



Not all automatic associations are created equal: How implicit normative evaluations are distinct from implicit attitudes and uniquely predict meaningful behavior[☆]

Emiko Yoshida^{*}, Jennifer M. Peach, Mark P. Zanna, Steven J. Spencer^{*}

Department of Psychology, University of Waterloo, Waterloo, Ontario, Canada

ARTICLE INFO

Article history:

Received 14 April 2010

Revised 28 September 2011

Available online 6 October 2011

Keywords:

Cultural norm

Implicit process

Stereotyping and prejudice

ABSTRACT

We propose a new construct (implicit normative evaluations) that purports to measure automatic associations about societal evaluations. We develop a new measure of this construct based on a modification of the Implicit Association Test (IAT) and describe how it is related to but not redundant with implicit attitudes and explicit normative evaluations. Study 1 provided evidence that implicit normative evaluations and implicit attitudes uniquely predicted evaluations measured by the traditional IAT. Study 2 demonstrated that Asian-Canadian immigrants' implicit normative evaluations toward older people became more negative the longer they were in Canada. Study 3 found that engineering students' (both men and women) implicit normative evaluations toward female engineers became more negative as they were exposed to engineering and that for women these negative normative evaluations predicted their intention to drop out of engineering. Study 4 demonstrated that implicit normative evaluations predicted the speed at which participants decide to "shoot" an African Canadian target on a shooter bias task (Correll, Park, Judd, & Wittenbrink, 2002). Finally, in Study 5, an experimental manipulation of an audience's reaction to racist jokes targeting people from the Middle East affected implicit normative evaluations about this group and that these implicit normative evaluations in turn affected discrimination. The implications of these results for the importance of social influence and culture in shaping thoughts and behavior are discussed.

© 2011 Published by Elsevier Inc.

One of the older boys remarked about a schoolmate, "Don't you know that Harry is a Jew?" I had never met a Jewish boy before, and personally didn't care whether or not Harry—who seemed a likeable fellow—was a Jew. But the older boy's tone of voice was enough to convince me that I had better not make Harry my friend. Thereafter I avoided Harry. Allport, 1954 (p. 287)

The boy in this example has his own feelings—as far as he is concerned, he likes Harry—but he also gets the feeling that the other boys think Harry is no good. How should he treat Harry? Should he follow his own beliefs or should he go along with the group? In this example, it seems that following the group wins out and he discriminates against Harry. We want to argue this boy's experience is not uncommon. He is experiencing a conflict between the desire to express himself and the desire to fit in or belong to the larger group. We argue that this conflict arises from two basic motives that have

often been described in previous theorizing. On one hand, people want to express themselves, to stand out from others, and to set themselves apart (McClelland, Atkinson, Clark, & Lowell, 1953; Snyder & Fromkin, 1977; Thrash, Elliot, & Schultheiss, 2007). On the other hand, people want to fit in with others, to feel like they belong, and to be part of a larger whole (Baumeister & Leary, 1995; Deci & Ryan, 2000; Sherif, 1935; Walton & Cohen, 2007; Williams, 1997, 2001; Williams, Cheung, & Choi, 2000). As several theories have argued (Bakan, 1966; Brewer, 1991; Pohlmann, 2001; Sheldon & Cooper, 2008), these basic motives are commonly pursued and a pervasive part of mental life. We argue that the desire for personal expression leads to the formation of attitudes, whereas the desire to belong leads to the formation of normative evaluations. Although these motives may often be in conflict, as in the example above, they will often lead to the same evaluations as well.

In the present research, we are not primarily concerned with explicit attitudes and explicit normative evaluations. A considerable body of research has already examined the independence and relation between these constructs (Fishbein & Ajzen, 1974; Trafimow & Finlay, 1996; Trafimow, Triandis, & Goto, 1991). Instead, we are interested in the relation between these concepts as they are manifested relatively automatically or implicitly. If the motive to express oneself and the motive to belong are truly fundamental and ubiquitous (as previous theorizing has suggested), then they should be commonly and repeatedly pursued. Further, if these motives or goals are commonly

[☆] This research was supported by Social Sciences and Humanities Research Council (SSHRC) research grants awarded to the third and fourth authors. We are grateful to James Olson, Steve Fein, and Greg Walton for providing comments on earlier drafts of this manuscript.

^{*} Corresponding authors at: Department of Psychology, University of Waterloo, 200 University Avenue West, Waterloo, Ontario, Canada N2L 3G1.

E-mail addresses: eyoshida@uwaterloo.ca (E. Yoshida), sspencer@uwaterloo.ca (S.J. Spencer).

and repeatedly pursued, then constructs related to these motives should become relatively automatic (Bargh, Chaiken, Gøvender, & Pratto, 1992; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Chartrand & Bargh, 1999; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Fitzsimons & Bargh, 2003). A great deal of research has already demonstrated that attitudes can become relatively automatic (i.e., become implicit) (Bargh & Pietromonaco, 1982; Chartrand & Bargh, 1999; Fazio et al., 1986). What about implicit normative evaluations? We reason that just as attitudes can become relatively automatic, so can normative evaluations. For example, if the boy in the quote above is repeatedly exposed to the older boys depicting and treating Jews negatively, his motive to fit in with these boys is likely to cause him to develop negative implicit normative evaluations of Jews (i.e., come to automatically associate that the older boys dislike Jews).

We argue that implicit attitudes and implicit normative evaluations should be related but not redundant. They should be related for two reasons: 1) Implicit attitudes and implicit normative evaluations both are associations about the same object. It seems likely that features of that object are likely to affect both personal evaluative associations and group evaluative associations. For example, both implicit attitudes and implicit normative evaluations of flowers are likely to be more positive than automatic personal and group associations with insects. Flowers typically smell better and are less likely to cause irritation and pain than insects. 2) Implicit attitudes and implicit normative evaluations are likely to affect one another over time. For example, if implicit normative evaluations affect behavior—as we suggest—then these behaviors could in turn influence both explicit and implicit attitudes (Bem, 1967, 1972; Elkin & Leippe, 1986; Elliot & Devine, 1994; Festinger, 1957, 1964). Conversely, if implicit attitudes affect the groups to which one belongs, then over time implicit normative evaluations may become associated with implicit attitudes.

We argue, however, that these constructs will not be redundant for two reasons: 1) The motives underlying these associations are likely to lead to different goals in a number of circumstances. For example, at times people want to stand out from the group and assert their uniqueness. If they repeatedly pursue this goal, then they will develop distinct and different associations between what they like and an object and what the group likes and an object. If as the boy in the Allport example gets older, he decides to stand up to the group's anti-semitism and does so repeatedly, then he should develop different automatic associations between Jews and what he likes and what the group likes. 2) We also reason that implicit attitudes and implicit normative evaluations may arise from different antecedents. Following the reasoning of Fazio and Williams (1986) and Fazio et al. (1986), we argue that implicit attitudes often form from direct experience with attitude objects. In contrast, we argue that implicit normative evaluations will often arise from repeated exposure to how objects are treated and depicted by groups. For example, if people repeatedly hear negative jokes about female engineers and repeatedly see female engineers treated in a sexist manner, then they will be likely to associate that most people dislike female engineers. If people have positive personal encounters with female engineers, however, they will still be likely to associate what they personally like with female engineers.

We also argue that implicit normative evaluations should be related to but not redundant with explicit normative evaluations. Implicit normative evaluations should be related to explicit normative evaluations for two reasons: 1) Both constructs are about how the same group evaluates the same object. As such it seems reasonable that at least some of the time explicit normative evaluations that are consciously considered will over time shape implicit normative evaluations. 2) In addition, it also seems possible that implicit normative evaluations could affect explicit normative evaluations. If implicit normative evaluations affect behavior, as we argue they do, then over time explicit normative evaluations may arise as these behaviors are observed and justified. For example, if negative implicit normative evaluations of female scientists lead university administrators to treat

these women unfairly, then over time the administrators may come to argue that such discrimination is common place and may even result from deficiencies in the women themselves (cf., Kay et al., 2009).

We argue, however, that implicit normative evaluations and explicit normative evaluations will not be redundant for two reasons: 1) Explicit normative evaluations reflect conscious consideration of what the group feels about the object of evaluation and this conscious reflection may bear little resemblance to how the object is depicted and treated, which we argue forms the basis of implicit normative evaluations. For example, when people consciously consider normative evaluations of older people, they are likely to weigh heavily the behavior of people they know well, but such deliberations are likely to systematically bias their understanding of the way older people are treated in general by society (Marks & Miller, 1987; Ross, Greene, & House, 1977; Sherman, Chassin, Presson, & Agostinelli, 1984). In contrast, implicit normative evaluations that do not require this level of information processing are likely to be influenced by cultural depictions and treatments of the elderly as they are portrayed in the media and enacted by a much broader array of people.

2) When making explicit normative evaluations, people's perceptions of the way the world *ought to be* can become conflated with the way they perceive the world (Kay et al., 2009) and in this way moral judgments can influence explicit normative evaluations in a way they do not influence implicit normative evaluations. For example, Kay et al. (2009) found that when people believed that only wealthy people were in the Canadian Parliament they came to believe that this situation was justified because wealthier people were probably better educated and able to serve. This finding, however, was affected by people's desire to justify their own governmental system (i.e., they showed no such tendency to justify the power of the wealthy in another country). If our reasoning is correct, however, implicit normative evaluations about whether people like wealthy politicians in both one's own country and a foreign country should be influenced by cultural depictions of the way these politicians are treated as presented in the media and enacted by a wide array of people in each society.

If our reasoning is correct that implicit normative evaluations are related to but not redundant with both implicit attitudes and explicit normative evaluations and they are an important predictor of meaningful behavior, then it should be important to develop a measure of this construct. In the present research we aim to develop and validate such a measure by demonstrating the proposed relations to implicit attitudes and explicit normative evaluations. We also plan to demonstrate how this new measure is shaped by exposure to cultural environments and uniquely predicts decisions to stay in school among women engineers, to "shoot" or "not shoot" African Canadians on a computer task, and discrimination against people from the Middle East.

