socially sensitive topics, such as the relation between racial attitudes and political preferences (e.g., Greenwald, Smith, Sriram, Bar-Anan, & Nosek, 2009; Knowles, Lowery, & Schaumberg, 2010; Payne et al., 2010; Pérez, 2010). Yet, for regular political attitudes, implicit and explicit measures typically show very high correlations (often in the range of $r = .70$; see Nosek et al., 2010), suggesting that the influence of self-presentation is rather minor (if there is any at all). Moreover, although meta-analytic evidence by Greenwald et al. (2009) revealed that implicit measures of regular political attitudes show the highest zero-order correlation to behavior compared to all other domains ($r = .48$), this correlation was significantly reduced after controlling for corresponding explicit measures ($r = .15$). These results suggest that the high zero-order correlation of implicit measures to political behavior may be due to their shared variance with explicit measures rather than uniquely predicted variance in the criterion measure.² Thus, although implicit measures have clearly demonstrated their usefulness in identifying distal sources of political preferences in domains where self-presentation may bias self-reports (e.g., influence of racial attitudes on voting decisions; see Table 1), it seems justified to ask why political psychologists who are interested in less sensitive issues should care about time-consuming and resource-intensive implicit measures if explicit measures are largely redundant for proximal political attitudes (e.g., candidate or party preferences).

A potential argument in favor of implicit measures could be derived from current dual-process theories (e.g., Fazio & Olson, 2003; Strack & Deutsch, 2004). Specifically, one could argue that using both explicit and implicit measures may provide deeper insights into the psychological underpinnings of behavior, because the two kinds of measures may predict different kinds of behavior. Although dual-process theories differ in their assumptions about the particular processes that ultimately guide behavior, a shared prediction of these theories is that explicit measures should outperform implicit measures in the prediction of deliberate behavior, whereas implicit measures should outperform explicit measures in the prediction of spontaneous behavior. These predictions have been confirmed in numerous of studies across various domains (for reviews, see Cameron et al., 2012; Friese, Hofmann, & Schmitt, 2008; Perugini, Richetin, & Zogmaister, 2010; but see Greenwald et al., 2009). Yet, these studies also raise the question of whether implicit measures can provide any useful information about political behavior in real-world settings. For example, the act of voting for a political party or candidate is quite different from the spontaneous behaviors that have been shown to be predicted by implicit measures (e.g., nonverbal behavior in interpersonal interactions), in that voting is intentional, conscious, and controllable. Thus, current dual-process theories and the available evidence in support of their predictions might also raise doubts about the usefulness of implicit measures to understand real-world political behavior.

Biased Processing of Decision-Relevant Information

If implicit measures are largely redundant with explicit measures in the assessment of regular political attitudes, and if their validity in predicting political behavior is mainly due to their overlap with explicit measures, a potential conclusion might be that implicit measures do not provide any insights into real-world political behavior that could not be gained from explicit measures. Yet, counter to this conclusion, we argue that there is an alternative perspective that has guided research

² Meta-analytic evidence suggests that the zero-order correlation between implicit and explicit measures is one of the strongest moderators of predictive validity, in that correlations between implicit measures and behavior increase as a function of increasing correlations between implicit and explicit measures (Cameron, Brown-Iannuzzi, & Payne, 2012; Greenwald et al., 2009). However, it is important to note that these findings refer to zero-order correlations rather than partial correlations controlling for explicit measures. For political attitudes, implicit measures showed the highest correlation to both explicit measures and behavior, but the predictive validity of implicit measures was dramatically reduced after controlling for explicit measures (Greenwald et al., 2009).

