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Teaching About Implicit Prejudices and Stereotypes: A Pedagogical Demonstration

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Abstract

Social psychology instructors from five distinct state universities in California examined the effect of incorporating the implicit association test (IAT) in a teaching module on students' perceived knowledge of implicit biases and motivation to control prejudice. Students ($N = 258$) completed a knowledge survey on prejudice, stereotypes, and discrimination and a motivation to control prejudice scale before (Time 1) and after (Time 2) a teaching module on implicit and explicit prejudice that included taking the IAT. Results showed that students' perceived knowledge of implicit biases increased after completing the teaching module. In addition, the more students displayed an implicit bias against African Americans (relative to European Americans), the more they reported mastering course material about implicit biases and the more they indicated being internally motivated to control prejudice (at Time 2). These findings suggest that using the IAT as a teaching tool might be a beneficial learning experience, in particular for individuals who display relatively pronounced implicit biases.

Keywords

IAT, prejudice, implicit bias, teaching

The implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998) offers researchers, instructors, and even popular media a powerful tool to demonstrate that people hold implicit (automatic or unconscious) prejudices and stereotypes that may deviate from their more explicit (controlled or conscious) responses. How can the IAT be incorporated in teaching activities to ensure that it provides a meaningful learning experience? Are some individuals more likely than others to benefit from instructional activities incorporating the IAT? How can instructors effectively teach about implicit prejudices and stereotypes? The purpose of our collaborative project was to design, implement, and evaluate a teaching module that includes the IAT in a way that leads to a better understanding of implicit prejudices and stereotypes.

Using the IAT in Educational Settings

The IAT was designed as a method for indirectly measuring associations among concepts (Greenwald et al., 1998). The primary assumption of the technique is that the ease or speed with which people can pair different concepts can be used to infer the direction and strength of mental associations among these concepts. For example, as is the case in the IAT used in this research, if it is easier for someone to pair negative words with faces of African Americans and positive words with faces of European Americans rather than to do the opposite pairings, it would suggest that this person holds a less favorable implicit attitude toward African Americans relative to European Americans. This pattern of responses is taken as evidence of implicit prejudice. Excellent reviews of the conceptual and methodological aspects of the IAT are available (Nosek, Greenwald, & Banaji, 2007; Teige-Mocigemba, Klauer, & Sherman, 2010). In addition, IATs assessing a variety of attitudes and beliefs can be experienced at the Project Implicit website (https://implicit.harvard.edu). Unlike traditional self-report measures, the IAT can capture associative knowledge represented in memory that people might be unable or unwilling to reveal.

Few published studies have examined the use of the IAT in educational settings. Rudman, Ashmore, and Gary (2001) compared IAT scores of students who participated in either a prejudice and conflict seminar taught by an African American instructor, a large lecture course taught by the same instructor, or a research methods course taught by a European American instructor. They found that students who participated in the

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prejudice seminar displayed reliably lower levels of both implicit and explicit prejudices at the end of the semester, whereas the levels of implicit and explicit prejudices did not change among students enrolled in the other classes. However, these data are limited to one university, one instructor, and students who self-selected into a small seminar due to shared interest. In addition, the study did not include an assessment of student learning, and how it might be influenced by students' levels of implicit prejudice.

Some researchers have expressed concerns that taking the IAT and discovering that one may harbor implicit prejudices or stereotypes can elicit negative affective reactions (Blanton & Jaccard, 2006). However, Morris and Ashburn-Nardo (2010) found that students reported more positive than negative affect both immediately after taking the IAT and 1 week later. In addition, taking the IAT increased students' awareness of their own implicit racial biases. Similarly, Casad, Flores, and Didway (2013) showed that despite students' initial skepticism, they became more cognizant of their own implicit biases after taking an IAT. Thus, the IAT seems to be useful both as an educational instrument and as a consciousness-raising tool.

The present research extends the above work in several ways. First, in contrast to prior relevant studies that were based on small samples (Casad, Flores, & Didway, 2013; Morris & Ashburn-Nardo, 2010), we recruited a substantially larger sample of undergraduate students ($N = 258$). Second, our student participants came from five social psychology courses taught by five different instructors located at five distinct institutions. Thus, the sample was characterized by a relative diversity of instructors, students, and campuses. Third, in most cases, the earlier studies invited students to complete the IAT on the Project Implicit website (Morris & Ashburn-Nardo, 2010; see also Casad et al., 2013). Although this is a convenient approach for instructors who do not have the resources necessary to develop and administer computerized versions of the IAT, it does not allow the investigators to examine the extent to which individual differences on the IAT may be a source of variations in responses to the instructional activities. In this study, we were able to match students' individual performances on the IAT with assessment of perceived course learning about implicit biases and a prejudice-relevant construct, namely the motivation to control prejudice. Moving away from a qualitative assessment of reactions (essay questions, Casad et al., 2013), we assessed elements of learning and personal growth using a more quantitative approach.