We have developed this new measure by using a modified version of the Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998). Based on the reasoning of Olson and Fazio (2004) that implicit attitudes can be measured using the IAT to assess the association between what "I like" and an attitude object, we reasoned that implicit normative evaluations could be assessed by using the IAT to measure the association between what "most people like" and an object of evaluation (Peach, Yoshida, Spencer, Zanna, & Steele, 2011; Spencer, Peach, Yoshida, & Zanna, 2010). Olson and Fazio argue that implicit attitudes measured with their modified version of the IAT assess personal associations with an attitude object, whereas traditional IAT scores capture not only personal associations, but extra-personal associations as well. Following this reasoning, we argue that implicit normative evaluations are likely to be an important source of extra-personal associations. Therefore, we reason that even if implicit attitudes and implicit normative evaluations are moderately related they should both uniquely predict IAT scores using the traditional measure. We test this prediction in Study 1.

Next, we examine how exposure to a new cultural environment is a unique antecedent of implicit normative evaluations, but not implicit

attitudes or explicit normative evaluations. In this way we establish the discriminant validity of implicit normative evaluations from implicit attitudes and explicit normative evaluations. Specifically, we predict that as people are exposed to a new culture their implicit normative evaluations will change as they experience new ways that objects of evaluation are depicted and treated. As people are exposed to new ways that objects are depicted and treated, however, such exposure should not affect people's implicit attitudes unless it also affects people's direct experience with the objects of evaluation. Likewise as people are exposed to new ways that objects are depicted and treated such exposure should not affect people's explicit normative evaluations unless it affects how they consciously reflect on how others evaluate the objects of evaluation.

We test this reasoning cross-sectionally in *Study 2* by examining whether the amount of time that Chinese immigrants have spent in Canada uniquely predicts their implicit normative evaluations about the elderly. In *Study 3* we test this reasoning longitudinally by examining whether engineering students' implicit normative evaluations about female engineers become more negative as they are exposed to the negative treatment and depiction of women in engineering classes and whether such depictions and treatment affect women's intention to continue studying engineering.

We have suggested that implicit normative evaluations form from exposure to how groups are depicted and treated in society. Individuals may use cultural knowledge when making other quick decisions as well, such as whether to "shoot" or not "shoot" an African Canadian target. In a computer simulation, *Correll, Park, Judd, and Wittenbrink, (2002)* have found that individuals are faster at deciding to "shoot" an African American versus a European American target with a gun and slower to decide not to "shoot" an unarmed African American versus a European American target. If this decision was based on cultural associations people acquired from the media and not their personal evaluations of African American targets, then responses on this computer task should be predicted by implicit normative evaluations. Based on this reasoning, we predict that the more negative are participants' implicit normative evaluations of African Canadians, the quicker they will be to decide to shoot an African Canadian target with a gun and the slower they will be to decide to not shoot an unarmed African Canadian target and test this possibility in *Study 4*.

Finally, in *Study 5* we briefly expose people to how an out-group is depicted and treated experimentally and test whether such depictions and treatments can affect implicit normative evaluations but not implicit attitudes, and whether this change in implicit normative evaluations in turn affects discrimination against the out-group.

Study 1

The purpose of *Study 1* is to develop a measure of implicit normative evaluations and to begin to validate this measure by establishing that it may be related to implicit attitudes but not redundant with them. Specifically, we predict that although implicit attitudes and implicit normative evaluations may be related, they will not be redundant in that they will uniquely predict scores on the traditional IAT. We tested this prediction by examining the independence of implicit normative evaluations and implicit attitudes in predicting scores on the traditional IAT by using apples vs. candy bars as the objects of evaluation. We chose the domain of apples vs. candy bars because it has commonly been used in previous IAT research (e.g., *Karpinski & Hilton, 2001; Olson & Fazio, 2004*).

Study 1

Method

Participants

Seventy-three undergraduate students (28 men and 45 women) participated in the experiment for credit toward their introductory psychology course. All participants were native speakers of English.

Materials

The traditional IAT. Following the methodology of *Greenwald et al. (1998)*, the IAT had five blocks of trials. We used five photos of apples and candy bars for stimulus items (*Greenwald et al., 1998; Karpinski & Hilton, 2001*). In the first block participants classified pleasant (e.g., friend, party, gift) and unpleasant items (e.g., disaster, evil, death) to the category labels "pleasant" and "unpleasant." The second block and fourth block participants categorized photos of apples and candy bars to the labels "apple" and "candy bar" by pressing the response keys. The third block was an incompatible critical block in which apples and unpleasant items shared the same response key and candy bars and pleasant items shared the same response key. The fifth block was a compatible critical block, in which apples and pleasant items shared the same response key and candy bars and unpleasant items shared the same response key. The IAT was coded so that higher scores indicated more positive evaluations toward apples than candy bars. IAT scores were recorded using the same computer program used by *Jordan, Spencer, and Zanna (2005)*, online using javascript and a CGI service to store the data. These materials are available upon request.

The implicit attitudes measure. The implicit attitudes measure (i.e., association of apples vs. candy bars with what I like) was the same as the traditional IAT except that participants were asked to distinguish between "things you might like or dislike" using the category labels "I like" and "I don't like" (*Olson & Fazio, 2004*).

The implicit normative evaluations measure. The implicit normative evaluations measure (i.e., association of apples vs. candy bars with what most people like) was also similar to the traditional IAT except participants were asked to distinguish between things most people like or dislike using the category labels "most people like" and "most people don't like." Specifically, we changed the instructions to say, "the following screens will ask you to distinguish between things most people like or dislike. The words most people like refer to what people in North America actually like, not what they should like."

The presence of error feedback suggests that there is a "correct" answer; however, there are variations in individual or normative preferences (for example, someone—perhaps Oscar the grouch—might actually like garbage). Thus, we removed error messages from all three types of IATs. The three IATs were identical except for the category labels and instructions.

Procedure

Participants were invited to the lab in groups of up to four at a time. They practiced the traditional apple-candy bar IAT to become familiar with completing an IAT. Starting 1 week after the lab session, participants completed the traditional IAT, the implicit attitudes measure and implicit normative evaluations measure over the internet with each version spaced from 0 to 28 days apart to reduce potential carry-over effects. The average days between the measures are 7.93 days. The order of the measures was counterbalanced.

Results and discussion

Following *Jordan et al. (2005)*, response latencies that were slower than 3000 ms were recorded as 3000 ms and responses that were faster than 300 ms were recorded as 300 ms.¹ The scores were obtained by subtracting the average response latencies of the fifth block from those of the third block. Higher scores indicated relatively

¹ We also used Greenwald's algorithm (*Greenwald, Nosek & Banaji, 2003*) except that we neither added error penalties nor eliminated reaction times for "error" trials, and obtained similar patterns of the results for all the studies. This is not very surprising as the Greenwald scoring method and our scoring method were highly correlated (varying between .62 and .93) in all studies. Because we did not counterbalance the order of blocks within the IAT (and therefore score differences could result from practice or fatigue effects), we do not interpret our results in terms of absolute zero. There was no difference in error rates between the traditional IAT measure, the implicit attitude measure, and implicit normative evaluation measure in any of the studies.

more positive evaluations of apples than candy bars. We found no effects for the number of days between IAT administrations so we do not include this variable in the results reported below. There was no significant difference between participants' overall implicit attitudes ($M = -23.69$, $SD = 129.85$) and implicit normative evaluations ($M = -23.22$, $SD = 134.23$), $t(70) < 1$, ns .

As shown in Fig. 1, multiple regression analysis provided strong evidence of the unique relations of implicit attitudes and normative evaluations with the traditional IAT. Both implicit attitudes and implicit normative evaluations uniquely predicted scores on the traditional IAT, $b = .57$, $\beta = .42$, $t_{(65)} = 3.81$, $p < .01$, $b = .29$, $\beta = .22$, $t_{(65)} = 1.99$, $p = .05$, respectively.² Study 1 provided evidence that the traditional IAT is uniquely predicted by both implicit attitudes and implicit normative evaluations. Moreover, implicit attitudes and implicit normative evaluations toward apples vs. candy bars showed only a small correlation, $r = .06$, ns , suggesting that people's implicit attitudes and implicit normative evaluations are not necessarily consistent with each other in this domain. This study demonstrated that implicit attitudes and implicit normative evaluations appear to be unique constructs in that they uniquely predict scores on a traditional IAT.

The finding that implicit normative evaluations and implicit attitudes uniquely predicted scores on the traditional IAT was replicated in another line of research (Bangard & Fein, 2008). These researchers examined students' implicit attitudes and normative evaluations of African Americans. Among undergraduate students from the introductory psychology course at Williams College, they replicated the findings in Study 1—both implicit attitudes and normative evaluations uniquely predicted scores on the traditional IAT.

Interestingly, students who were involved in a campus group to promote diversity had positive implicit attitudes and negative implicit normative evaluations toward African-Americans. How did these student activists score on implicit prejudice as measured by the traditional IAT? They showed the same pattern of responses that Arkes and Tetlock (2004) speculated that Jesse Jackson might show — they displayed implicit prejudice on the traditional IAT even though they had positive implicit attitudes toward African Americans using a personalized IAT. In addition, implicit normative evaluations predicted implicit prejudice (i.e., scores on the traditional IAT) whereas implicit attitudes did not. Thus, for these student activists their implicit prejudice was function of their implicit normative evaluations and not their implicit attitudes.

These previous findings and the results of the current study suggest that scores on the traditional IAT can be misleading if they are understood simply as implicit attitudes. Scores on the traditional IAT may reflect implicit attitudes, implicit normative evaluations or both. We tested this reasoning in a conceptual replication of this study with the same participants, but with different objects of evaluation (i.e., flowers and insects), and once again found that implicit attitudes and implicit normative evaluations uniquely predicted scores on the traditional IAT, even though implicit attitudes and implicit normative evaluations were moderately correlated ($r = .42$, $p < .01$).