Table 1. Overview of Published Studies That Have Used Implicit Measures of Prejudice to Prospectively Predict Political Judgments and Actual Political Behavior

Citation	Study	Sample	Topic	Construct	Delay	Main Finding
Greenwald et al. (2009)	1	1,057 visitors of Project Implicit website	2008 U.S. Presidential Election (Obama vs. McCain)	Evaluations of Blacks vs. Whites	None	Implicit and explicit measures of racial bias predicted voting intentions in simultaneous regression after controlling for liberalism/conservatism
Knowles et al. (2010)	1a	195 volunteers for online studies	2008 U.S. Presidential Election (Obama vs. McCain)	Evaluations of Blacks vs. Whites	3 weeks	Implicit measures of racial bias predicted future voting behavior after controlling for corresponding explicit measures
Knowles et al. (2010)	1b	230 volunteers for online studies	Support for Obama's health care reform plan	Evaluations of Blacks vs. Whites	11 months	Implicit measures of racial bias predicted future support for Obama's health care reform plan when the plan was attributed to Barack Obama, but not when it was attributed to Bill Clinton
Payne et al. (2010)	1a	Nationally representative sample of 1,065 American voters	2008 U.S. Presidential Election (Obama vs. McCain)	Evaluations of Blacks vs. Whites	Between 1 and 2 months	Implicit and explicit measures of racial bias predicted future voting behavior in simultaneous regression after controlling for gender, age, race, education, income, party identification, and liberalism/conservatism
Payne et al. (2010)	1b	Nationally representative sample of 1,933 American voters	2008 U.S. Presidential Election (Obama vs. McCain)	Evaluations of Blacks vs. Whites	Between 1 day and 2 months	Implicit and explicit measures of racial bias predicted future voting behavior in simultaneous regression after controlling for gender, age, race, education, income, party identification, and liberalism/conservatism
Payne et al. (2010)	1c	Nationally representative sample of 1,424 American voters	2008 U.S. Presidential Election (Obama vs. McCain)	Evaluations of Blacks vs. Whites	Between 2 and 3 months	Implicit and explicit measures of racial bias predicted future voting behavior in simultaneous regression after controlling for gender, age, race, education, income, party identification, and liberalism/conservatism
Pérez (2010)	1	Nationally representative sample of 350 American adults	Evaluations of immigration policies	Evaluations of Latinos vs. Whites	None	Implicit measure of bias against Latinos predicted evaluations of immigration policies over and above explicit measures of authoritarianism and ethnocentrism

on attitude-behavior relations before the development of implicit measures but has rarely been considered since then. According to Fazio's (1990) MODE model of attitude-behavior relations, attitudes can influence behavior through two different routes: (1) a deliberate route in which the attitude is used as a basis to evaluate the available behavioral options and (2) a spontaneous route in which the attitude influences the perception of the current situation.³ The first route resonates with the idea that political behavior (e.g., voting) is guided by subjective evaluations of the perceived outcomes of the available courses of actions and the subjective probability of these outcomes. Yet, the second route is quite different from such expectancy-by-value calculations, in that attitudes may shape political behavior by distorting the perception of decision-relevant information (cf. Forman & Selly, 2001; Lau & Redlawsk, 2001; Mintz & DeRouen, 2010). Such biased perceptions of decision-relevant information are particularly interesting in the context of future political choices of individuals who are undecided about a particular issue. To the extent that implicit measures can provide insights into the biased processing of decision-relevant information, they may help to predict future political preferences of individuals who report being undecided on explicit measures. A growing body of research suggests that implicit measures can indeed provide valuable insights in this regard—insights that seem difficult to gain with explicit measures.

