RUNNING HEAD: PERSON AND CULTURE

Automatic Associations:
Personal Attitudes or Cultural Knowledge?

Eric Luis Uhlmann
Northwestern University

T. Andrew Poehlman
Southern Methodist University

Brian A. Nosek
University of Virginia

CONTACT:

Eric Luis Uhlmann
Ford Motor Company Center for Global Citizenship
Kellogg School of Management, Northwestern University
Donald P. Jacobs Center
2001 Sheridan Road
Evanston, IL 60208-2001
Tel: (203)-687-9269
E-mail: e- uhlmann@northwestern.edu

Abstract

People have automatic associations about a myriad of targets, from political figures to consumer products to ethnic minorities. Here we consider three plausible interpretations of such associations. First, automatic associations may constitute automatic and spontaneous *implicit attitudes* that are related to, but distinct from, more deliberative, explicitly endorsed attitudes. Second, they may represent knowledge of cultural attitudes that has relatively little to do with personal feelings, judgments, and behaviors (the *culture-as-contaminant* interpretation). Third, automatic associations could represent knowledge of cultural attitudes that influences behaviors because individuals use others' attitudes to guide their own actions (the *culture-as-norms* interpretation). The present review finds that automatic associations exhibit relationships with feelings, judgments, and behaviors supportive of the implicit attitudes view and less consistent both versions of the cultural knowledge view. Environmental conditioning and the cultural victimization of the target do influence automatic associations. However, such effects alone are not decisive because the implicit attitudes view also expects strong environmental and cultural influences on automatic associations. We further discuss opposing interpretations of the effects of personalizing implicit measures, and suggest empirical criteria for resolving key aspects of the "person or culture?" debate.

Automatic Associations:
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Recent discoveries in social psychology and social cognition have brought longstanding philosophical debates about personhood, culture, and volition to a head. Research on cultural cognition, for instance, indicates that an individual's intuitive values and even basic cognitive processes are profoundly shaped by his or her cultural context (Haidt, 2001; Nisbett, Peng, Choi, & Norenzayan, 2001), casting doubt on the Western notion of the person as an independent agent. That notion has been challenged as well by studies demonstrating that, rather than acting rationally and logically to maximize their preferences, people act automatically based on simple associations conditioned in them by their environments (Dijksterhuis & Bargh, 2001; Greenwald & Banaji, 1995). Both these issues are central to an ongoing debate over whether automatic associations with social targets constitute personal attitudes or knowledge of cultural attitudes.

Cultural cognition

One cannot understand the minds of individuals without taking into account their cultural context (Fiske, Kitayama, Markus, & Nisbett, 1998; Hofstede, 2001; Inglehart, 1997; Markus & Kitayama, 1991). Cultural variations influence core values such as individualism, egalitarianism, toughness, the avoidance of uncertainty, and short vs. long-term orientation (Hofstede, 2001). Even putatively universal mental processes are turning out to vary from one culture to another. For instance, the so-called "fundamental attribution error"—the proclivity to exaggerate the role of people's dispositions and to underestimate the role of the situation when making causal attributions—is less fundamental in some cultures than others. While Westerners tend to attribute behavior to personality dispositions, East Asians are more context sensitive when explaining other people's actions (Choi, Nisbett, & Norenzayan, 1999; Markus, & Kitayama, 1991; Nisbett et al., 2001). Westerners, for that reason, perform better than Easterners on the rod-and-frame test, in which focusing on context leads to errors (Ji, Peng, & Nisbett, 2000), and East Asians are so attuned to context that their eyes spontaneously jump back and forth from the object of a photo to the background (Chua, Boland, & Nisbett, 2005).

Such culturally laden responses are intuitive and automatic—individuals do not have to deliberately consult their values before judging the position of the rod in a rod-and-frame test (Ji et al., 2000) or deciding that to eat one's dog is morally wrong (Haidt, Koller, & Dias, 1993). As Nisbett et al. (2001) explains, "[s]uch differential cognitive habits would of course be expected to become largely automatic and unconscious, just as the underlying naïve epistemology would be expected to be largely beyond the reach of conscious awareness." (p. 295). And Haidt (2001) describes "the sudden appearance in consciousness of a moral judgment, including an affective valence (good-bad, like-dislike), without any awareness of having gone through steps of searching, weighing evidence, or inferring a conclusion" (p. 818). This emphasis on the automatic component of feeling, judgment, and behavior is taken a step further in research on automatic associations.

Automatic associations

Just as a new understanding of cultural influence has developed, a new characterization of human decision-making has been gradually replacing theories of rational choice—one that turns out to be highly compatible with a culture-centered approach to cognition. People appear to have two ways of thinking: the first is explicit, propositional, and rule-based; and the second is implicit, associative, and intuitive (Gawronski & Bodenhausen, 2006; Greenwald & Banaji, 1995; Rudman, 2004; Strack & Deutsch, 2004; Wilson, Lindsey, & Schooler, 2000).

Implicit processes have been illustrated in experiments showing how primed concepts (e.g., words presented to participants surreptitiously) influence subjects' social judgments and behaviors (Dijksterhuis & Bargh, 2001). In one study, participants who were asked to unscramble sentences containing words related to politeness waited longer than other participants before interrupting a conversation between the experimenter and a confederate (Bargh, Chen, & Burrows, 1996). In other experiments, subjects who were exposed to words related to cooperativeness were more cooperative (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001), and those primed with words related to competition increased their competitiveness in a Prisoner's Dilemma game (Neuberg, 1988). Taken together, this work suggests that a pervasive cause of human action is automatic priming from both the immediate environment and broader culture.

The concept of an implicit (that is, spontaneous, automatic, and potentially even unconscious) attitude draws on that research on environmental influences and associative processes. Implicit attitudes are often conceived as evaluative associations (positive/negative, good/bad, pleasant/unpleasant) with an attitude object (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio, Jackson, Dunton, & Williams, 1995; Greenwald, McGhee, & Schwartz, 1998; Wittenbrink, Judd, & Park, 1997). Such associations are thought to become ingrained through experience and to influence an individual's judgments and actions whether or not that individual endorses them, or is even aware of possessing them (Banaji, 2001; Banaji, Nosek, & Greenwald, 2004; Gawronski & Bodenhausen, 2006; Greenwald & Banaji, 1995; Nosek & Hansen, 2008a; Rudman, 2004; Wilson et al., 2000).

By considering evaluative associations to be the basis of implicit attitudes, they are expected to show some properties that are true of attitudes in general, such as positive correlations with behavior, and sensitivity to group memberships and goals. At the same time, because they reflect *automatic* rather than controlled processes, such associations are expected to exhibit certain properties that are true of automatic cognitions in general. For example, the influence of automatic mental processes can be enhanced when the individual in question is unable to monitor and control her actions diligently (Blair, Judd, & Fallman, 2004; Shah, Kruglanski, & Thompson, 1998).