In validating our measure of implicit normative evaluations, we now examine whether we find expected cultural differences on implicit normative evaluations. If these implicit normative evaluations are indeed influenced by exposure to how objects are treated and depicted in society, then exposure to a new culture should impact implicit normative evaluations but not necessarily implicit attitudes or explicit normative evaluations. We tested these predictions in Study 2.

Study 2

In Study 2, we examined the development of implicit normative evaluations by examining how exposure to a new culture affects these

² In all analyses we initially included gender as a factor and only retained it if it was a significant predictor or part of significant interaction. In this study gender was not a significant predictor nor did it interact with either predictor.

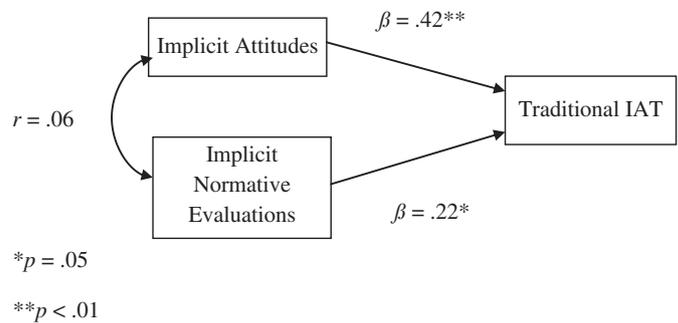


Fig. 1. The relations of implicit attitudes and implicit normative evaluations to the traditional IAT in the domain of apples vs. candy bars.

evaluations in a cross-sectional design. People from different cultures develop different cultural values or social expectations (Triandis & Suh, 2002). When these people come to a new country, they are exposed to a new culture and new norms. How does their experience in this new culture shape their implicit normative evaluations? If the arguments we have made about implicit normative evaluations are correct, then exposure to how groups (e.g., the elderly) are treated and depicted in the new culture should shape people's implicit normative evaluations over time. To test this prediction in the present study, we investigate the relation between time spent in Canada and implicit normative evaluations among Asian-Canadians who have immigrated to Canada. We expect that time spent in Canada will be a significant predictor of implicit normative evaluations.

We do not, however, expect that time spent in Canada to be a predictor of implicit attitudes or explicit normative evaluations. As we have argued, we theorize that implicit attitudes form largely from experience with specific attitude objects (i.e., elderly people in this instance), thus implicit attitudes should largely be shaped by interpersonal interactions rather than simple exposure to the culture per se. Similarly, we do not propose that explicit normative evaluations form simply from exposure to the culture either. Rather we have argued that explicit normative evaluations form through conscious reflection on how the objects of evaluation (i.e., elderly people in this instance) are treated. Thus, explicit normative evaluations could form very quickly or slowly depending on this conscious reflection.

Norms about the elderly in Asia

According to Sung (2001), traditional East Asian cultures have been influenced by Confucian values, which emphasize obedience and respect for parents and older people. Therefore, in East Asian cultures people tend to value older people because they tend to associate older people with wisdom or maturity. In contrast, in Western cultures people tend to associate older people with senility or weakness, and young people are more valued than older people (Streib, 1987). If these cultural values affect people's implicit attitudes and normative evaluations as we predict, then people from East Asian cultures should have more positive implicit attitudes and normative evaluations toward the elderly than people from North America.

But what happens to these implicit attitudes and normative evaluations as people from East Asian countries experience a new Western culture? We argue that implicit normative evaluations should gradually become more negative over time as these immigrants experience the negative treatment and depictions of the elderly in Western societies. In contrast, implicit attitudes may be relatively resistant to change as the personal experience of these immigrants—particularly if it is with the elderly from their own families that are valued—is much less likely to change.

We also reason that explicit normative evaluations of the elderly change in response to conscious reflection about what most people believe. We reason that in this instance as people from East Asian countries

reflect on how most others evaluate and should evaluate the elderly, they are likely to draw upon the values from their culture of origin and maintain positive explicit normative evaluations of the elderly. Therefore, in this case we expect explicit normative evaluations of the elderly to change less than implicit normative evaluations.

When considering how to measure implicit normative evaluations of the elderly, we were faced with the difficulty that depictions and treatment of the elderly in society tend to suggest that older people are liked (cf., Fiske, Cuddy, Glick, & Xu, 2002) but that individuals do not think it is good to be old. For example, people might like Betty White (from the T.V. show *Golden Girls*) and appreciate her comedy, but they do not think it is good to be old and would not want to be her age. Because older people tend to be liked, we did not use the category labels “most people like” and “most people don’t like” as we used in Study 1. Instead, to capture this distinction, we developed a more nuanced measure of normative evaluations – normative ideological beliefs. We reason that just as people find it good to be just and honest, they find it good to be young. Just as people find it bad to be unjust and dishonest, they find it bad to be old. Following this logic, we created an implicit measure of normative ideological beliefs by using the category labels “most people believe in/most people don’t believe in” in order to activate this concept of traits or behaviors that most people find good or bad. To assess normative ideological beliefs about the elderly, our second category label was “young/old.” Thus, strong associations between “most people don’t believe in” and “old” suggest most people do not think it is good to be old.

Method

Participants

One hundred and fifteen Asian-Canadian (51 from Hong Kong, 50 from China, 7 from Taiwan, 2 from South Korea, 2 from Malaysia, 1 from North Korea, 1 from Vietnam and 1 did not provide information on their country of origin) (44 men and 71 women) and 85 European-Canadian undergraduate students (23 men and 62 women) from the University of Waterloo participated in this study. Ten Asian-Canadian participants received course credit for their participation and 105 Asian-Canadians and 85 European-Canadians recruited from various classes on campus received an \$8.00 payment. Type of compensation did not have any significant effects ($\beta_s < .18$, $t_{(90)} < 1.11$, $p_s > .28$).

Materials

Acculturation measures. To measure the level of acculturation for Asian-Canadian participants, we asked them to indicate the strength of identification with Asian culture and Canadian culture on an 11-point Likert scale ranging from 0 (not at all) to 10 (very much). We recruited Asian-Canadians whose identification with Asian cultures was 6 or above and we also assessed the length of time they had spent in Canada.³

Explicit normative evaluations and attitudes about younger and older people. To measure explicit normative evaluations toward younger and older people, we asked participants to indicate most people’s overall evaluations of younger and older people on 7-point semantic differential scales (e.g., favorable, unfavorable; positive, negative). To measure explicit attitudes participants were asked to report their own attitudes on the same semantic differential scales used to measure explicit normative evaluations.

Implicit personal ideological beliefs toward younger and older people. To capture whether participants believe it is good to be old versus young we used an IAT with the category labels, “I believe in” and “I don’t believe in.” In order to capture ideological beliefs about what is good versus bad we chose ideological exemplars, such as sadness, hate, dishonesty, oppression, injustice, happiness, love, honesty, freedom, and justice. The other category labels were “young” and “old” and participants were asked to categorize photos of younger men and women and older men and women. All the pictures were of Caucasians.

Implicit normative ideological beliefs about younger and older people. To capture participants’ beliefs about whether most people believe it is good to be old vs. young, we replaced the category labels “I believe in” and “I don’t believe in” with the category labels “most people believe in,” and “most people don’t believe in.”

Procedure

Participants completed the implicit personal ideological beliefs measure and implicit normative ideological beliefs measure and corresponding explicit measures over the internet. All participants completed an online consent form before starting the computer tasks. Each set of measures was separated from 3 days to 26 days apart (with an average of 6.39 days apart) to reduce potential carryover effects. The order of the set of measures was counterbalanced.

Results and discussion

Acculturation measures. We measured the length of time that participants had lived in Canada ($M = 8.76$ years, $SD = 5.14$). In the following analyses the length of time in Canada was log transformed (Singer & Willett, 2003) because we felt that differences in time spent in Canada were more likely to be potent when time in Canada was relatively short than when it was relatively long (i.e., the difference between 1 year vs. 2 years in Canada would be more pronounced than the difference between 15 years and 16 years).

The mean strength of identification with Canadian culture was 6.96 ($SD = 2.01$), whereas the mean identification with Asian culture was 8.37 ($SD = 1.76$). The length of time spent in Canada and Canadian identity were modestly correlated, $r = .19$, $p < .05$, whereas the length of time spent in Canada and Asian identity were not correlated, $r = -0.08$, *ns*. Asian identity and Canadian identity were not correlated, $r = .02$, *ns*.

Are implicit normative ideological beliefs, implicit personal ideological beliefs, and explicit normative evaluations correlated? We used the same algorithm to calculate IAT scores as in Study 1. Higher scores on both the implicit normative ideological beliefs and implicit personal ideological beliefs indicate that individuals believe it is good to be old, or that individuals believe most people think it is good to be old. These two measures were moderately correlated with each other ($r = .35$, $p < .001$). Implicit normative ideological beliefs and explicit normative evaluations were not correlated with each other ($r = .08$, *ns*).