A useful set of studies to illustrate this argument concerns the prediction of biases in the perception of ambiguous information (e.g., Gawronski, Geschke, & Banse, 2003; Hugenberg & Bodenhausen, 2003). For example, in a study by Hugenberg and Bodenhausen (2003) White participants were presented with short movie clips in which the facial expression of Black or White individuals changed either from frowning to smiling or from smiling to frowning. The faces were generated by means of a computer software that allowed the researchers to manipulate the apparent race of the target through changes in skin color and hair style while keeping the physiognomic structure of the faces identical. Depending on the particular condition, participants' task was to press a key (1) as soon as they saw hostility in the facial expression when it changed from smiling to frowning and (2) as soon as they saw no hostility in the facial expression anymore when it changed from frowning to smiling. Results showed that participants saw hostility earlier and for a longer period when the faces were Black than when they were White, even though the faces were identical except for their skin color and hair style. Importantly, the relative size of this bias was predicted by an implicit measure of racial prejudice; a corresponding explicit measure failed to predict perceptual biases in face processing although it was positively correlated with the implicit measure. Similar findings have been reported by Gawronski, Geschke, et al. (2003), who further demonstrated that the biasing effect of target ethnicity on the perception of ambiguous information remained unqualified by participants' motivation to control prejudiced reactions. Drawing on current models of judgmental correction (Strack & Hannover, 1996; Wegener & Petty, 1997; Wilson & Brekke, 1994; for a review, see Gawronski & Bodenhausen, 2012), this finding suggests that participants were unaware of their perceptual bias but instead treated their subjective perceptions as objective reflections of reality (see also Trope & Gaunt, 1999). Beyond biased perceptions of ambiguous information, implicit measures have been shown to predict biases in the memory for stereotype-congruent versus stereotype-incongruent information (Gawronski, Ehrenberg, Banse, Zukova, & Klauer, 2003) and selective exposure to confirmatory information (Galdi, Gawronski, Arcuri, & Friese, 2012).

³ Although the MODE model is one of the most influential theoretical frameworks in research using implicit measures, the hypothesis that attitudes can influence behavior through biased perceptions of the situation has received surprisingly little attention in this literature (for a discussion, see Deutsch & Strack, 2010). Instead, the assumptions of the MODE model are often boiled down to the hypothesis that implicit measures outperform explicit measures in the prediction of spontaneous behavior, whereas explicit measures outperform implicit measure in the prediction of deliberate behavior.

Prediction of Political Behavior

The available evidence that implicit measures predict biases in information processing that are unrelated to explicit measures has important implications for political psychology. Political decisions are usually based on whatever decision-relevant information is available to a person. Yet, this informational basis may be distorted in one or the other direction due to the biased interpretation of ambiguous information and selective exposure to unambiguous information that favors a particular decision (cf. Forman & Selly, 2001; Lau & Redlawsk, 2001; Mintz & DeRouen, 2010). To the extent that implicit measures are capable of predicting these biases, they may be particularly useful to predict future political decisions of individuals who report being undecided on explicit measures. Specifically, implicit measures may contribute to the prediction of future political decisions of undecided individuals by identifying potential distortions in the information that these individuals use to make a decision.

Evidence for these assumptions comes from several recent studies demonstrating the incremental validity of implicit measures in the prediction of political preferences and actual voting behavior over and above explicit measures (see Table 2).⁴ In one of the earliest studies, Friese, Bluemke, and Wänke (2007) showed that IAT measures of party evaluations that were obtained up to three months before the 2002 German Parliamentary Election significantly improved the prediction of future voting behavior over and above explicit measures. Similar findings are reported by Di Conza, Gnisci, Perugini, and Senese (2010) for the 2004 European Election in Italy and the 2005 General Election in Great Britain using IAT measures of party preferences and candidate evaluations. Drawing on data from a nationally representative sample of Italian voters collected one month before the 2006 Italian National Election, Rocco and Zogmaister (2010) found that an IAT measure of candidate preferences significantly improved the prediction of the official election results. Focusing particularly on undecided voters, Arcuri, Castelli, Galdi, Zogmaister, and Amadori (2008) investigated the usefulness of implicit measures in predicting future voting behavior in the 2001 Italian General Election and the 2005 Local Elections in the region of Veneto in Italy. In their research, an IAT measure of candidate preferences that was obtained one month before the elections significantly predicted future voting behavior for participants who reported being undecided at the time of measurement. A follow-up study by Galdi, Arcuri, and Gawronski (2008) demonstrated that self-reported beliefs about a controversial political issue (i.e., the expansion of a U.S. military base in Vicenza, Italy) outperformed a corresponding IAT measure in predicting future preferences of participants who described themselves as decided. In contrast, future preferences of undecided participants were significantly predicted by the IAT measure, but not their self-reported beliefs. Expanding on these findings, Friese, Smith, Plischke, Bluemke, and Nosek (2012) investigated the usefulness of implicit and explicit measures in the 2008 U.S. Presidential Election and the 2009 German Parliamentary Election. In their research, IAT measures of candidate and party preferences that were obtained up to three months before the elections predicted voting behavior of both decided and undecided participants over and above explicit measures. Importantly, in all of the reviewed studies, implicit measures predicted future political choices over periods that ranged between one week and three months even after controlling for corresponding explicit measures. The only study in which implicit measures failed to show incremental validity in the prediction of political choices assessed the relevant criterion within the same session. In this study, Karpinski, Steinman, and Hilton (2005) found that, although an IAT measure of candidate preferences was significantly related to voting intentions prior to the 2000 U.S. Presidential Election, this relation was fully attenuated after controlling for a corresponding explicit measure. We will return to this finding in the following section when we discuss implications for the prediction of political behavior by implicit measures.