Development of a Common Teaching Module

As part of a cross-campus collaboration and course redesign, we developed a teaching module that incorporated the IAT. Our goal was to use the technique as a tool to teach challenging course material. Students often have difficulties grasping the notion that "good citizens" (like themselves) may display reactions that deviate from principles of equality and social justice. Simply presenting the scientific evidence for implicit prejudices and stereotypes does not guarantee that students will fully understand that these social cognitive processes operate outside of conscious awareness or control. We organized the teaching module around three discussion elements.

The *first discussion element* capitalized on students' initial reactions to the IAT. Students often express doubts about the possibility that they might harbor implicit prejudice, even when their own pattern of IAT responses suggests that they do (Monteith, Voils, & Ashburn-Nardo, 2001). These reactions suggest that the topic of implicit prejudice is both sensitive and complex. Often students seek to dismiss their individual scores as the product of methodological issues. For example, students may argue that the order in which they completed the two IAT blocks explains their results. This interpretation may reflect some defensiveness, but it is often a good starting point to introduce some key ideas. We informed students that the order in which people complete the tasks does affect the overall score for some versions of the IAT, but that the impact of this order effect is minimal and that recent IAT modifications have sharply reduced or even eliminated such effects (Nosek et al., 2007). We further stressed how we systematically counterbalanced the order in which participants complete the paired associations.

To further reduce any defensiveness, we showed students the data from their own and other campuses. Students' reactions ranged from acceptance ("...[it] is good to recognize my own biases...") to surprise ("I never would have thought I had this in me...") and self-reflection ("I would like to learn more about this technique so I can learn more about myself."). Finally, students watched a video in which Mahzarin Banaji and Tony Greenwald, implicit attitude theorists and developers of the IAT, described their shock at discovering their own biases (http://www.edge.org/documents/archive/edge236.html). Students often found it easier to acknowledge their own scores after they learned that others like them, and even premiere social psychologists, had similar experiences.

The *second discussion element* of the teaching module focused on the conceptual distinction between implicit and explicit biases. Students typically assume that IAT scores represent a person's *real* attitudes or beliefs in comparison to self-reported attitudes or beliefs. We acknowledged this debate in the literature but stressed that it might not be the most fruitful way to tackle the implicit–explicit distinction. We stressed that implicit measures should not be conceptualized as "lie detectors." These measures tap attitudes or beliefs that people do not realize they hold or find difficult to control because they are deeply ingrained. Students were presented with relevant data showing that under some circumstances implicit and explicit attitudes overlap, and in some cases, they are clearly distinct (Devos, 2008). For example, measures of implicit and explicit political attitudes tend to be closely related, but measures of implicit and explicit racial attitudes tend not to be.

This issue segued into a discussion about the origins of implicit associations. We emphasized that implicit associations are the reflection of repeated experiences and socialization (Rudman, 2004). Students readily admit this point. The

challenge here is that students may end up subscribing to the view that implicit associations do not represent anything personal but stem from the cultural context and prevailing norms in which they live. These reactions offered an opportunity to discuss the limitations of viewing oneself as uninfluenced by one's culture or social norms. In addition, we stressed that implicit attitudes and beliefs account for a wide range of tangible outcomes (Greenwald et al., 2009), such as subtle and spontaneous nonverbal behavioral responses during interethnic interactions (Dovidio, Kawakami, & Gaertner, 2002) as well as more deliberate behaviors such as hiring decisions (Vanman, Saltz, Nathan, & Warren, 2004).

The *third discussion element* of this module provided students with a more optimistic and empowering message. Although implicit prejudices and stereotypes are pervasive and often hard to reduce, under certain conditions, they are malleable and context sensitive as well (Blair, 2002; Gawronski & Bodenhausen, 2006). In our teaching module, we described a few striking empirical illustrations revealing the impact of situational factors on implicit biases. Next, we discussed how increased awareness of implicit biases can be a first step in combating their pernicious effects. For example, individuals may seek out to experiences or environments that are most likely to produce implicit associations aligned with the goals and values they explicitly endorse. From this perspective, taking the IAT and being exposed to relevant theoretical perspectives and empirical findings may operate as a consciousness-raising tool (Casad et al., 2013). Students who become aware of their own implicit prejudices or stereotypes might be motivated to take steps to regulate these responses in a way that they feel more comfortable with rather than dismissing them as threatening information.