Does the time spent in Canada predict implicit normative evaluations? We predicted that exposure to cultural norms will shape implicit normative ideological beliefs over time. To test this hypothesis, we conducted a regression analysis in which log-transformed length of time spent in Canada predicted implicit normative ideological beliefs, controlling for the other predictors, (i.e., implicit personal ideological beliefs and explicit normative evaluations), explicit attitudes, identification with Asian culture, and identification with Canadian culture. Consistent with our hypothesis, we found that log-transformed length of time spent in Canada predicted implicit normative ideological beliefs, such that the longer Asian Canadians have spent in Canada the more negative were their implicit normative

³ Because we used a mass-testing questionnaire that measured the length of time in country of origin, we measured the length of time spent in Canada based on the time spent in country of origin. Most people came to Canada directly from their birth country; therefore, the length of time spent in Canada can be estimated by subtracting the length of time spent in country of origin from participants’ age.

ideological beliefs toward the elderly, $b = -51.98$, $\beta = -.20$, $t_{(98)} = -2.13$, $p < .05$.⁴

Does the length of time spent in Canada predict implicit personal ideological beliefs? We did not expect time spent in Canada to be a predictor of implicit personal ideological beliefs. To test this hypothesis we let log-transformed length of time spent in Canada predict implicit personal ideological beliefs, controlling for the other predictors, (i.e., implicit normative ideological beliefs and explicit normative evaluations), explicit attitudes, identification with Asian culture, and identification with Canadian culture. Log transformed length of time in Canada did not significantly predict implicit personal ideological beliefs, $b = -6.90$, $\beta = -.03$, $t_{(98)} = -.26$ ns.

Does the length of time spent in Canada predict explicit normative evaluations? We also examined whether length of time spent in Canada would predict explicit normative evaluations. To test this hypothesis we let log-transformed length of time spent in Canada predict explicit normative evaluations, controlling for the other predictors, (i.e., implicit normative ideological beliefs and implicit personal ideological beliefs), explicit attitudes, identification with Asian culture, and identification with Canadian culture. Log transformed length of time in Canada did not significantly predict explicit normative evaluations, $b = .19$, $\beta = .11$, $t_{(98)} = 1.29$, $p = .20$, ns.

In this study we found evidence that the length of time that Asian-Canadian immigrants had spent in Canada predicted their implicit normative ideological beliefs, but did not affect their implicit personal ideological beliefs. In addition, we found that implicit normative ideological beliefs and implicit personal ideological beliefs were moderately correlated, but implicit normative ideological beliefs and explicit normative evaluations were not. Together these findings suggest that the experience of acculturation can uniquely predict implicit normative ideological beliefs. That is, exposure to how social groups, in this case the elderly, are depicted and treated can influence the implicit acquisition of this normative information for Asian-Canadian immigrants without affecting their implicit personal ideological beliefs. Thus, these data provide converging evidence with Study 1 that implicit normative evaluations are not redundant with implicit attitudes and explicit normative evaluations. These data, however, are cross-sectional and do not address how changes in implicit normative evaluations occur over time. In Study 3 we address the time course of the development of implicit normative evaluations longitudinally.

Study 3

To examine the development of implicit normative evaluations longitudinally we chose a group that was exposed to a well-studied norm (i.e., female engineers). We also assessed the impact that a negative norm could have on the implicit normative evaluations of a group over time and the impact that these newly-formed implicit

normative evaluations could have on important decisions such as staying in engineering.

There are several ways that norms may form among this group. There are significantly fewer women than men in engineering, as they make up roughly 20% of undergraduate programs, and only 9% of professional engineers (Engineers, 2007). This may form a strong descriptive norm about the gender composition of engineering. There is also research suggesting that women in engineering may be exposed to a “chilly climate” (Pascarella, Whitt, Edison, & Nora, 1997). This chilly climate may reflect women’s negative experiences when exposed to negative norms toward women in engineering. Indeed, research suggests that this “threat in the air” (Steele, 1997) can harm female engineering students’ performance (Bell, Spencer, Iserman, & Logel, 2003). Although much research has focused on more systemic indicators of negative norms toward female engineers, these negative norms may be communicated in more subtle ways during day-to-day interactions (Logel et al., 2009).

In this study, we wished to assess what situational factors influence the development of implicit normative evaluations of female engineers. First, we predicted that exposure to engineering would lead to more negative implicit normative evaluations of female engineers by both male and female engineering students. Second, we predicted that men and women’s implicit normative evaluations would be sensitive to the specific ratio of male to female engineering students within each section of engineering, such that the fewer female engineers there were in a specific section of engineering (such as mechanical or nanotechnology) the more men and women would implicitly believe that most people do not like female engineers. Third, we predicted that negative implicit normative evaluations about female engineers would predict female engineers’ intentions to continue studying engineering.

Method

Participants

Over four academic years 142 first-year engineering students completed measures in the first semester (86 men, 56 women). They were recruited in engineering classes and through class email. Near the beginning of the second semester 122 participants (70 men, 52 women) completed a second set of measures. Roughly half of these participants left campus to participate in a work term in the second semester, leaving only 56 participants (29 men, 23 women) on campus to complete our measure of intention to stay in engineering at the end of the second semester. Participants received between \$12 and \$18 for completing these measures.

Materials

Implicit normative evaluations. Implicit normative evaluations were assessed using a similar IAT as used in past studies, except this IAT had the category labels “most people like/most people don’t like” and “female engineer/object.” In previous studies we measured associations with two objects at once (e.g., apples and candy bars). Because we measured associations with two objects at once it was unclear whether participants had positive associations with apples, or negative associations with candy bars, or both, and so to clarify our measurement we used a neutral category of object as our second category label (Blanton, Jaccard, Gonzales, & Christie, 2006). We chose to measure associations with female engineers rather than with engineers per se because we wanted to assess associations with female but not male engineers. Participants categorized photos of female engineers (e.g., photos of women building computers, doing math) and common objects (e.g., desks, staplers) to their respective categories. Thus, faster responses when most people like and female engineer are paired indicate that participants have positive associations with female engineers. Higher numbers on this

⁴ If we compare the implicit normative ideological beliefs of the elderly for Asian Canadians to those from European Canadians, the predicted implicit normative ideological beliefs for Asian Canadians who had been in Canada for 3.59 years (i.e., one standard deviation below the mean) had more positive implicit normative ideological beliefs of the elderly than European Canadians ($M = -66.43$, $M = -95.14$, respectively), although this difference was not significant, $t(163) = -1.36$, $p = .17$. Interestingly, if we examine this difference at one and a half standard deviations (i.e., 2.49 years) this difference ($M = -32.85$, $M = -95.14$, respectively) is significant $t(163) = -2.95$, $p < .02$. In contrast, Asian Canadians who had been in Canada for 15.64 years (i.e., one standard deviation above the mean) had significantly more negative implicit normative ideological beliefs of the elderly than European Canadians ($M = -136.30$, $M = -95.14$, respectively), $t(163) = 1.95$, $p < .05$). Although an unexpected finding, we suggest this finding may be due to a contrast effect (Wyer, Sadler, & Judd, 2002) (i.e., a contrast between Asian Canadians’ culture of origin and Canadian culture). Given that, while in Asia, these Asian Canadians may have been exposed to elders being treated with more respect than in Canada, the violation of this norm might be especially salient to Asian Canadians once they arrive in Canada, leading them to develop more negative implicit normative ideological beliefs about the elderly. This possibility is speculative, however, as we did not originally predict this effect.

measure indicate more positive implicit normative evaluations of female engineers.

Percentage of women in each major. Because the percentage of women in each section of engineering varies greatly, we wished to assess how many women were in each section of engineering in each year of our data collection. This university releases statistics on the percentage of women in each first year engineering class, broken down by engineering section. These varied from very few women in a section (for example, 7% of the first year software engineering class was female in 2006) to roughly equal (for example, 50% of the first year civil engineering class was female in 2008). For this variable, each participant received the percentage of women in their section of engineering as their score.

Intention to stay in engineering. The final survey asked participants whether they planned to stay in engineering (with the response options no, maybe, and yes).

Procedure

Participants completed the first online measure of implicit normative evaluations near the beginning of the first semester. Participants then completed a second online measure of implicit normative evaluations near the beginning of the second semester. Finally, participants that were on campus completed a measure of their intention to stay in engineering at the end of the second semester. All participants completed an online consent form before starting the computer tasks. Over the 4 years of data collection approximately 5% on the incoming engineering class per year participated in this study.

Results and discussion

Change in implicit normative evaluations from first to second semester. Recall that we hypothesized that the longer both male and female engineers were exposed to engineering, the more negative their implicit normative evaluations of female engineers would become. Was this the case? To answer these questions we conducted a 2 (time: semester 1 vs. 2) \times 2 (gender: men vs. women) mixed model ANOVA. There was a main effect of time, $F(1, 81) = 6.27, p = .01$, such that implicit normative evaluations toward female engineers were more positive in semester 1 ($M = 210.15, SD = 153.20$) than semester 2 ($M = 159.59, SD = 154.29$). There was also a main effect of gender, $F(1, 81) = 4.42, p = .04$, such that implicit normative regard was more positive for women ($M = 218.90$) than men (162.40), but no interaction between time and gender, $F < 1$, suggesting that this decrease in the positivity of normative evaluations from semester 1 to 2 did not vary depending on gender.

Percentage of women in each section of engineering. Were the implicit normative evaluations of female engineers sensitive to the ratio of male and female engineers in each section of engineering, as we hypothesized? To answer this question, we let the percentage of women in each section predict male and female engineers' implicit normative evaluations at the end of the second semester, and found that the fewer women there were in a specific major, the more negative both men and women's normative evaluations were toward female engineers, $b = 2.40, \beta = .20, t(89) = 1.95, p = .05$.

Intentions to stay in engineering. Thus, we have seen that both men and women's implicit normative evaluations become more negative over time and that the percentage of women in each section of engineering influences these implicit normative evaluations. However, what impact do these negative implicit normative evaluations have on women? We predicted that the more negative the implicit normative evaluations of female engineers, the lower their intention to continue studying engineering. To assess this possibility, we let women's implicit normative evaluations during the second semester predict their intentions to stay in engineering among women. We found that the more negative women's implicit normative evaluations

were during the second semester, the lower their intention to continue studying engineering, $b = .001, \beta = .62, t(16) = 3.18, p = .006$. This did not hold for men, however. Not surprisingly, their implicit normative evaluations toward female engineering students did not predict their intention to stay in engineering, $b = -.0000062, \beta = -.02, t(25) < 1, ns$.