⁴ Note that the majority of studies reviewed in this section were not included in the meta-analyses by Greenwald et al. (2009) and Cameron et al. (2012).

Table 2. Overview of Published Studies That Have Used Implicit Measures of Regular Political Attitudes to Prospectively Predict Political Judgments and Actual Political Behavior

Citation	Study	Sample	Topic	Construct	Delay	Main Finding
Arcuri et al. (2008)	1	74 residents of Milan, Italy	2001 Italian General Election	Candidate evaluations	1 month	Implicit measure predicted future voting behavior for both decided and undecided participants (no inclusion of explicit measure)
Arcuri et al. (2008)	2	58 residents of Veneto region, Italy; all undecided	2005 Local Election, Veneto, Italy	Candidate evaluations	1 month	Implicit measure predicted future voting behavior in a sample of undecided participants (no inclusion of explicit measure)
Di Conza et al. (2010)	1	92 university students	2004 European Parliamentary Election	Party evaluations, candidate evaluations	3 weeks	Implicit measures showed incremental validity in the prediction of future voting behavior over and above explicit measure
Di Conza et al. (2010)	2	61 university students	2005 British General Election	Party evaluations, candidate evaluations	2 weeks	Implicit measures showed incremental validity in the prediction of future voting behavior over and above explicit measure
Friese et al. (2007)	1	1,548 internet users	2002 German Parliamentary Election	Party evaluations	Up to 3 months	Implicit measure showed incremental validity in the prediction of future voting behavior over and above explicit measure
Friese et al. (2012)	1	3,884 visitors of Project Implicit website	2008 U.S. Presidential Election (Obama vs. McCain)	Candidate evaluations	Up to 3 months	Implicit measure predicted future voting behavior after controlling for explicit measure for both decided and undecided participants
Friese et al. (2012)	2	913 internet users	2009 German Parliamentary Election	Party evaluations, candidate evaluations	Average of 52 days	Implicit measure predicted future voting behavior after controlling for explicit measure for both decided and undecided participants
Galdi et al. (2008)	1	129 residents of Vicenza, Italy	Expansion of U.S. military base in Vicenza, Italy	Evaluation of expansion plans	1 week	Implicit measure (but not explicit measure) predicted future preferences for undecided participants in simultaneous regression; explicit measure (but not implicit measure) predicted future preference for decided participants in simultaneous regression

Galdi et al. (2012)	1	113 residents of Northern Italy	Turkey's inclusion into the European Union	Evaluation of Turkey's inclusion into the European Union	1 week	Implicit measure (but not explicit measure) predicted selective exposure to confirmatory newspaper articles for undecided participants in simultaneous regression; explicit measure (but not implicit measure) predicted selective exposure to confirmatory newspaper articles for decided participants in simultaneous regression
Hawkins & Nosek (2012)	1	625 visitors of Project Implicit website	Evaluations of mock welfare policies ostensibly proposed by Democratic vs. Republican party	Political identity	None	Implicit measure of political identification predicted preference for "partisan" welfare policies regardless of content among self-proclaimed independents
Hawkins & Nosek (2012)	1	617 visitors of Project Implicit website	Evaluations of mock education policies ostensibly proposed by Democratic vs. Republican party	Political identity	None	Implicit measure of political identification predicted preference for "partisan" education policies regardless of content among self-proclaimed independents
Karpinski et al. (2005)	1	194 introductory psychology students	2000 U.S. Presidential Election (Bush vs. Gore)	Candidate evaluations	None	Both implicit and explicit measure predicted voting intention, but predictive relation of implicit measure fully attenuated after controlling for explicit measure
Roccatto & Zogmaister (2010)	1	Nationally representative sample of 1,377 Italian voters	2006 Italian National Election	Party evaluations, candidate evaluations	1 month	Implicit measure as effective in prediction of future election outcome as voting intention and more effective than explicit measures of candidate and party evaluations; implicit measure predicted future voting behavior after controlling for voting intention and explicit measures of candidate and party evaluations