Association-based implicit measures

The most widely used research tools for assessing individual differences in implicit attitudes are evaluative priming tasks (Dovidio et al., 1997; Fazio et al., 1995) and the Implicit Association Test (IAT) (Greenwald et al., 1998; see Nosek, Greenwald, & Banaji, 2007 for overview). In a typical evaluative priming measure of racial associations, images of African American and European American faces are flashed on a screen. Immediately afterwards, selected words are flashed on the screen, and test

subjects are asked to categorize those words as either positive or negative. If exposure to African American faces is more likely to facilitate the speed of categorization of negative words than exposure to European American faces, and less likely to facilitate the categorization of positive words, it implies that the test subject has negative automatic associations with African Americans relative to European Americans.

Similarly, in the race IAT, African American and European American faces appear on the screen and participants categorize them according to their racial group. Simultaneously, participants must categorize selected words as positive or negative. For example, in one segment of the test, an image of an African American and the word "Good" share one response key and an image of a European American and "Bad" share another. In another segment, the pairings are reversed. The evidence reveals that most White Americans respond faster when African American and Bad are paired than when African American and Good are paired, reflecting more negative automatic associations with African Americans relative to Whites (Nosek, Smyth, et al., 2007).

The cultural knowledge question

The fact that most social psychologists have characterized automatic associations as implicit attitudes has provoked some criticism and debate about whether such associations should be understood, not as attitudes, but as reflections of cultural knowledge. By way of analogy, knowledge of positive cultural attitudes towards Coca-Cola might lead individuals who do not personally enjoy drinking soft drinks to nonetheless exhibit positive associations with Coke. Similarly, White Americans may associate African Americans with "Bad" not because they are implicitly prejudiced, but because they are aware of negative cultural attitudes towards Black people (Arkes & Tetlock, 2004; Fazio & Olson, 2003; Fiedler, Messner, & Bluemke, 2006; Karpinski & Hilton, 2001; Kihlstrom, 2004; Mitchell & Tetlock, 2006; Olson & Fazio, 2004a).[1] This cultural knowledge argument takes at least two distinct forms. One version—which we call the "culture-as-contaminant" position—suggests that cultural knowledge does not lead people to act negatively towards social targets with whom they have negative associations, or to act positively towards targets with whom they have positive associations. From this view, culturally based associations neither reflect an individual's

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[1] This Chapter focuses on the general theoretical issue of whether automatic associations are best characterized as implicit attitudes or cultural knowledge. However, it is important to note that individual scholars have taken different positions not only on the extent to which cultural knowledge influences automatic associations, but also regarding which association-based measures are most susceptible. Karpinski and Hilton (2001) primarily critique IAT measures, but note that other association-based measures are potentially subject to the influence of cultural knowledge (see also Fiedler et al., 2006). Olson and Fazio (2004a) argue that IAT measures tap a combination of attitudes and cultural knowledge while priming measures primarily tap into attitudes (see also Fazio & Olson, 2003). Arkes and Tetlock (2004), Mitchell & Tetlock (2006), and Kihlstrom (2004) suggest that a cultural knowledge interpretation may apply to both evaluative priming and IAT measures. In the present review, we treat the cultural knowledge critique as potentially applicable to both priming and IAT measures and review the relevant empirical evidence for both association-based measures.

personal feelings nor have significant implications for that individual's judgments and behaviors. The view refers to culture as a *contaminant* because the goal of implicit measures is to assess mental contents that are predictors of the person's perception, judgment and behavior. If measured associations have no relevance for understanding the person, then they are contaminating the measures' stated purpose.

A second interpretation—which we call the "culture-as-norms" position—posits that cultural knowledge does guide personal judgments and behaviors in certain circumstances, such as when individuals use others' attitudes to guide their own behavior. Research on reasoned action shows individuals are influenced not only by their own explicitly endorsed attitudes, but also by perceived social norms (Armitage & Conner, 2001; Fishbein & Ajzen, 1975). To the extent that automatic associations represent knowledge of normative attitudes (e.g., "most people think eating high-calorie foods is bad") they may predict behavior even if they do not assess attitudes.

It is important to note that the *implicit attitude* position also anticipates that culture will influence automatic associations (Banaji et al., 2004; Gawronski & Bodenhausen, 2006; Nosek, 2007; Nosek & Hansen, 2008a). From the implicit attitude perspective, it does not matter if the associations come from culture or other types of experiences; what makes them attitudinal is if they exist in memory, are activated in response to the attitude object, and influence subsequent processing or behavior toward the attitude object. In this sense, distinguishing the associations that "belong to me" (personal) from the ones that do not (cultural) is not a feature of the associations themselves, and therefore it does not make sense to consider cultural associations as contaminants for the measurement of personal associations. Instead, distinguishing *personal* from *cultural* is a deliberative process of deciding that a particular activated association is not something that the person believes and instead should be attributed to someone else, or the culture generally (Gawronski & Bodenhausen, 2006; Nosek & Hansen, 2008a).

The "person or culture?" question is critical to the debate over whether evidence of automatic associations should be factored into legal and public policies (Greenwald & Krieger, 2006; Jolls & Sunstein, 2006; Kang & Banaji, 2006; Lane, Kang, & Banaji, 2007; Mitchell & Tetlock, 2006). Scholars characterizing automatic associations as implicit attitudes have advocated permitting compensatory measures to help counteract automatic biases against minorities and women (Kang & Banaji, 2006), modifying the use of peremptory challenges (Page, 2005), adopting debiasing programs in schools and other settings (Kang & Banaji, 2006), and reconditioning associations by increasing workplace diversity (Jolls & Sunstein, 2006).[2] Moreover, no interpretation of automatic

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[2] The cultural knowledge controversy is only one of many relevant empirical questions. Other relevant issues that are not discussed in this chapter include the psychometric properties and convergent validity of implicit measures (Bosson, Swann, & Pennebaker, 2000; Cunningham, Preacher, & Banaji, 2001; Nosek & Smyth, 2007; Olson & Fazio, 2003), the existing and mitigation of extraneous influences on measurement of associations (Nosek, Greenwald, & Banaji, 2005; Nosek et al., 2007), the stability of automatic associations across time (Bosson et al., 2000; Cunningham et al., 2001; Nosek et al., 2007), whether one can establish an objective metric for what constitutes a large vs. small automatic bias (Blanton & Jaccard, 2006), measuring attitudes towards one attitude

associations leads directly to any policy ascriptions—such determinations are moral as well as empirical. However, if implicit measures are thoroughly *contaminated* by cultural knowledge with no implications for individual behavior, they do not provide even indirect support for policies such as those recommended by Kang and Banaji (2006) and others.