In this study we wished to assess what might create negative implicit normative evaluations. We found that exposure to engineering predicted more negative implicit normative evaluations of female engineers over time for both men and women, suggesting that exposure to a chilly climate may indeed be internalized by both men and women. These implicit normative evaluations were even sensitive to the norms within each section of engineering, as the fewer women there were in each section of engineering, the more negative were both men and women's implicit normative evaluations of female engineers.

Studies 2 and 3 provide evidence that exposure to how groups are depicted and treated over time can affect implicit normative evaluations and these implicit normative evaluations can predict meaningful intentions. In Study 4 we continued to demonstrate that implicit normative evaluations can predict a meaningful behavior, and that implicit normative evaluations reflect cultural depictions and treatment of groups.

Study 4

Study 4 examines violence directed toward African Canadians because in this domain people's personal experience with African Canadians and normative evaluations toward them tend to diverge. People are likely to encounter African Canadians in mundane contexts such as in the workplace, at school or in grocery stores. Given that implicit attitudes are well learned personal evaluations that people have developed through repeated experiences such as these (Rudman, Phelan, & Heppen, 2007), one can imagine that implicit attitudes toward African Canadians will be related to everyday behavior. Indeed, research has shown that implicit attitudes toward African Americans predicted non-verbal behavior in everyday contexts such as an interracial interaction (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997).

In contrast, we argue that implicit normative evaluations are shaped through repeated exposure to portrayals of African Canadians in the media or how other people treat them. In North American media, African Canadians are often depicted in the context of physical fights or shootings, reinforcing dangerous or violent images of African Canadians. In addition, people may observe how other people are cautious around African Canadians or subtly avoid them (Chen & Bargh, 1999). Therefore, implicit normative evaluations toward African Canadians may reflect societal views of African Canadians being more dangerous or violent than they really are.

If you encounter a person of African descent and have to figure out quickly whether the person is armed or not, what factors will influence your decision? In 1999, Amadou Diallo, an African immigrant was shot by four police officers. They ordered him to freeze; however, he reached into his pocket. They fired 41 shots and 19 of them hit and killed him. What he was trying to reach turned out to be a wallet. Why did police officers think that he possessed a gun? Would they have decided to shoot him if he had been White? This incident spurred social psychologists to examine such shooting scientifically. More specifically, Correll et al. (2002) developed a computer simulation in which participants "shoot" a target who is holding a gun and do not "shoot" a target who is holding a harmless object (e.g., cell phone). They found that when a target did not have a gun participants were slower to not shoot an African American than a European American. When a target had a gun participants were faster to shoot an African American than a European American. When participants had to make decisions quickly they were more likely to shoot an African American without a gun than a European American. Similarly,

participants were more likely to fail to shoot a European American with a gun than an African American. Correll and his colleagues labeled this bias the shooter bias.

Study 4 examines whether implicit normative evaluations are related to the shooter bias. Previous studies found that implicit and explicit attitudes were not related to the shooter bias (Correll et al., 2002), suggesting that the shooter bias is not caused by negative attitudes toward African Americans. We argue that implicit attitudes toward African Canadians are shaped through repeated interaction with them. It seems unlikely that many people have repeatedly encountered African Canadians when the primary decision has been whether or not to act violently toward them. Rather, most social interactions are likely to be much more mundane. Thus, we reason that implicit attitudes will not be related to the shooter bias.

These implicit attitudes toward African Canadians may not be consistent with implicit normative evaluations. Even if one has pleasant interactions with African Canadians and has positive implicit attitudes toward them, by living in North American society individuals are exposed to numerous media depictions that link African Canadians with shootings. These negative media depictions may shape both individuals' implicit normative evaluations of African Canadians and their performance on the shooter bias. In other words, to the extent that people have negative implicit normative evaluations toward African Canadians, these associations may affect their split second decision of whether an African Canadian target possesses a gun or not. Based on this reasoning, we hypothesized that the shooter bias would be related to implicit normative evaluations but not implicit attitudes.

We also hypothesized that the shooter bias will not be related to explicit normative evaluations. Research on automaticity has shown that automatic processes are efficient and can operate when cognitive resources are limited. In contrast, deliberative processes require much more cognitive resources (Bargh et al., 1992). Therefore, when people make a judgment under time pressure, automatic processes and associations (such as implicit normative evaluations) will predict behavior better than deliberative processes or associations (such as explicit normative evaluations).

Method

Participants

Sixty three undergraduate students (23 men and 40 women) recruited from various classes on campus participated in the study in exchange for \$8.00. The ethnic breakdown of the participants was 40 European-Canadians, 19 Asian-Canadians (14 from East Asia and 5 from South Asia), 2 people from the Middle East and 2 participants that did not indicate their ethnicity. Following previous research (Correll et al., 2002), we did not recruit African Canadian participants for this study. Eleven participants who completed online measures did not participate in the lab, leaving 52 undergraduate students (17 men, 33 women, 2 did not report their gender; 31 were Caucasian, 12 were Asian-Canadians, 4 were East Indian, 1 person was from the Middle East, and 4 did not report their ethnicity).

Materials

Explicit normative evaluations toward African Canadians. Participants were asked to indicate most people's overall impressions about African Canadians using an evaluative thermometer from 0 (negative) to 100 (positive). The evaluations toward African Canadians were embedded with other social groups (e.g., Asians, French Canadians, etc.) to disguise the purpose of the study.

Explicit attitudes toward African Canadians. We used the same evaluative thermometer to assess explicit attitudes toward African Canadians. Participants were asked to indicate their overall impressions of African Canadians using the number 0 (negative) to 100 (positive). We also

assessed participants' explicit attitudes toward African Canadians using the Old-Fashioned Racism Scale (Brigham, 1993). This scale assesses participants' explicit attitudes toward African Canadians. An example item is "It is likely that Blacks will bring violence to neighborhoods when they move in" (Cronbach's $\alpha = .80$). Because the evaluative thermometer and Old-Fashioned Racism scale showed a reasonably strong negative correlation ($r = -.46, p < .01$) we standardized both measures and reverse scored the Old-Fashioned Racism scale, then averaged these scores to create an index of explicit attitudes toward African Canadians. Higher values indicated more positive attitudes toward African Canadians.

Motivation to Control Prejudiced Reaction Scale (Dunton & Fazio, 1997). This scale assesses individual differences in the motivation to control the expression of prejudice. An example item is "I feel guilty when I have a negative thought or feeling about a Black person" (Cronbach's $\alpha = .88$).

Implicit normative evaluations measure. We used the same implicit normative evaluations measure as the one used in previous studies except for the category labels and stimulus items. The category labels were "most people like" "most people don't like" and "Black" and "object." Participants were asked to categorize photos of African Canadians and photos of objects as quickly and accurately as possible. Higher values on this measure indicate positive normative evaluations toward African Canadians.

Implicit attitudes measure. The implicit attitudes measure was the same as the implicit normative evaluations measure except that the category labels were "I like" and "I don't like." Higher values indicate positive implicit attitudes toward African Canadians.

The shooter bias task. In order to measure the shooter bias we used the program and procedures developed by Correll et al. (2002). Participants were asked to "shoot" a target who was holding a gun and "not shoot" a target who was holding a harmless object by pressing response keys as quickly as possible. Targets were presented for 500 to 800 ms. They earned five points if they did not "shoot" a target who was holding a harmless object, but lost 20 points if they shot this target as a penalty for shooting an innocent victim. They earned 10 points for "shooting" an armed target, but failing to "shoot" an armed target resulted in a loss of 40 points as a penalty. If participants did not respond within the 850 ms response window, they lost 10 points.

Following the procedures of Correll et al. (2002), we scored the shooter bias task by subtracting the response latencies for African Canadian armed targets from those of European Canadian armed targets. Then, we subtracted the response latencies for European Canadian unarmed targets from those of African Canadian unarmed targets and added these response latencies together. Higher values indicated faster response latencies for armed African Canadian targets than armed European Canadian targets and for unarmed European Canadian targets than unarmed African Canadian targets (i.e., a stronger shooter bias).

Procedure

Participants were asked to complete the implicit attitudes measure, implicit normative evaluations measure, and the corresponding explicit measures approximately 4 to 8 days before coming to the lab. All participants completed an online consent form before starting the computer tasks. The attitude measures and normative evaluations measures were separated by at least 4 days to reduce carryover effects, and the order of these measures was counterbalanced. In the lab session, a Caucasian female experimenter explained the detailed procedures of the computer simulation. She also explained that participants had an opportunity to earn up to \$5.00 if they performed well. The purpose of monetary incentive was to ensure sustained effort on the computer simulation. After completing the computer simulation, the participants were fully debriefed.

Results and discussion

Predicting the shooter bias (response latencies). Recall our hypothesis that, because participants completed the shooter bias task under time pressure, explicit attitudes and normative evaluations would not predict the shooter bias. Consistent with our hypothesis and previous studies (Correll et al., 2002), neither implicit attitudes, explicit normative evaluations, nor motivation to control prejudice was correlated with the shooter bias ($r_s = .09, .01, -.12$, respectively). Unexpectedly, explicit attitudes were marginally correlated with the shooter bias ($r = .27, p < .10$), such that people with more positive explicit attitudes toward African Canadians tended to show the stronger shooter bias.

More importantly for our hypothesis, negative implicit normative evaluations toward African Canadians were related to the stronger shooter bias, $r = -.30, p < .05$. We argue that people are exposed to negative treatment or depictions of African Canadians and this exposure shapes people's implicit normative evaluations that most people associate African Canadians with being violent or aggressive. Because these associations are likely to be well learned and efficient, they can affect split second decision-making more strongly than can explicit constructs.