Note. The table does not include studies that used measures of brain activity as dependent variables or retrospective designs in which implicit measures were correlated with past behavior (e.g., voting in an earlier election).

Biased Information Processing as a Mediator

Although there are multiple reasons why eligible voters report being undecided (e.g., ambivalence, lack of interest, strategic reporting), the successful prediction of their future political choices by implicit measures is consistent with the reviewed evidence on biases in information processing. As we noted above, undecided individuals typically use whatever information they have available to make a final decision. However, this information is often the product of biased interpretations of ambiguous information (see Gawronski, Geschke, et al., 2003; Hugenberg & Bodenhausen, 2003) and selective exposure to confirmatory information (see Galdi et al., 2012), thereby favoring a particular decision. Consistent with the former type of influence, a recent study by Hawkins and Nosek (2012) found that an IAT measure of party identity predicted biased perceptions of welfare and education policies in self-proclaimed independents. Regardless of the particular details of the proposed policies, participants who showed a liberal party identity on the IAT preferred the policy that was ostensibly proposed by the Democratic party, whereas those who showed a conservative party identity on the IAT preferred the policy that was ostensibly proposed by the Republican party (for similar effects of racial attitudes, see Knowles et al., 2010). Consistent with the latter type of influence, Galdi et al. (2012) showed that participants who reported being undecided about a controversial political issue (i.e., the inclusion of Turkey into the European Union) selectively exposed themselves to newspaper articles whose headlines indicated a view that was consistent with their response to this issue on an IAT. Thus, to the extent that biased perceptions of ambiguous information (Hawkins & Nosek, 2012) and selective exposure to confirmatory information (Galdi et al., 2012) distort the informational basis that is used to make a decision, implicit measures can make a unique contribution to the prediction of future political choices by individuals who identify themselves as undecided or politically independent.

The finding that implicit measures predict deliberate political behavior—and sometimes even outperform explicit measures in this regard—seems inconsistent with dual-process theorizing suggesting that implicit measures uniquely predict spontaneous behavior, whereas explicit measures uniquely predict deliberate behavior. In fact, this assumption has been challenged by meta-analytic findings suggesting that the relation between types of measures and types of behavior is much more complex than the hypothesized double dissociation in the prediction of spontaneous and deliberate behavior (Cameron et al., 2012; Greenwald et al., 2009). To the extent that implicit measures predict biases in information processing, they may very well predict deliberate behavioral decisions that are based on this information, thereby leading to additive or moderated patterns—rather than strict double-dissociation patterns—in the prediction of behavior (see Perugini et al., 2010).

An important aspect in this regard is the delay between the measurement of the relevant predictors and the measurement of the to-be-predicted behavior. Although the available evidence is still limited at this point, it is worth noting that the only study in which implicit measures failed to predict political behavior over and above explicit measures assessed both the relevant predictor and the to-be-predicted behavior in the same session (Karpinski et al., 2005). All other studies on actual political behavior have used intervals of one week or longer between the measurement of the predictors and the to-be-predicted behavior (see Table 2). This difference is important for the prediction of political behavior by means of implicit and explicit measures. If the two kinds of measures are administered shortly before the assessment of to-be-predicted behavior, it seems reasonable to assume that people will use their subjective beliefs about the relevant states of affairs to make a behavioral decision, and these beliefs are usually well captured by explicit measures (unless there are strategic or self-presentational concerns; see Table 1). Hence, when the relevant predictors and the to-be-predicted behavior are measured within close temporal proximity, implicit measures of regular political attitudes should add little to the prediction of political behavior over and above explicit measures. With increasing delays, however, subjective beliefs often undergo change