Preview

In this Chapter, we examine the evidence for empirical predictions derived from the implicit attitudes, culture-as-contaminant, and culture-as-norms positions (see Table __ for a summary). In addition to the predictions made by each of those perspectives, we consider the possibility that automatic associations reflect a combination of attitudes and cultural knowledge. First, we review evidence consistent with the implicit attitudes view. Second, we assess evidence that environmental and cultural variables influence automatic associations. We argue that such effects alone cannot decide the debate because the implicit attitudes view also anticipates strong environmental and cultural influences on automatic associations. At the same time, we suggest empirical criteria for resolving key aspects of the "person or culture?" debate.

<div align="center">Evidence for the Implicit Attitudes Perspective</div>

The implicit attitude approach best accounts for the relationship between automatic associations and judgments and behaviors, individuals' abilities to alter or resist automatic associations, correlations between individuals' implicit and explicit responses, and the effects of certain experimental manipulations on automatic associations.

Predicting Judgments and Behavior

The culture-as-contaminant perspective hypothesizes that automatic associations will not predict individual behavior. In contrast, the implicit attitudes view expects predictive validity for automatic associations. The culture-as-norms view likewise expects that associations will predict behavior, given that individuals frequently behave in accordance with perceived cultural expectations.

IAT and evaluative priming measures of attitudes and self-concepts have been shown to predict relevant behaviors in a wide range of studies (for a meta-analysis of over 100 studies using the IAT, see Greenwald, Poehlman, Uhlmann, & Banaji, 2009). For instance, IAT and self-report measures of associations with alcohol uniquely contributed to the prediction of study participants' alcohol consumption over the course of the ensuing month (Wiers, Woerden, Smulders, & de Jong, 2002). An IAT measure of shyness predicted nonverbal shy behaviors better than an explicit measure of shyness (Asendorpf, Banse, & Mücke, 2002), and an IAT measure of self-anxiety associations predicted nonverbal anxiety during a stressful speech (Egloff & Schmukle, 2002).

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object relative to a second attitude object rather than toward one attitude object at a time (Blanton, Jaccard, Gonzales, & Christie, 2006; Nosek & Sriram, 2007), and whether laboratory findings regarding implicit social cognition translate to real world settings (Blanton, Jaccard, Klick, Mellers, Mitchell, & Tetlock, in press; Jost et al., in press; McConnell & Leibold, in press; Mitchell & Tetlock, 2006; Zeigert & Hanges, in press).

IAT and evaluative priming measures predict a variety of outcomes in the domain of stereotyping and prejudice, including unfriendly interpersonal behavior towards Black and gay confederates (Amodio & Devine, 2006; Dasgupta & Rivera, 2006; Dovidio, Kawakami, & Gaertner, 2002; Dovidio et al., 1997; Fazio et al., 1995; Lemm, 2000; McConnell & Leibold, 2001; Wilson et al., 2000), choosing to work with a White rather than a Black partner on a difficult academic task (Ashburn-Nardo, Knowles, & Monteith, 2003), stereotypical impressions of female job applicants (Gawronski, Ehrenberg, Banse, Zukova, & Klaur, 2003; Rudman & Glick, 2001) negative impressions of ethnic minorities (Amodio & Devine, 2006; Fazio & Hilden, 2001; Florack, Scarabis, & Bless, 2001a/b; Gawronski, Geschke, & Banse, 2003; Hugenberg & Bodenhausen, 2003, 2004; Jackson, 1997; Maner et al., 2005; Olson & Fazio, 2004b; Rudman & Lee, 2002), and hiring discrimination against Black job applicants (Zeigert & Hanges, 2005).

Arkes and Tetlock (2004) and Mitchell and Tetlock (2006) correctly note that some of the means used to validate study participants' implicit associations with social groups are ambiguous as to whether they reflect negative feelings toward the target group. For example, nonverbal behaviors like poor eye contact and sitting further away from a Black person (Dovidio et al., 1997; McConnell & Leibold, 2001) could reflect shame over the discrimination faced by African Americans rather than negative associations with that group. However, while the meaning of some dependent variables may be ambiguous, many of the outcome measures (for example, perceiving Black targets as hostile and perceiving minority defendants as more guilty of a crime) more clearly reflect negative evaluations.

While the implicit attitude approach is sharply distinct from the culture-as-contaminant view on the question of whether automatic associations predict future behavior, its difference from the culture-as-norms approach on this question is more subtle. As noted above, the culture-as-norm perspective suggests that IAT and evaluative priming measures will predict participants' future behavior because of the powerful effect of cultural norms. However, the data available from IAT and evaluative priming measures suggests that their predictive ability is not strongly linked with specifically *cultural* pressures. IAT and evaluative priming measures would provide direct support for the culture-as-norms interpretation of automatic associations if they predicted behaviors more effectively when normative pressures were strong. For instance, individuals high in dispositional conformity (Aarts, Dijksterhuis, & Custers, 2003) or who are experimentally induced to conform (Epley & Gilovich, 1999) should exhibit stronger correlations between their automatic associations and their behaviors. In addition, implicit measures should show enhanced predictive validity among individuals from East Asian cultures, as they are more likely than Westerners to respond to cultural pressures and conform to cultural norms (Kim & Markus, 1999).

As of yet, however, there is no conclusive evidence that normative pressures make individual behavior more predictable from automatic associations, though a few studies provide some relevant clues. Nosek (2002) found that anonymously expressed attitudes toward social groups accounted for the relationship between publicly expressed attitudes and the IAT, indicating that the IAT better reflects what people report when there are no observers than what they report in public. Normative pressures about social group attitudes are usually stronger in public than private settings, implying that this result is the opposite of what would be expected by the culture-as-norms perspective. In

an interesting twist, Lambert et al. (2003) observed that presumably automatic stereotype effects were more predictive of judgment and behavior in public than private contexts. Their interpretation, however, was not that people were using normative pressures to decide how to behave, but that the normative pressures *against* prejudiced behavior ironically made it more likely that it would be expressed because of declines in cognitive control, especially among socially anxious individuals.

Overriding automatic biases

Dual process models of implicit and explicit attitudes propose that people are sometimes able to override the effects of their automatic evaluations if they are adequately motivated, and have the opportunity to do so (Dovidio et al., 1997; Fazio, 1990; Gawronski & Bodenhausen, 2006; Wilson et al., 2000).