Consistent with our previous studies, implicit attitudes and normative evaluations are at most weakly correlated with each other ($r = .15, ns$), suggesting that these implicit normative evaluations were independent of personal attitudes or beliefs (Devine, 1989). Indeed, we argue that implicit attitudes and normative evaluations develop in different ways. Specifically, we argue that implicit attitudes develop through personal experience, whereas implicit normative evaluations develop through exposure to how most people treat and evaluate social groups. Implicit attitudes may not predict the shooter bias because people are not likely to have experience with African Canadians in the context of shooting or violent crimes. In contrast, implicit normative evaluations may reflect violent aspects of African Canadians that are portrayed in the media. Consistent with this reasoning, implicit normative evaluations toward African Canadians were significantly more negative than implicit attitudes ($(M_{(norms)} = -42.5, SD = 195.9$ vs. $M_{(attitudes)} = 22.8, SD = 158.6)$, $F_{(1, 56)} = 4.45, p < .05$). Furthermore, when implicit attitude and normative evaluations were entered in the regression equation simultaneously, negative implicit attitudes marginally predicted a weaker shooter bias, whereas negative implicit normative evaluations significantly predicted a stronger shooter bias, $b = 0.051, \beta = .27, t_{(42)} = 1.83, p = .07$; $b = -0.068, \beta = -.37, t_{(42)} = -2.53, p = .015$, respectively. Therefore, even if people develop positive implicit attitudes toward African Canadians, they still may be affected by culturally shared beliefs toward African Canadians.

In this study, we have demonstrated that implicit normative evaluations can predict the speed at which participants decide to shoot or not shoot an African Canadian target, and argue this occurs because both implicit normative evaluations and decisions to shoot an African Canadian target reflect associations acquired from exposure to how groups are depicted and treated. Nevertheless, the causal relation between exposure to how groups are depicted and treated and implicit normative evaluations has not been established. We address that issue in Study 5 with an experiment.

Study 5

Study 5 examines how exposure to other people's evaluations of a social group affects implicit normative evaluations and behavior. In this study we examine implicit normative evaluations toward people from the Middle East because prejudice and discrimination against this group have been a serious issue particularly since September 11, 2001 (e.g., Oswald, 2005). We subtly manipulated other people's evaluation toward people from the Middle East by changing the

audience's reactions toward racist jokes, targeting people from the Middle East. More specifically, when the audience laughs at the racist jokes a more negative norm toward people from the Middle East is conveyed than when the audience remains silent.

We hypothesized that implicit normative evaluations will be influenced by the audiences' reactions toward the racist jokes. As we have argued, implicit normative evaluations are hypothesized to form from the way groups are depicted and treated. The audience's reaction in this study provides a powerful operationalization for how this group is depicted and treated, and therefore, we hypothesize that when the audience laughs at the racist jokes targeting people from the Middle East, participants' implicit normative evaluations toward Middle Easterners will be more negative than when the audience remains silent. We suspect, however, that the manipulation of an audience's reaction will not impact implicit attitudes because the audience's reaction conveys normative information that may not impact individual's own evaluation of Middle Easterners. We test this possibility in this study.

We also hypothesized that the audience's reactions toward the racist jokes will influence discrimination. Research by Fein, Goethals, and Kugler (2007) demonstrated that people's voting intentions can be influenced by an audience's reaction to a speech in a presidential debate. When the audience responded with cheers and laughter, participants reported being more likely to vote for the candidate than when the audience's reactions were removed. Based on these findings, we hypothesized that when the audience laughs at the racist jokes, people will be more likely to engage in discriminatory behavior than when the audience remains silent. Furthermore, we hypothesized the influence of the audience reactions on discriminatory behavior will occur through implicit normative evaluations.

Method

Participants

One hundred and thirteen (50 men, 61 women, and 2 who did not indicate their gender) European-Canadian undergraduate students from the University of Waterloo participated in the study. Seventy four people received course credit for their participation and 39 people recruited from various classes on campus received an \$8.00 payment. The type of compensation did not influence the results ($F_{(1, 81)} < 2.83, \beta_s < .36, t_{(46)} < -.77, p_s > .10$).

Materials

Implicit normative evaluations measure. We used the same implicit normative evaluations measure that we used in Study 1 except for the category labels and stimulus items. We used the categories, "most people like/most people don't like" and "Middle Easterner/object." We used the category label "object" because the IAT measures relative preference toward one concept over the other. Using the category label "object" will make it clear whether participants have positive evaluations toward Middle Easterner or not (rather than positive evaluations toward North Americans). Participants were asked to categorize photos of people from the Middle East and photos of neutral objects (e.g., desk, chair, fork, and stapler).

Implicit attitudes measure. The implicit attitudes measure was the same as the implicit normative evaluations measure except that the category labels "most people like" and "most people don't like" were replaced with "I like" and "I don't like."

Procedure

In order to mask the true purpose of our study, participants were told the purpose of the study was to evaluate the relation between information processing and the evaluation of humor. Participants

viewed videos of three White stand-up comedians (two filler comedians, then the critical comedian), each of whom made one joke. The critical comedian made a racist joke about people from the Middle East, and the rest of the comedians did not make fun of social groups. We manipulated norms by modifying the audience's reactions toward the racist joke, and participants were randomly assigned to one of the two conditions. In the no laughter condition, the audience's laughter and clapping following the racist joke were removed, which conveyed more positive normative evaluations toward people from the Middle East (i.e., most people like people from the Middle East). In the laughter condition, the audience's original laughter and clapping following the racist joke were retained, which conveyed more negative norms toward people from the Middle East (i.e., most people don't like people from the Middle East). Immediately after watching the comedians, participants were randomly assigned to a condition to complete either the implicit attitudes or implicit normative evaluations measure. As part of our cover story they then rated how funny they found each comedian.

After participants completed the task, a Caucasian experimenter who was blind to condition told them that the study was over. However, the experimenter asked participants if they could fill out an anonymous ballot from the Federation of Students (FEDS) (Son Hing, Li, & Zanna, 2002). The experimenter explained to the participants that the FEDS had to cut the budget by 20% (or CAD \$1000) for various student organizations and wanted input from students about what to cut, and that their recommendations for budget cuts would act as a vote that would determine the actual budget cuts. One of the student organizations was the Muslim Student Association (MSA) and the proportion of money that participants allocated to MSA served as a measure of discrimination. After completing the survey, participants were probed for suspicion and fully debriefed. Specifically, they were asked whether they had noticed anything strange about the clips (i.e., whether they noticed that the clip was edited in the no laughter condition), about the budget reduction exercise (i.e., whether they believed the cover story), and whether they thought that the IAT was related to the comedy clips, and the experimenter recorded participants' responses. No participants guessed the true nature of the study and so we included all participants in analyses.

Results and discussion

The influence of laughter on implicit attitudes and normative evaluations. We used the same algorithm to calculate the implicit measures as described in the previous studies. Higher values indicate more positive evaluations of people from the Middle East. We expected that the audience's reaction to the racist jokes would influence implicit normative evaluations, but not implicit attitudes. To test this hypothesis, we conducted a 2 (condition: laughter vs. no laughter) \times 2 (implicit measure: implicit attitudes vs. implicit normative evaluations) \times 2 (gender: male vs. female) ANOVA. One participant made a substantial number of errors (i.e., 25% of responses) on the IAT and was excluded from the analyses.

There were no significant main effects, but there were three significant interactions. First, as expected, there was a significant interaction between condition and implicit measure $F_{(1, 102)} = 3.86, p = .05$. As depicted in Fig. 2, implicit normative evaluations were influenced by the audience's reactions to racist jokes, ($M_{\text{laughter}} = -29.08, SD = 124.29$; $M_{\text{no laughter}} = 32.91, SD = 128.27$), $F_{(1, 102)} = 5.45, p = .02$, whereas implicit attitudes did not differ between the conditions ($M_{\text{laughter}} = 4.60, SD = 113.78, M_{\text{no laughter}} = -10.30, SD = 129.67$), $F_{(1, 102)} < 1, ns$. Those who were exposed to the audience who laughed at the racist jokes had significantly more negative normative evaluations toward people from the Middle East than those who were exposed to the audience who remained quiet.

In addition to this predicted interaction there were two unexpected interactions involving gender. Gender interacted with the type of

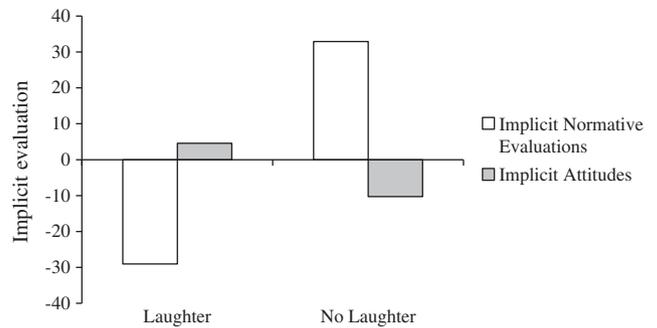


Fig. 2. Implicit attitudes vs. normative evaluations toward people from the Middle East as a function of the condition.

implicit measure ($F_{(1, 102)} = 4.08, p < .05$), such that men had a greater discrepancy between their implicit attitudes and implicit normative evaluations (i.e., more negative implicit attitudes than implicit normative evaluations) than women. There was also an unexpected interaction between condition and gender, $F_{(1, 102)} = 6.37, p = .01$ such that across both implicit attitudes and implicit normative evaluations women were more affected by the manipulation than men. Neither of these unexpected interactions qualified the hypothesized interaction.

The influence of laughter on discriminatory behavior. We examined discriminatory behavior by measuring how much money participants gave to the Muslim Student Association (MSA) on campus. We expected that when the audience laughed at the racist jokes participants would give less money to this group than when the audience remained silent after the joke was told. To test this hypothesis, we conducted a 2 (condition: laughter vs. no laughter) \times 2 (implicit measure: implicit attitudes vs. implicit normative evaluations) \times 2 (gender: male vs. female) between-subject ANOVA. Four participants did not follow instructions for the budget allocation task. We excluded these participants from analyses. The only significant effect was a main effect for condition, $F_{(1, 99)} = 5.02, p = .028$. Consistent with our hypothesis, participants in the laughter condition allocated significantly less money to the MSA than those in the no laughter condition, $M = 362.77, SD = 145.77$ (37% reduction); $M = 421.32, SD = 95.62$ (27% reduction), respectively.