over time, and these changes can be predicted by implicit measures on the basis of their capacity to predict biases in the processing of decision-relevant information. Consistent with these assumptions, Galdi and colleagues found that an IAT measure predicted changes in the self-reported political beliefs of undecided participants over a period of one week (Galdi et al., 2008), and this predictive relation was mediated by selective exposure to information that was consistent with their responses on the IAT (Galdi et al., 2012). Thus, although implicit measures of regular political attitudes add little (if anything) to the prediction of political behavior when the relevant predictors and the to-be-predicted behavior are measured in close temporal proximity, their predictive validity can be assumed to increase with increasing delays between the measurement of the relevant predictors and the measurement of to-be-predicted behavior. Although this assumption is speculative at this point, it is consistent with meta-analytic findings by Greenwald et al. (2009) showing that correlations between implicit measures and behavior tended to be higher when they were administered in separate sessions than when they were administered in the same session, although this difference failed to reach the conventional level of statistical significance.⁵ Future research investigating effects of measurement delay would help to gain deeper insights into the temporal conditions under which implicit measures provide a useful addition for the prediction of political behavior.

Implications for Basic Research

The available evidence suggests that, despite the reviewed reasons to be skeptical, implicit measures of regular political attitudes can indeed provide valuable insights for political psychology over and above the information that can be gained from explicit measures. Conversely, the reviewed findings also have important implications for basic research on the relation between implicit and explicit measures. Several prominent theories of attitudes assume that implicit measures capture automatic affective reactions that are subjectively experienced as “gut” feelings (e.g., Fazio, 2007; Gawronski & Bodenhausen, 2007). In many situations, people rely on these feelings when they have to make an evaluative judgment, thereby leading to convergent responses on implicit and explicit measures. Yet, in some situations, these feelings are inconsistent with other momentarily considered information, thereby leading to a rejection of these feelings for overt evaluative judgments (Gawronski & Bodenhausen, 2006, 2011). For example, a person may elicit a positive affective reaction on the basis of his or her facial features (captured by implicit measures), and this reaction may be used as a basis for a self-reported positive evaluation of that person (captured by explicit measures) unless there is additional information about the person available that suggests a negative evaluation (e.g., information that the person is not trustworthy; see Sritharan, Heilpern, Wilbur, & Gawronski, 2010). This conceptualization is consistent with a considerable body of research showing that correlations between implicit and explicit measures decrease as a function of cognitive elaboration (e.g., LeBel, 2010; Ranganath, Smith, & Nosek, 2008), particularly when the generated information is inconsistent with the automatic affective reaction captured by the implicit measure (e.g., Gawronski, Peters, Brochu, & Strack, 2008; Gawronski & Strack, 2004).

Expanding on research suggesting that the use of automatic affective reactions for self-reported evaluative judgments can be disrupted by the *presence* of other information, the reviewed studies on political decision making suggest that the reliance on automatic affective reactions can also be disrupted by the *absence* of other information. Specifically, the available evidence suggests that automatic affective reactions are not used as a basis for self-reported political preferences in the absence of supportive arguments that rationalize one’s automatic affective response. Biased information processing can provide these arguments through selective exposure to confirmatory

⁵ Note that this hypothesis refers particularly to deliberate behavior and not necessarily to spontaneous behavior, which were combined in Greenwald et al.’s (2009) analysis.

information (e.g., Galdi et al., 2012) or biased interpretation of ambiguous information (e.g., Hawkins & Nosek, 2012). In other words, when individuals report being undecided about a particular political issue, they may nevertheless experience automatic affective reactions toward the available choice options, but they may not feel confident enough to endorse them on an explicit measure as long as they are unable to rationalize their affective reactions (see also Lodge & Taber, 2005; Morris et al., 2003). The available evidence suggests that implicit measures are able to capture such embryonic preferences (see Arcuri et al., 2008), which have been shown to influence future decisions through biases in the processing of decision-relevant information.