Consistent with this idea, in studies involving individuals with negative automatic associations with African Americans and homosexuals, those associations predicted the judgments and behaviors of individuals who were not motivated to control their prejudices. Those associations did not, however, predict the judgments of participants who were so motivated (Dasgupta & Rivera, 2006; Towles-Schwen & Fazio, 2003; Olson & Fazio, 2004b; see also Florack et al., 2001).

The importance of opportunity for overriding automatic associations is indicated by studies showing that attitudes self-reported under time pressure correspond more closely to automatic associations than attitudes reported without time pressure (Ranganath, Smith, & Nosek, 2008). In a study from outside the domain of stereotyping and prejudice, participants' were asked to focus on suppressing emotions in order to try to reduce their capacity to self-regulate (Hofmann, Rauch, & Gawronski, 2007). For participants in this compromised self-regulatory position, automatic associations with candy predicted subsequent candy consumption, whereas conscious intentions to eat healthy did not. However for participants in the control condition, their intentions to eat healthy determined the amount of candy they ate.

These findings contradict the culture-as-contaminant view of automatic associations, in which such associations are irrelevant for personal feeling, thinking, and acting. The culture-as-norms perspective may be able to provide a partial explanation for these findings: one could argue that people conform to perceived cultural attitudes unless they intentionally override these influences and replace them with a response based on own their attitudes. However, it is unclear why cultural norms rather than personal attitudes would be more influential in automatic cognition.

Correlations between implicit and explicit measures

The culture-as-contaminant perspective predicts little to no correspondence between automatic associations and self-reported attitudes, since, from this view, an individuals' associations reflect cultural attitudes and not, emphatically, their own personal attitudes. By contrast, the culture-as-norms perspective does allow for high implicit-explicit correspondence, but only if an individual's explicit attitudes happen to conform to cultural norms. The implicit attitude perspective predicts implicit-explicit attitude correspondence under a number of circumstances, such as when people are unconcerned about providing socially desirable responses (Fazio et al., 1995) and when the attitude is important to them or well-elaborated (Nosek, 2005).

It is now quite clear that automatic associations are reliably and variably related to self-reported attitudes. Across 57 topics and over 6,000 participants (Nosek, 2005), the relationship between self-reported attitudes and automatic associations measured by the IAT ranged from near zero (e.g., fat people vs. thin people $r = .10$; future versus past $r = .12$) to strongly positive (e.g., pro-Choice versus pro-Life, $r = .70$; Al Gore versus George Bush, $r = .66$), with an average correlation of $r = .36$. In a large-scale replication and extension, Nosek and Hansen (2008a) examined almost 100 topics and more than 100,000 participants. Again, the average correlation was $r = .36$, with a range of $r = .07$ to $r = .70$ (with an average N of more than 1,000 per topic, all correlations were significantly positive). Notably, racial evaluations, the topic that is considered most controversial in comparing the implicit attitude and culture-as-contaminant perspectives actually shows a moderately positive relationship with self-reported racial attitudes. Summarizing data collected at Project Implicit from July 2000 to May 2006, Nosek, Smyth, et al. (2007) found a correlation of $r = .31$ between the race IAT and self-reported racial attitudes ($N = 732,881$). Finally, in a multitrait-multimethod analysis, Nosek and Smyth (2007) found that IAT and self-report measures were best fit by a model that treated them as distinct, but related constructs rather than as two unrelated constructs.

With a relationship between automatic associations and self-reported attitudes established, the next question is why are they strongly related in some cases and weakly related in others? The most obvious factor that should (and does) predict when the relationship will be stronger or weaker is self-presentational concerns (Fazio et al., 1995; Nosek, 2005). Self-presentational concerns induce people to self-report something different than their automatic associations because they do not want others to know that they have certain attitudes or beliefs, or because they actively disagree with their own automatic associations and instead report evaluations that they endorse. Topics that elicit relatively weak self-presentation pressures (for example, math vs. arts, Coke vs. Pepsi) show significantly stronger correlations between IAT and self-report measures than attitude objects that elicit stronger self-presentational demands (e.g., Hofmann et al., 2005; Nosek, 2005). Similarly, individuals motivated to respond without prejudice to avoid social disapproval tend to show relatively weak correspondence between their responses on implicit and explicit measures of attitudes towards stigmatized groups. In contrast, individuals unconcerned about making a bad impression exhibit stronger implicit-explicit correspondence (Banse, Seise, & Zerbes, 2001; Dasgupta, 2004; Dunton & Fazio, 1997; Fazio et al, 1995; Lemm, 2000; Payne, 2001). Finally, when participants were encouraged to be completely honest in their explicit reports, the correlation between a self-report and IAT measure of self-esteem was significantly stronger compared to a control condition in which no such urging occurred (Olson, Fazio, & Hermann, 2008).

Strong attitudes are more likely to lead to attitude-relevant thoughts and behaviors (Kraus, 1995), which, according to some implicit attitude theorists, should increase the extent to which the evaluation is automatized and reflected in the person's automatic associations (Bizer & Krosnick, 2001; Nosek, 2005). Across 57 attitude objects, implicit-explicit correlations were higher for strong attitudes (for instance, those toward abortion, religion, feminism, and political candidates, rs > .50) than for weak attitudes (for example, letters vs. numbers) (Nosek, 2005; see also Karpinski, Steinman, & Hilton 2005).

Perceived cultural norms also influence the relationship between automatic associations and self-reported attitudes, and this factor helps to parse between the implicit attitude and cultural interpretations of automatic associations. If automatic associations reflect knowledge of culturally normative attitudes, a person who views her explicitly endorsed attitudes as similar to the norm should exhibit greater correspondence between her self-reported attitudes and her automatic associations. Conversely, a person whose attitudes are discrepant from what she perceives as the norm should exhibit weaker implicit-explicit correspondence. The prediction made from the implicit attitudes perspective is less clear. Theoretically, implicit attitudes are influenced by the cultural context. So, even from the implicit attitude perspective, self-reported attitudes that correspond more closely with the cultural norm could also correspond more closely with automatic associations because both are influenced by the same source – the culture. However, because implicit attitudes are expected to show properties of attitudes more generally, the implicit attitudes perspective anticipates the opposite pattern of results for a different reason. Attitudes that differentiate the self from others can prove to be more central to an individual's self-definition than attitudes that are just like what other people feel (Abelson & Prentice, 1989; Blanton & Christie, 2003). For example, a positive attitude toward the Chinese world cup team could be, for an American amongst Americans, a distinctive point of self-definition, while for a Chinese person amongst Chinese people this same positive attitude would play a far less central role in constructing a sense of self. Consistent with this idea, across 57 topics and over 6,000 participants, individuals who viewed their explicit (self-reported) attitudes as more *distinct* from the cultural norm evidenced significantly higher implicit-explicit correlations than those who perceived their attitude as conforming to the norm (Nosek, 2005), a direct contradiction of the expected result if automatic associations reflected "merely" cultural attitudes.