Does experimental condition affect discriminatory behavior through implicit normative evaluations? To test whether implicit normative evaluations were the mechanism by which the audience's reactions affected discrimination, we first let experimental condition (i.e., laughter vs. no laughter) predict the budget allocation task in regression among only the participants who completed the implicit normative evaluation measure, and found a marginal effect, $b = 50.39, \beta = .22, t_{(58)} = 1.67, p = .10$.⁵ We next examined whether the effect of experimental condition (i.e., laughter vs. no laughter) on the budget allocation task could be explained by its indirect effect on implicit normative evaluations about people from the Middle East. To test this mechanism we let condition predict implicit normative evaluations toward people from the Middle East in a regression analysis and found that those who were in the laughter condition had significantly more negative implicit normative evaluations toward people from the Middle East than those in the no laughter condition, $b = 64.23, \beta = .25, t_{(58)} = 1.93, p = .05$. We then let condition and implicit normative evaluations about people from the Middle East predict discrimination in the budget allocation task in a multiple regression analysis, and found that negative implicit normative evaluations about people from the Middle East predicted greater reduction of

⁵ The effect of condition on the budget allocation task was significant in ANOVA but marginal in regression because we lost half the participants in the regression analyses (as half of the participants did not complete the measure of implicit normative evaluations).

the budget for the MSA, $b = .24$, $\beta = .26$, $t_{(57)} = 2.03$, $p < .05$. In addition, the experimental condition (i.e., laughter vs. no laughter) no longer predicted reduction in the budget, $b = 35.32$, $\beta = .15$, $t_{(57)} = 1.16$, ns . We tested the strength of the indirect effect of condition on discrimination in the budget reduction task using the bootstrapping procedure recommended by Preacher and Hayes (2004). In 5000 simulations of the indirect effect, we found that the 95% confidence interval for this effect excluded zero, $CI = .027$ to 50.48 , $p < .05$ (see Fig. 3). Together these results suggest that implicit normative evaluations are a plausible mechanism by which the audience's reaction affected discrimination against people from the Middle East.

In this study we found that an experimental manipulation of an audience's reaction to how a group was depicted affected implicit normative evaluations and that this effect on implicit normative evaluations in turn affected discrimination against that group, suggesting that depictions of how a group is treated can cause changes in implicit normative evaluations and that these changes in implicit normative evaluations can have effects on meaningful behavior. Importantly the audience's reaction to how a group was depicted did not affect implicit attitudes in this study, suggesting that implicit normative evaluations and implicit attitudes were not redundant and can have different antecedents and consequences.

General discussion

Across five domains (e.g., apples vs. candy bars, evaluations of the elderly, evaluations of female engineers, evaluations of African Canadians, and of people from the Middle East) and among both European-Canadians and Asian-Canadians implicit normative evaluations were often related to implicit attitudes and explicit normative evaluations. Yet implicit normative evaluations were not redundant with these measures as they powerfully predicted three important outcomes (intention to stay in school, responses on the shooter bias task, and discrimination). We have also found evidence indicating that the traditional IAT measures both implicit normative evaluations and implicit attitudes. We suggest then that researchers who want to measure just implicit attitudes or just implicit normative evaluations should use the corresponding measure instead of the traditional IAT which measures both these constructs.

These findings are consistent with our previous research, in which we found a measure of implicit normative evaluations of social groups (or implicit normative regard) was related to, but not redundant with, implicit attitudes and explicit normative evaluations, demonstrated expected differences between social groups, and predicted important behavior such as collective action. This previous research provides further evidence that our implicit normative evaluations measure is assessing a meaningful construct that is distinct from implicit attitudes (Peach et al., 2011).

Normative evaluations have a long history in social psychology and the current findings add to this literature in providing compelling evidence that normative evaluations can also be measured at the implicit level and that these implicit normative evaluations can be

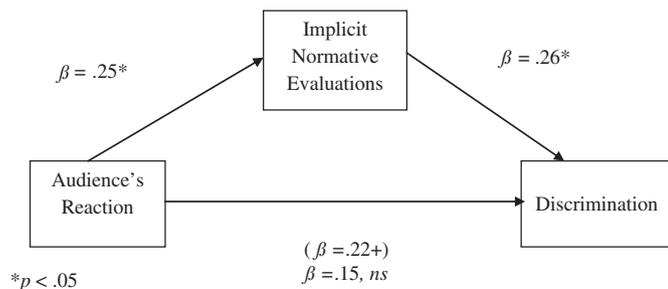


Fig. 3. The audience reaction affecting discriminatory behavior through implicit normative evaluation.

important determinants of meaningful behavior. To our knowledge this research is the first to examine normative evaluations at the implicit level and although we believe the significance of this research is clear, there are still some important unanswered questions posed by it.

First, when measuring implicit normative evaluations using the IAT, in what ways do the specific category labels used in the IAT influence the results? In the studies at times we have used category labels that reflect normative evaluations that characterize the group's preferences (i.e., most people like) and at other times we have used category labels that reflect normative ideological beliefs that characterize the groups ideological beliefs about what is good or bad (i.e., most people believe in). We believe these different category labels reflect different types of normative evaluations—evaluations based on what people like and evaluations based on ideologies that people hold—but do they really differ? In the present research we were not able to systematically evaluate this possibility. Rather, we simply chose the normative evaluation that we thought would be most likely to have the strongest influence in the particular study. Further research is clearly needed to clarify whether a distinction between these normative evaluations can be made at the implicit level.

Second, in the present studies we often used the generic category label of “most people” in the IAT and characterized the reference group by describing to whom “people” referred (e.g., people in North America). Does this procedure actually ensure that people think about the reference group we described? We were not able to systematically investigate this question either. It would be possible, however, to specify the exact reference group and test whether it would make a difference. For example, in Study 3, we could have modified the category labels on the IAT to include the reference group in the category label. Specifically, the University of Waterloo (UW) engineering students could have responded to the category label, “most UW engineering students like,” rather than the generic category label. We suspect such a procedure may provide a stronger link to the reference group about which we want participants to think, but clearly further research is needed to establish the best way to represent reference groups in the category labels of the IAT.

Finally, the current studies were designed to establish that our new measure of implicit normative evaluations is distinct from implicit attitudes and explicit normative evaluations, so we purposely developed studies that would demonstrate this distinction. Our theorizing, however, suggests that implicit normative evaluations will not always be distinct from implicit attitudes and explicit normative evaluations, but rather will be more distinct in some situations than others. In particular, we theorize that implicit normative evaluations can lead to implicit attitudes and explicit normative evaluations and vice versa. These theoretical ideas remain largely untested and provide important avenues for future investigation.

Despite these limitations of the current research we believe that it makes several important theoretical contributions. First, our findings suggest that people are sensitive to the views of others and these views shape even their most basic processing of information. Other research has shown that people want to fit in with others, to feel like they belong, and to be part of a larger whole (Baumeister & Leary, 1995; Deci & Ryan, 2000; Sherif, 1935; Walton & Cohen, 2007; Williams, 1997, 2001; Williams et al., 2000). The current research adds to this literature by demonstrating that this basic motivation occurs so ubiquitously that the evaluative views of others become automatic associations.

Second, our findings suggest that the traditional IAT is influenced by two separable components. Both implicit attitudes and implicit normative evaluations appear to make unique contributions to scores on the traditional IAT. These findings suggest that scores on the traditional IAT need to be interpreted with caution as they could be the result of implicit attitudes, implicit normative evaluations, or both. For example, if civil rights activists have negative associations with

African Americans on the traditional IAT, their score could reflect negative implicit attitudes, negative implicit normative evaluations, or both toward African Americans. Which underlying construct is affecting the scores on the traditional IAT clearly leads to fundamentally different interpretations. If the traditional IAT scores are affected primarily by implicit attitudes, then the traditional IAT scores would seem to represent deep seated underlying acceptance of stereotypes, but if the traditional IAT scores are affected primarily by implicit normative evaluations, then the traditional IAT scores reflect not underlying acceptance of stereotypes, but rather awareness of how the society at large views African Americans. Recent research suggests that the latter interpretation is more plausible (Bangard & Fein, 2008).

Third, our findings suggest that living in a culture can dramatically shape our thinking even when such cultural influences are opposed to people's individual convictions. For example, it may be the case that when people are exposed to a negative depiction or treatment of a group (as may occur after hearing a racist joke) even those who are low in both implicit and explicit prejudice may engage in discrimination. This influence of implicit normative evaluations would suggest that culture has a broader impact than simply its influence on individuals' attitudes and beliefs. Much as people develop the accent of those they often hear speaking, we argue that people develop implicit normative evaluations that reflect the way objects of evaluation (including social groups) are depicted and treated in their society. For example, if female engineers are regularly depicted and treated negatively, then people are likely to develop negative implicit normative evaluations about female engineers even if their explicit and implicit attitudes about female engineers are positive. As we saw in Study 3, these negative implicit normative evaluations can have a profound influence on the targets of these evaluations.

Fourth, the findings from these studies suggest that as we try to address social problems related to negative implicit normative evaluations it is important to do more than just address prejudice at the individual level. Rather wider change in social situations and social structure may be required. For example, in addressing the anti-semitism described by Allport in the opening quote, it is unlikely to be enough to address each of the older boys' anti-semitism individually, but rather changing the situation—perhaps by promoting intergroup contact—is necessary to create a new situation in which the need to fit in and be part of a larger whole can work to decrease discrimination rather than increase it.