Open Questions and Future Directions

The current review also raises a number of interesting questions for future research on political decision making. One important question concerns the sources of embryonic preferences that have been shown to guide future choices of undecided individuals. Drawing Gawronski and Bodenhausen's (2006, 2007, 2011) associative-propositional evaluation (APE) model, there at least two possible sources that deserve closer attention in the context of political decision making. First, automatic affective reactions may be the product of associative processes of pattern matching in memory, which can elicit automatic affective reactions to unknown objects on the basis of their resemblance to known objects. For example, research has shown that unknown faces elicit the same evaluative responses on implicit measures as the known faces they resemble (Gawronski & Quinn, 2013). Thus, individual learning histories can have important implications for political preferences, if they involve positive or negative experiences with individuals who resemble a political candidate. At a more general level, there is also evidence that certain facial features are associated with politically relevant traits, such as competence and trustworthiness (for a review, see Olivola & Todorov, 2010). Drawing on these findings, a number of studies have shown that facial features can influence political preferences and ultimately election outcomes (e.g., Ballem & Todorov, 2007; Todorov, Mandisodza, Goren, & Hall, 2005). Whereas the former type of influence (i.e., subjective facial resemblance) points to the importance of individual learning histories, the latter type of influence (i.e., objective facial structures) suggests the operation of fundamental biological mechanisms. However, the available evidence does not specify how the spontaneous responses to facial features influence voting decisions. The findings reviewed in the current article suggest that the automatic affective reactions that are elicited by facial features may bias the processing of decision-relevant information in a manner such that undecided voters are more likely to acquire information that supports a preference for candidates with particular facial features.

Another important source of embryonic preferences concerns the automatic formation of associative links through repeated co-occurrences of objects and events. Associative theories of evaluative conditioning (EC) argue that repeated co-occurrences of a conditioned stimulus (CS) with a positive or negative unconditioned stimulus (US) create a mental association between the two stimuli in memory (Gawronski & Bodenhausen, 2006). As a result, future presentations of the CS activate the representation of the US through processes of spreading activation, thereby eliciting an evaluative response to the CS that is in line with the one to the US (e.g., Walther, Gawronski, Blank, & Langer, 2009). In the political literature, associative influence strategies have received considerable attention during the 2000 U.S. Presidential Election, in which the campaign of George W. Bush aired a negative ad against his opponent Al Gore that involved a very brief presentation of the word *RATS* shortly before the presentation of the statement *BUREAUCRATS DECIDE* (Weinberger & Westen, 2008). The ad caused outrage among Gore supporters, who accused the Bush campaign of using subtle conditioning strategies to influence voters outside of their awareness. During the 2008 U.S. Presidential Election, similar concerns about associative influences have been raised against a cover illustration of *The New Yorker* magazine showing Barack and Michelle Obama as terrorists in the

oval office. Although the illustration was meant to be satirical, it received strong criticism from psychologists who argued that it may automatically create a mental association between Obama and terrorism in voters' minds even if they realize the satirical nature of the illustration (Banaji, 2008). Recent research on the invalidation of newly acquired information suggests that such associative influences can be intentionally controlled if invalidation occurs within a sufficiently short interval (Peters & Gawronski, 2011). However, future research is needed to investigate the range and limits of conscious control for campaign strategies that are more subtle and do not involve descriptive information that can be subject to invalidation (e.g., Moran & Bar-Anan, 2013).