Experimental manipulations of attitude-relevant variables

Studies manipulating certain variables experimentally demonstrate that automatic associations show sensitivities expected of personal attitudes. In doing so, they provide further evidence in favor of the implicit attitudes interpretation of automatic associations.

Classic social psychology research shows that when people are randomly assigned to meaningless groups they still end up allocating more resources to ingroup members and self-report more positive attitudes toward their assigned ingroup (Tajfel & Turner, 1986). This is popularly known as the "minimal group" paradigm. More recent research finds that assignment to minimal groups also results in more positive automatic associations with the ingroup (Ashburn-Nardo et al., 2001; Otten & Wentura, 1999). The presumed mechanism is that people will like – even automatically – almost anything that becomes associated with the self. There is no reason to expect such a shift if the automatic associations reflected cultural associations.

Social power is associated with increased stereotyping and discrimination (Fiske, 1993; Goodwin, Gubin, Fiske, & Yzerbyt, 2000; Sidanius & Pratto, 1999). Powerful people are more likely to stereotype members of low-status groups for multiple reasons, most notably the psychological need to dominate other groups (Sidanius & Pratto, 1999). Individuals led to feel powerful also exhibited a stronger preference for Whites over Blacks on the IAT (Richeson & Ambady, 2003). There is no reason to expect that feeling

powerful would alter cultural associations. This demonstration illustrates that the previous effects of power on self-reported stereotyping and prejudice also occurs automatically.

Further, consistent with prior work indicating that anger leads people to lash out against members of stigmatized groups (Bodenhausen, Sheppard, & Kramer, 1994; Dollard, Miller, Doob, Mowrer, & Sears, 1939), test subjects asked to write about a time that they felt angry showed significantly more negative associations with African Americans on both priming and IAT measures than those asked to write about events not associated with negative emotions (DeSteno, Dasgupta, Bartlett, & Cajdric, 2004). In another study, examining the effects of social ostracism (which seems likely to engender anger, among other negative emotions), participants excluded from a computerized ball-tossing game exhibited more negative associations with indigenous peoples than participants who were not excluded from the game (Govan, Case, & Williams, 2002).

Ambivalence, feeling both positively and negatively toward something, has a long history in attitude research. Recent work suggests that automatic associations can reflect implicit feelings of ambivalence (Petty, Tormala, Brinol, & Jarvis, 2006). Participants in one study read a description of two individuals, José and Juan: José was described as a caring, responsible person and good friend; Juan was portrayed as a mean, violent racist. Some participants were then told that there had been a mix-up in the experiment materials, and that Juan was actually the admirable person and José the miserable bastard. The manipulation was designed to leave participants with positive explicitly endorsed but negative implicit attitudes towards Juan, the idea being that though participants might be able to change their deliberative evaluations of Juan and José with ease, their implicit attitudes would be resistant to interventions based on logic (see Gregg, Seibt, & Banaji, 2006). As expected, participants who changed their explicitly endorsed attitudes after learning Juan was the good guy nonetheless were implicitly ambivalent about Juan—as revealed by an automatic association between "José/Juan" and "doubt" on an IAT measure. From the ambivalence perspective, such an effect occurs because of the conflict between the person's attitudes.

Recent work indicates that experimental manipulations of people's goals can also have striking effects on automatic associations with goal-relevant objects (Ferguson & Bargh, 2002, 2004; Seibt, Häfner, & Deutsch, 2007; Sherman, Rose, Koch, Presson, & Chassin, 2003). People show more positive automatic associations with attitude objects that could help them achieve their goal (e.g., nouns in a word creation game; Ferguson & Bargh, 2004), but only so long as the goal remains active. Once their goal has been achieved, their automatic associations return to baseline. There is no reason for cultural associations to shift as a function of one's present goals, but attitudes should.

Summary

Automatic associations exhibit relationships with feelings, judgments, and behaviors that are consistent with the implicit attitudes view and inconsistent with the culture-as-contaminant view. Both the implicit attitudes and culture-as-norms perspectives can incorporate some of the major findings reviewed here; however, interactions between automatic associations and explicitly endorsed attitudes pose a problem for the culture-as-norms perspective. Most tellingly, conformity to the perceived cultural norm *reduces* implicit-explicit correspondence. The culture-as-norms

view not only fails to anticipate that finding, it predicts the *opposite* pattern of results. The effects of several other variables on implicit associations are also more consistent with an implicit attitudes interpretation than with a culture-as-norms interpretation.

<div align="center">Cultural Influences on Automatic Associations</div>

Such support for the implicit attitudes hypothesis notwithstanding, there is ample empirical evidence that environmental and cultural variables shape automatic associations. Researchers have assessed the effects of environmental conditioning, perceived cultural attitudes, and the cultural victimization of a person or group on the associations tapped by implicit measures. Others have sought to reduce the contaminating influence of cultural knowledge by "personalizing" implicit measures so that the presumed contaminant would be less influential on measurement.

Effects of environmental conditioning

Considerable evidence indicates that automatic associations are shaped by classical conditioning in a manner consistent with an individual passively absorbing associations from the surrounding culture (Baccus et al., 2004; Dijksterhuis, 2004; Gawronski & Bodenhausen, 2006; Glaser, 1999; Karpinski & Hilton, 2001; Olson & Fazio, 2001, 2002, 2006; Ranganath & Nosek, 2008). For instance, repeatedly pairings the names of members of a fictional group (e.g., the "Noffians") with negative words leads to negative associations with the group on an IAT measure (Glaser, 1999).

Classical conditioning has long been known to subtly influence human and animal behavior (Hill, 1985; Lewicki, 1986), and these effects are anticipated by attitude researchers as an important basis for the formation of attitudes (e.g., Glaser, 1999; Olson & Fazio, 2001). The implicit attitude view proposes that environments condition humans with evaluative associations regardless of whether or not they are endorsed, wanted, or recognized (Banaji, 2001; Dovidio et al., 1997; Gawronski & Bodenhausen, 2006; Greenwald & Banaji, 1995; Nosek & Hansen, 2008a; Rudman, 2004). However, some proponents of the cultural knowledge view argue that if automatic associations are sensitive to environmental conditioning, then this suggests that they are less "attitudinal" (Karpinski & Hilton, 2001). Therefore, it is unclear whether environmental conditioning effects on automatic associations reflect the learning of irrelevant environmental information or changes in automatic associations that will have attitudinal impact – shaping perception, judgment, and action.