References

- Allport, G. W. (1954). *The nature of prejudice*. Oxford, England: Addison-Wesley.
- Arkes, H. R., & Tetlock, P. E. (2004). Attributions of implicit prejudice, or "would Jesse Jackson 'fail' the implicit association test?". *Psychological Inquiry*, 15(4), 257–278.
- Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western man*. Boston: Beacon Press.
- Bangard, P., & Fein, S. (2008). The implicit normative evaluations towards racial minorities among activists. Unpublished data, Williams College, Massachusetts.
- Bargh, J. A., Chaiken, S., Gwendler, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology*, 62(6), 893–912.
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81(6), 1014–1027.
- Bargh, J. A., & Pietromonaco, P. (1982). Automatic information processing and social perception: The influence of trait information presented outside of conscious awareness on impression formation. *Journal of Personality and Social Psychology*, 43(3), 437–449.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529.
- Bell, A., Spencer, S. J., Iserman, E., & Logel, C. E. (2003). Stereotype threat and women's performance in engineering. *Journal of Engineering Education*, 92, 307–312.
- Bem, D. J. (1967). Self-perception: An alternative interpretation of cognitive dissonance phenomena. *Psychological Review*, 74, 183–200.
- Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, Vol. 6. (pp. 1–99) New York: Academic Press.
- Blanton, H., Jaccard, J., Gonzales, P. M., & Christie, C. (2006). Decoding the implicit association test: Implications for criterion prediction. *Journal of Experimental Social Psychology*, 42, 192–212.
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17, 475–482.
- Brigham, John C. (1993). College students racial attitudes. *Journal of Applied Social Psychology*, 23(23), 1933–1967.
- Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception–behavior link and social interaction. *Journal of Personality and Social Psychology*, 76(6), 893–910.
- Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation: Immediate behavioral predispositions to approach or avoid the stimulus. *Personality and Social Psychology Bulletin*, 25, 215–224.
- Correll, J., Park, B., Judd, C. M., & Wittenbrink, B. (2002). The police officer's dilemma: Using ethnicity to disambiguate potentially threatening individuals. *Journal of Personality and Social Psychology*, 83(6), 1314–1329.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, 56(1), 5–18.
- Dovidio, J. F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology*, 33(5), 510–540.
- Dunton, B. C., & Fazio, R. H. (1997). An individual difference measure of motivation to control prejudiced reactions. *Personality and Social Psychology Bulletin*, 23, 316–326.
- Elkin, R. A., & Leippe, M. R. (1986). Physiological arousal, dissonance, and attitude change: Evidence for a dissonance–arousal link and a 'don't remind me' effect. *Journal of Personality and Social Psychology*, 51, 55–65.
- Elliot, A. J., & Devine, P. G. (1994). On the motivation nature of cognitive dissonance: Dissonance as psychological discomfort. *Journal of Personality and Social Psychology*, 67, 382–394.
- Engineers, Canada (2007). Women in engineering. Accessed August 22nd, at: http://www.engineerscanada.ca/e/pr_women.cfm
- Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology*, 50(2), 229–238.
- Fazio, R. H., & Williams, C. J. (1986). Attitude accessibility as a moderator of the attitude–perception and attitude–behavior relations: An investigation of the 1984 presidential election. *Journal of Personality and Social Psychology*, 51, 505–514.
- Fein, S., Goethals, G. R., & Kugler, M. B. (2007). Social influence on political judgments: The case of presidential debates. *Political Psychology*, 28(2), 165–192.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Festinger, L. (1964). *Conflict, decision, and dissonance*. Stanford, CA: Stanford University Press.
- Fishbein, M., & Ajzen, I. (1974). Attitudes towards objects as predictors of single and multiple behavioral criteria. *Psychological Review*, 81, 59–74.
- Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82(6), 878–902.
- Fitzsimons, G. M., & Bargh, J. A. (2003). Thinking of you: Nonconscious pursuit of interpersonal goals associated with relationship partners. *Journal of Personality and Social Psychology*, 84(1), 148–163.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, 74, 1464–1480.
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the implicit association test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*, 85(2), 197–216.
- Jordan, C. H., Spencer, S. J., & Zanna, M. P. (2005). Types of high self-esteem and prejudice: How implicit self-esteem relates to ethnic discrimination among high explicit self-esteem individuals. *Personality and Social Psychology Bulletin*, 31, 693–702.
- Karpinski, A., & Hilton, J. L. (2001). Attitudes and the implicit association test. *Journal of Personality and Social Psychology*, 81, 774–788.
- Kay, A. C., Gaucher, D., Peach, J. M., Laurin, K., Friesen, J., Zanna, M. P., et al. (2009). Inequality, discrimination, and the power of the status quo: Direct evidence for a motivation to see the way things are as the way they should be. *Journal of Personality and Social Psychology*, 97(3), 421–434.
- Logel, C., Walton, G. M., Spencer, S. J., Iserman, E. C., von Hippel, W., & Bell, A. E. (2009). Interacting with sexist men triggers social identity threat among female engineers. *Journal of Personality and Social Psychology*, 96(6), 1089–1103.
- Marks, G., & Miller, N. (1987). Ten years of research on the false-consensus effect: An empirical and theoretical review. *Psychological Bulletin*, 102(1), 72–90.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton-Century-Crofts.
- Olson, M. A., & Fazio, R. H. (2004). Reducing the influence of extrapersonal associations on the implicit association test: Personalizing the IAT. *Journal of Personality and Social Psychology*, 86, 653–667.
- Oswald, D. L. (2005). Understanding anti-Arab reactions post-9/11: The role of threats, social categories, and personal ideologies. *Journal of Applied Social Psychology*, 35(9), 1775–1799.
- Pascarella, E. T., Whitt, E. J., Edison, M. I., & Nora, A. (1997). Womens perceptions of a "chilly climate" and their cognitive outcomes during the first year of college. *Journal of College Student Development*, 38(2), 109–124.
- Peach, J. M., Yoshida, E., Spencer, S. J., Zanna, M. P., & Steele, J. R. (2011). Recognizing discrimination explicitly while denying it implicitly: Implicit social identity protection. *Journal of Experimental Social Psychology*, 47, 283–292.
- Pohlmann, K. (2001). Agency and communion orientation in life goals: Impacts on goal pursuit strategies and psychological well-being. In P. Schmuck, & M. Sheldon Kennon (Eds.), *Life goals and well-being: Towards a positive psychology of human thriving* (pp. 68–84). Seattle: Hogrefe and Huber.

- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments & Computers. Special Issue: Web-Based Archive of Norms, Stimuli, and Data: Part 2*, 36, (pp. 717–731) : 4.
- Ross, L., Greene, D., & House, P. (1977). The false consensus effect: An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology*, 13(3), 279–301.
- Rudman, L. A., Phelan, J. E., & Heppen, J. B. (2007). Developmental sources of implicit attitudes. *Personality and Social Psychology Bulletin*, 33(12), 1700–1713.
- Sheldon, K. M., & Cooper, M. L. (2008). Goal striving within agentic and communal roles: Separate but functionally similar pathways to enhanced well-being. *Journal of Personality*, 76(3), 415–447.
- Sherif, M. (1935). A study of some social factors in perception. *Archives of Psychology*, 187, 172.
- Sherman, S. J., Chassin, L., Presson, C. C., & Agostinelli, G. (1984). The role of the evaluation and similarity principles in the false consensus effect. *Journal of Personality and Social Psychology*, 47(6), 1244–1262.
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York, NY, US: Oxford University Press.
- Snyder, C. R., & Fromkin, H. L. (1977). Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness. *Journal of Abnormal Psychology*, 86(5), 518–527.
- Son Hing, L. S., Li, W., & Zanna, M. P. (2002). Inducing hypocrisy to reduce prejudicial responses among aversive racists. *Journal of Experimental Social Psychology*, 38(1), 71–78.
- Spencer, S. J., Peach, J., Yoshida, E., & Zanna, M. P. (2010). Learning what most people like: How implicit attitudes and normative evaluations are shaped by motivation and culture and influence meaningful behavior. In J. Forgas, J. Cooper, & W. Crano (Eds.), *The Psychology of attitudes and attitude change* (pp. 95–108). Philadelphia: Psychology Press.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *The American Psychologist*, 52(6), 613–629.
- Streib, G. F. (1987). Old age in sociocultural context: China and the United States. *Journal of Aging Studies*, 1, 95–112.
- Sung, K. (2001). Elder respect: Exploration of ideals and forms in East Asia. *Journal of Aging Studies*, 15, 13–26.
- Thrash, T. M., Elliot, A. J., & Schultheiss, O. C. (2007). Methodological and dispositional predictors of congruence between implicit and explicit need for achievement. *Personality and Social Psychology Bulletin*, 33(7), 961–974.
- Trafimow, D., & Finlay, K. A. (1996). The importance of subjective norms for a minority of people: Between-subjects and within-subjects analyses. *Personality and Social Psychology Bulletin*, 22, 820–828.
- Trafimow, D., Triandis, H. C., & Goto, S. G. (1991). Some tests of the distinction between the private self and the collective self. *Journal of Personality and Social Psychology*, 60(5), 649–655.
- Triandis, H. C., & Suh, E. M. (2002). Cultural influences on personality. *Annual Review of Psychology*, 53(1), 133–160.
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, 92(1), 82–96.
- Williams, K. D. (1997). Social ostracism. In R. M. Kowalski (Ed.), *Aversive interpersonal behaviors* (pp. 133–170). New York, NY, US: Plenum Press.
- Williams, K. D. (2001). *Ostracism: The power of silence*. New York, NY, US: Guilford Press.
- Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). Cyberostracism: Effects of being ignored over the internet. *Journal of Personality and Social Psychology*, 79(5), 748–762.
- Wyer, N. A., Sadler, M. S., & Judd, C. M. (2002). Contrast effects in stereotype formation and change: the role of comparative context. *Journal of Experimental Social Psychology*, 38, 443–458.