Another important question in this context concerns the influence of negative campaigns. Kosloff, Greenberg, Schmader, Dechesne, and Weise (2010) investigated the role of stigmatizing "smear" information about McCain and Obama before the 2008 U.S. Presidential Election. Their results showed that opposition to either of the two candidates and salience of relevant social categories (i.e., age, race) influenced the automatic activation as well as the explicit acceptance of smear labels (i.e., McCain-senile; Obama-Muslim), and these effects were particularly pronounced among undecided voters. However, negative campaigns can also backfire when their negative content becomes associated with the source. For example, research on spontaneous trait transference (STT) has shown that message sources can become associatively linked to the traits they describe in others (Skowronski, Carlston, Mae, & Crawford, 1998), which suggests that the sources of negative campaigns may become associated with the negative contents of their messages. Evidence for this assumption comes from a study by Carraro, Gawronski, and Castelli (2010) who investigated the effects of positive versus negative campaigns on evaluations of the sources and the targets of these campaigns. Their results showed that evaluations captured by an implicit measure were less favorable for both the source and the target when the campaign was negative than when it was positive. Interestingly, these effects were not qualified by the self-reported party preferences of the participants and the ostensible party affiliation of the two candidates. In combination with the reviewed findings on decision processes in undecided voters (e.g., Galdi et al., 2008, 2012), Carraro et al.'s (2010) findings suggest that negative campaigns may alienate undecided voters from both the sources and the targets of these campaigns. To the extent that negative campaigns create negative associations with regard to both the sources and the targets of these campaigns, and given that the automatic affective reactions resulting from these associations influence future choices of undecided voters through biases in information processing (Galdi et al., 2012; Hawkins & Nosek, 2012), undecided voters may eventually vote for none of the two candidates. In elections that are dominated by two competing parties or candidates (e.g., the presidential elections in the United States), these processes could potentially contribute to reduced voter turnout as a result of negative campaigns (e.g., Ansolabehere & Iyengar, 1995; Ansolabehere, Iyengar, Simon, & Valentino, 1994; Kahn & Kenney, 1999; Lau & Pomper, 2001). In elections that involve more than two parties or candidates (e.g., the general elections in many European countries), negative campaigns involving two dominant parties or candidates could possibly lead to an advantage for less dominant competitors. Future research may help to provide deeper insights into these interesting questions.

A final question concerns the potential use of implicit measures to improve the prediction of election outcomes. The available evidence gives reason to be optimistic in this regard (e.g., Roccoato & Zogmaister, 2010), but more research is needed to establish the predictive validity of implicit measures in the context of actual voting behavior. If their predictive validity can be replicated, an interesting follow-up question is whether they could possibly be replaced by explicit measures that are particularly designed to capture the automatic affective reactions that are reflected in implicit measures. As we noted in the preceding sections, previous research has shown that the correspondence between implicit and explicit measures increases when participants are encouraged to report their spontaneous "gut" feelings (e.g., Gawronski & LeBel, 2008; Grumm et al., 2009; Jordan et al., 2007; Ranganath et al., 2008; Smith & Nosek, 2011). These results suggest that it may not be

necessary to rely on time-intensive and resource-consuming response latency measures to predict future choices of undecided voters. Instead, it might be possible to obtain the same information with carefully designed self-report measures that are particularly directed at participants' automatic affective reactions toward the relevant options. A potential approach in this regard would be to ask respondents who describe themselves as undecided about their spontaneous "gut" feelings toward the available options independent of any arguments (e.g., feeling thermometer ratings with appropriate instructions). Regardless of whether such measures can indeed provide the same information as implicit measures in the prediction of future choices of undecided voters, explicit measures that are particularly designed to tap automatic affective reactions are an interesting addition to studies on the prediction of election outcomes.

Summary

Despite empirical and theoretical arguments to be skeptical about the usefulness of implicit measures for political psychology, the available evidence suggests that implicit measures can help to gain deeper insights into the psychological underpinnings of political behavior. Our review suggests that these insights go far beyond the prevention of self-presentation in socially sensitive domains (e.g., influence of racial attitudes on voting decisions). Based on the available evidence, we argued that (1) implicit measures of regular political attitudes are capable of predicting biases in the processing of decision-relevant information that are difficult to predict with explicit measures and (2) implicit measures can contribute to the prediction of future political decisions that are based on this information. These conclusions are supported by a growing body of evidence showing that implicit measures predict political behavior in real-world contexts over and above explicit measures. In fact, the reviewed findings have important implications not only for political psychology; they also provide novel insights for basic research using implicit measures, including the role of prior knowledge as a moderator of the relation between implicit and explicit measures and the capacity of implicit measures to capture embryonic preferences that are not yet endorsed in self-reports. Thus, we believe that political decision making represents a very interesting context that offers valuable insights for both basic and applied research.

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