One way of sorting out those possibilities empirically is to examine whether newly conditioned associations influence not only scores on implicit measures but also judgments and behaviors theoretically related to automatic attitudes. Consistent with the implicit attitudes perspective, experiments that subliminally conditioned participants to associate the self with positive words led participants not only to have more positive self-associations on an IAT, but also to be less troubled by negative feedback regarding their performance (Dijksterhuis, 2004). Relatedly, Clerkin and Teachman (2009) conditioned positive social feedback associations with the self in a sample that had substantial anxiety about being in social situations. Compared to groups subjected to socially anxious controls, the reconditioned group spoke for a longer period of time in an impromptu speech after their associations had been altered. These results suggest that conditioning

automatic associations is causally related to subsequent behavior and is therefore more likely a shift in attitudes than a change in cultural knowledge.

Relationship between perceived cultural attitudes and automatic associations

Nosek and Hansen (2008a) examined the relations among explicitly perceived cultural attitudes, explicit attitudes, and IAT measures across 99 topics ($N = 110,632$). Surprisingly, from both the implicit attitude perspective and the cultural-knowledge perspective (both of which predict an effect of culture on automatic associations), IAT measures were only weakly related to self-report measures of perceived cultural attitudes. More important, the observed relations between the IAT measures and perceived cultural attitudes were accounted for by explicit attitudes. That is, taking explicit attitudes into account reduced the relationship between perceived cultural attitudes and IAT effects to nearly 0. Across the large sample, explicit attitudes predicted IAT scores consistently whereas perceived cultural attitudes did not. The surprising feature of this is that both implicit attitudes and culture-as-contaminant (and norms) perspectives would anticipate a relationship (especially the cultural positions). The key difference in the perspectives is whether the presumed cultural influence is "attitudinal" or not. The Nosek and Hansen (2008a) finding obviates the latter question because there was no relationship between the IAT and perceived cultural knowledge. That is seriously problematic for the cultural association perspectives, but also requires some attention for implicit attitude interpretations of automatic associations (see Nosek & Hansen, 2008a for a discussion).

However, these findings do not rule out the possibility that alternative explicit or implicit measures of cultural socialization will predict automatic associations. Indeed, cultural knowledge and implicit attitudes theorists agree that some form of cultural experience must shape automatic associations. The evidence should, however, give pause to both cultural knowledge and implicit attitude theorists. If culture does shape automatic associations, then how does it do it, and why was its unique contribution not detected this way, especially given the huge samples and wide variety of topics examined?

Associations with victimization or oppression

Negative associations with members of a social group may stem from associating the group with cultural victimization (Arkes & Tetlock, 2004; Uhlmann, Brescoll, & Paluck, 2006). Consistent with this idea, White college students strongly associate African Americans with oppression (Uhlmann et al., 2006). In fact, the association White students evidenced between African Americans and "oppression" was significantly stronger than their association between African Americans and "bad." Moreover, associating African Americans with oppression was positively correlated with associating them with "bad."

An additional study examined the effects of conditioning associations of groups with victimization on IAT scores and self-reported attitudes (Uhlmann et al., 2006). Under the guise of a memory task, the names of members of fictional groups (the Noffians and the Fasites) were repeatedly paired with words related to oppression (e.g., *mistreated*, *victimized*, *oppressed*). Participants led to associate a group with oppression evidenced more negative associations with that group on the IAT. In contrast, conditioning associations with victimization had no effect on self-reported attitudes towards Noffians or Fasites.

This demonstration suggests that automatic associations may simply reflect the sum total of negative and positive associations with the attitude object (Greenwald et al., 2002), regardless of whether the person would think that a negative association is "justly" applied. Connecting a group with negative concepts like victimization and oppression adds to the sum of negative associations with, and thus strengthens the negative implicit attitudes toward, that group.

A cultural knowledge theorist would argue that this dynamic shows that negative associations stem from knowledge of the cultural victimization of Black Americans and are not attitudinal (Mitchell & Tetlock, 2006). An implicit attitude theorist would counter that associative processing is "dumb" by only encoding the link between the valence and the attitude object regardless of the logical meaning of the relationship (Gawronski & Bodenhausen 2006; Nosek & Hansen, 2008a). At an implicit level, negative associations with a group may not be distinguishable based on their origins. Learning that a group is unlucky or victimized may have similar consequences as learning that it acts immorally. Both may contribute to a feeling of negativity toward the group even if, explicitly, the meaning of the negative association is understood very differently. Moreover, people tend automatically to dislike groups that are low status in their culture (Jost & Banaji, 1994; Jost, Banaji, & Nosek, 2004). As a result, it is difficult to say exactly what associations with victimization or oppression mean for interpreting automatic associations as attitudes or knowledge (Uhlmann et al., 2006).

To resolve that ambiguity, we return to the criteria we used to assess whether environmental conditioning is a contaminant or a legitimate contributor to automatic evaluations. We propose that one way to identify whether a variable is a "contaminant" for implicit measures is to assess whether the relevant associations predict judgments and behaviors theoretically driven by automatic evaluations. One example would be mock jurors' judgments that Black criminal defendants are guilty, when those jurors are tired, distracted, or otherwise unable to maintain conscious control of their responses. The empirical test, then, is whether associations with victimization predict negative or positive behaviors towards members of the victimized group. For example, Uhlmann et al. (2006) speculated that associating Black Americans with victimization leads to pro-Black biases when it comes to judgments that are easy to consciously control, and anti-Black biases when it comes to more subtle and less controllable judgments. If true, then associations with victimization should predict harsher sentences for minority criminal defendants when mock jurors are operating under a heavy cognitive load. Associations with victimization can be considered a contributor to automatic prejudice (rather than a contaminating factor) to the extent that they lead to discrimination against low status groups - i.e., they predict attitude-relevant judgments. As yet, we are not aware of any research that tests that possibility.

Personalizing implicit measures

Olson and Fazio (2004a) introduced innovative procedural modifications to the IAT in an effort to reduce the presumed influence of extrapersonal associations—including cultural knowledge—on IAT performance. That is, they advanced a culture-as-contaminant view by anticipating that they could remove some of the contaminating influence of culture by improving the IAT procedure itself. This, they argued, would make the IAT more reflective of attitudes. They found that simple procedural

modifications to the task – i.e., using the categories "I like" and "I don't like" (as opposed to "Pleasant" and "Unpleasant"), and removing an "error" alert when participants made a mistake resulted in stronger correspondence of the IAT with self-reported attitudes. In a first pair of studies, their personalized IAT measure revealed weaker implicit preferences for White Americans compared to Black Americans than the original IAT procedure. In a second pair of studies, personalized IAT measures of associations with apples vs. candy bars and George Bush vs. Al Gore exhibited higher correlations with explicitly endorsed preferences than the original IAT procedure elicited. And, in a complementary line of research, learning about foolish attitudes held by children caused adult participants to exhibit similar preferences on the original IAT, while scores on the personalized IAT were unaffected (Han, Olson, & Fazio, 2006). These scholars argued that personalizing the IAT reduces the contaminating influence of cultural knowledge on IAT scores.

Nosek and Hansen (2008b) hypothesized that the effects of personalizing were due not to reducing the influence of cultural knowledge, but by unintended consequences of the procedural modifications themselves. In six studies (total $N = 15,667$), they found that (a) the modifications increased the likelihood that participants did not follow the task instructions, (b) this accounted for the personalized version's increased relationship with self-reported attitudes, and (c) the relationship between perceived cultural attitudes and the IAT does not change after "personalizing," and (d) the original IAT predicted people's self-reported attitudes even after controlling for scores on personalized IAT measures. The latter finding demonstrates that the original IAT captures some variability in people's attitudes that the personalized IAT does not. While Nosek and Hansen's analysis raises doubts about the effectiveness of those particular procedures for personalizing the IAT (see also De Houwer, et al., 2009), it does not directly address the conceptual issue of whether extrapersonal (cultural) associations influence the IAT and whether they are a contaminant or a construct-valid part of measurement.

The difference in theoretical perspective between the implicit attitude view and culture-as-contaminant view is perhaps best exemplified in opposing interpretations of the results reported by Han et al. (2006). Adult participants learned about two novel objects—one was described as having mostly positive qualities and another as having mostly negative qualities. Then, participants observed children expressing their opinions about the objects. In one condition the children expressed attitudes consistent with the initial training. In a second condition the children expressed a preference for the more negative object. Explicitly, adult participants rejected the children's expressed preferences for the inferior object in favor of the objective qualities. Implicitly, however, participants showed sensitivity to the children's "incorrect" preferences in that they evidenced less positive associations on the original IAT with the better object when the children expressed negativity toward it compared to the other condition. Scores on the personalized IAT were not influenced by the children's preference for the objectively more negative object. Han and colleagues interpreted that result as showing that the original IAT (but not the personalized IAT) was contaminated by associations that are not part of the personal attitude. In other words, they advanced an interpretation in line with the culture-as-contaminant perspective based on the original IAT's sensitivity to the children's stated preferences.

The implicit attitude view suggests a different interpretation (Gawronski & Bodenhausen, 2006; Nosek & Hansen, 2008a). From this perspective, whether an association is true or false is a propositional judgment, not a feature of the association itself. Even though the participants knew that the children were 'wrong' in expressing their attitudes, the experience nonetheless presented associations that influenced their own. Rejecting those associations as invalid may be a deliberative act requiring motivation and ability to decide that an activated association is not true (Gawronski & Bodenhausen, 2006).

Indeed, there is considerable evidence that evaluations can stem from sources that the person making the evaluation would consider foolish. For example, priming individuals with members of social groups leads them to change their explicitly self-reported attitudes to conform to those of the primed group (Aarts et al., 2005; Kawakami, Dovidio, & Dijksterhuis, 2003). Kawakami et al. (2003) found that nonconsciously priming pictures of skinheads caused participants to self-report greater racial prejudice. This seems an illogical basis for one's social attitudes, and likely something that individuals would resist if they were aware of its influence.

Ranganath and Nosek (2008) showed that conditioned automatic associations might not be used when people have an explicit basis for resisting their influence, but will become influential when those resources disappear. After learning about positive and negative behaviors performed by one person, participants were introduced briefly to another person from the same group. Implicitly, the attitudes conditioned toward the "original" person immediately generalized to the "new" person. Explicitly, however, participants resisted generalizing presumably because of the widely endorsed belief that the actions of one person should not be used to judge another person. Days later, however, after participants had forgotten the details of the learning event, both implicit and explicit attitudes toward the "original" person generalized to the "new" person. When the knowledge of "who did what" dissipates from explicit memory, the associative relations appear to provide the basis of explicit evaluation. Such implicit adoption of the values of people one is exposed to (Kawakami et al., 2003), and the delayed influence of "inappropriate" associations (Ranganath & Nosek, 2008) may help explain why Han et al. (2006) found that learning about foolish attitudes held by children led to changes in scores on the original IAT.

Despite some of the caveats discussed above, the notion of personalizing implicit measurement is innovative and appealing, and there are potentially meaningful differences in personalized versus general evaluative associations. There are at least three potential sources of automatic associations that might distinguish original and personalized implicit measures: explicitly endorsed attitudes, attitudes that are not endorsed, and cultural knowledge. The first two are both personal attitudes—the key difference between them is whether or not the association is endorsed, not whether or not it is personal.

In our view, the most likely difference between personalized and original IAT measures is that the former tap explicitly endorsed attitudes to a greater extent and the latter tap unendorsed attitudes to a greater extent. Specifically, the "I like" and "I dislike" categories may emphasize a sense of ownership over and endorsement of the association, activating explicitly endorsed attitudes to a greater degree (see Gawronski & Bodenhausen, 2006, 2007, and Wittenbrink, 2004, for similar views). Indeed, the

personalizing modifications (replacing evaluative labels with "I like" and "I dislike" and removing error feedback) may encourage participants to evaluate the target concepts explicitly (Nosek & Hansen, 2008b). Notably, people view their anti-Black thoughts as not a product of their own minds (Uhlmann & Nosek, 2005) and their "actual attitudes" towards gays to be considerably more positive than their "gut reactions" (Ranganath et al., 2008), suggesting that people do not perceive their unendorsed attitudes to be part of themselves or as something over which they have psychological ownership. Whether new innovations in personalizing implicit measurement can alter the assessment of unendorsed automatic attitudes is an empirical (and still open) question.[3]

  While automatic associations are not consistently related to perceived cultural attitudes, they are affected by environmental conditioning and the cultural victimization of the target. Such data alone cannot resolve the "person or culture" debate: the implicit attitudes perspective also assumes an influence of environments and culture on automatic associations. For the same reason, it is difficult to know whether personalizing implicit measures reduces their susceptibility to cultural knowledge or reduces their ability to assess unendorsed automatic attitudes. We have proposed new criteria for determining whether association-based implicit measures are contaminated by cultural knowledge. Further empirical work will be necessary to determine whether associating a group with cultural victimization attenuates or exacerbates automatic prejudice and discrimination and whether personalizing implicit measures meaningfully reduces contaminants in attitude measurement.

What Culture Can Tell Us About Automatic Associations (and Vice Versa)

  Automatic associations exhibit relationships with feelings, judgments, and behaviors consistent with the implicit attitudes view and less consistent with both versions of the cultural knowledge view. There are, however, a number of unresolved empirical issues relevant to the "person or culture" debate (Arkes & Tetlock, 2004; Olson & Fazio, 2004a; Nosek & Hansen, 2008a, 2008b; Uhlmann et al., 2006), and reasonable people can disagree on the extent to which automatic associations reflect personal attitudes or cultural knowledge. The empirical criteria we have proposed should be useful for resolving certain aspects of that debate.

  At the same time, it is clear that *at least some* people who disagree with culturally prevalent attitudes nonetheless internalize them at an automatic, associative level. Examining a person's environments may inform something about that person's mental

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[3] One empirical test is whether a personalized implicit measure can outperform or underperform variations that are not personalized in predicting behaviors theoretically driven by unendorsed automatic attitudes. An example would be perceptions of the hostility of ambiguously hostile Black and White faces (Hugenberg & Bodenhausen, 2003) made by social perceivers who are obligated to respond rapidly. If personalized implicit measures reduce contaminating influences then they should improve prediction of such "undesired" effects of automatic associations on judgment. While such empirical criteria can be used to test the culture-as-contaminant interpretation of automatic associations, in some cases they cannot decisively distinguish between the predictions of the implicit attitudes and culture-as-norms view. For example, a proponent of the culture-as-norms perspective could argue that the original IAT out-predicted the personalized IAT because participants used others' attitudes to guide their own judgments. Given such a finding, we would still make a case for the implicit attitudes interpretation. As summarized in the Table, the implicit attitudes perspective receives far more empirical support than the culture-as-norms perspective, and therefore provides the more parsimonious account of the data.

associations, which in turn enable prediction of that person's behavior. For example, prevailing cultural messages increase the likelihood that White Americans will automatically associate African American faces with negativity, even if they deliberately and honestly disagree with such an association. This implicit bias informs the prediction that cognitive load will increase self-reported racial prejudice and discrimination (Blair et al., 2004; Gordon & Anderson, 1995; Shah et al., 1998).

Consider also that American participants nonconsciously primed with words related to salvation subsequently work harder on an anagram task (Uhlmann, Poehlman, & Bargh, 2008). Such behavior is probably due to traditional Protestant values linking hard work with reward in the afterlife. Still, it seems doubtful that participants explicitly believe that doing well on an anagram task will help get them through the pearly gates. An association between work and salvation is something American participants picked up through the culture, and it is precisely because such associations often reflect cultural influences in individual minds that they are worth studying.

If automatic associations reflect culture, as hypothesized by proponents of both the implicit attitudes and cultural knowledge views, then where do explicitly endorsed attitudes come from? We believe that automatic associations and explicitly endorsed attitudes reflect different aspects of the cultural context. The former are relatively more responsive to classical conditioning by the environment, whereas the latter reflect the internalization of logical propositions (Gawronski & Bodenhausen, 2006). Racial prejudice is an illustrative example. Individuals learn negative associations with African Americans from frequent exposure to stereotypic images in the media and everyday life. But at the same time, contemporary culture socializes the belief that it is wrong to discriminate against African Americans because it violates egalitarian principles. This leads to a state of conflict between associative and logical processes when it comes to responses to African Americans in everyday life. Yet associations, propositions, and the interactions between them are all examples of culture's consequences.

Conclusion

In closing, it is worth looking at the "culture or person?" issue through the lens of cultural psychology's distinction between individualism and contextualism (Fiske et al., 1998; Markus & Kitayama, 1991). Whereas people from Western cultures focus more that is warranted on individual agents, people from many non-Western cultures more accurately view the person as embedded in, and inseparable from, the context in which she is situated. The contextualist perspective may also be closer to the mark when it comes to understanding how the mind works. At the level of automatic mental processes, it may turn out to matter relatively little whether an association is explicitly endorsed or largely a product of one's culture. Implicit attitudes reveal the power of cultures to reproduce themselves in individual minds and the futility of conscious protests to the contrary. Adopting a more context-sensitive approach to implicit social cognition will enrich not only our understanding of attitudes, but of culture as well.

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Table __.1

Predictions of the Implicit Attitudes, Culture as Contaminant, and Culture as Norms perspectives on automatic associations

Implicit Attitudes Prediction	Culture as Contaminant Prediction	Culture as Norms Prediction	Implicit Measure	Prediction supported
Positive vs. negative associations should predict behaviors	Positive vs. negative associations should *not* predict behaviors	Positive vs. negative associations should predict behaviors	Priming, IAT	Attitudes, Norms
Associations and explicit attitudes should interact due to controlled corrections for automatic responses	Little to no interaction between associations and explicit attitudes	No clear prediction	Priming, IAT	Attitudes
Social desirability concerns should reduce implicit-explicit (IE) correlations	No such effect	No clear prediction	Priming, IAT	Attitudes
Correspondence with the cultural norm should *decrease* IE correlations	Correspondence with the cultural norm should *increase* IE correlations	Correspondence with the cultural norm should *increase* IE correlations	IAT	Attitudes
Attitude strength should increase IE correlations	No such effect	No clear prediction	IAT	Attitudes
Positive association with one's minimal group	No such effect	No such effect	Priming, IAT	Attitudes
Situational power should lead to negative associations with minorities	No such effect	No such effect	IAT	Attitudes
Anger and ostracism will lead to negative associations with minorities	No such effects	No such effects	Priming, IAT	Attitudes
Incongruent cognitions should lead people to associate targets with uncertainty	No such effect	No such effect	IAT	Attitudes
Positive associations with goal related stimuli	No such effect	No such effect	Priming, IAT	Attitudes
Classical conditioning should influence automatic associations	Classical conditioning should influence automatic associations	Classical conditioning should influence automatic associations	Priming, IAT	Attitudes, Contaminant, Norms
Perceived cultural attitudes should predict automatic associations	Perceived cultural attitudes should predict automatic associations	Perceived cultural attitudes should predict automatic associations	Priming, IAT	None
Negative associations with victimized groups	Negative associations with victimized groups	Negative associations with victimized groups	IAT	Attitudes, Contaminant, Norms
Personalized tasks may activate explicitly endorsed preferences to a greater degree	Personalized tasks will correspond more with explicit preferences because they are less likely to tap cultural knowledge	Personalized tasks will correspond more with explicit preferences because they are less likely to tap cultural knowledge	IAT	Attitudes, Contaminant, Norms