Assessing Responses to the Teaching Module

To examine students' responses to the teaching module, we focused on two important potential outcomes. First, we examined students' perceived knowledge of implicit biases using a knowledge survey (Nuhfer & Knipp, 2003). Unlike traditional direct assessments of learning (e.g., a multiple choice test), knowledge surveys assess students' confidence about learned skills and content (Nuhfer & Knipp, 2003; Wirth & Perkins, 2005). In support of the validity of knowledge surveys as proxies for learning, students' perceived learning as assessed by a knowledge survey correlates highly with final course grades (Wirth & Perkins, 2005). Given the current study's variability in class sizes, teaching styles, and teaching support, knowledge surveys offered a systematic yet simple form of learning assessment.

Second, we examined students' motivation to control prejudice. According to Plant and Devine (1998), attempts to respond in a nonprejudicial manner can be motivated by the internalization or personal endorsement of this goal (internal motivation), but they can also be driven by social pressures or concerns about what others may consider appropriate (external motivation). Prior research suggests that the experience of completing an IAT can activate the motivation to control prejudice (Plant & Devine, 2009). Here, we considered the role of the motivation to control prejudice in the context of a learning experience.

Perceived knowledge of implicit biases and motivation to control prejudice were assessed before (Time 1) and after (Time 2) the teaching module. We examined whether students who completed the IAT as part of the module would display an increase (a) in their perceived ability to learn and understand implicit biases and (b) in their internal or external motivation to control prejudice. In addition, we tested whether variability on these outcome variables was a function of preexisting individual differences in the motivation to control prejudice and/or a function of implicit or explicit biases displayed in the context of this learning experience.

Method

Participants

Across five California State University campuses—California State University, Channel Islands; San Diego State University; California State University, San Bernardino; Sonoma State University (SSU); and California State University, Bakersfield (CSUB)—we recruited undergraduate student participants from social psychology courses during the Fall 2009, Spring 2010, or Fall 2010 terms. Analyses reported here are based on a sample of 258 students who completed the IAT and all measures at Time 1 (preteaching module) and Time 2 (postteaching module). They represent 68.3% of the students who completed at least one of the tasks. The sample was predominantly composed of women (76.7%). In terms of ethnicity, 59.3% of participants identified as European American, 23.3% identified as Latino or Hispanic, 10.1% identified as Asian or Asian American, 3.5%identified as African American, 2.3% identified as ethnically mixed, and 1.6% listed other types of ethnic backgrounds (e.g., Native American). Participants' ages ranged from 18 to 56 ($M = 23.91$, $SD = 5.97$). Table 1 presents the profile of our sample across the five campuses.

Procedure

Time 1—Preteaching module assessment. At the beginning of the course, each instructor invited students enrolled in their class to participate in a course development and evaluation project. Interested students completed an informed consent form and a questionnaire that included two measures relevant to the aims of this article.

Perceived knowledge of implicit biases. A 19-item *knowledge survey* assessing students' perceived "present knowledge" of domain areas related to stereotyping, prejudice, and discrimination was adapted from Nuhfer and Knipp (2003; see Appendix). Each item in the scale was rated on a scale that ranged from 0 (*F-grade*) to 4 (*A-grade*). The 3 items assessed students' perceive knowledge of implicit biases: (a) "I can explain the link between social categorization and stereotyping,"

Table 1. Campuses and Sample Demographics.

	Campus Demographics			Sample Demographics				
Campus	Size	% European American	% Male	Average Class Size	*N*	% European American	% Male	Average Age
CSUB	7,684	31.1	35.0	43	13	30.8	30.8	26.8 (7.6)
CSUSI	3,783	54.0	37.0	110	96	63.5	12.5	25.0 (7.0)
CSUSB	17,646	59.6	35.0	73	26	42.3	15.4	24.5 (7.4)
SDSU	35,832	44.0	42.3	102	81	54.3	37.0	22.1 (2.3)
SSU	8,921	66.0	37.0	48	42	78.6	23.8	23.8 (6.3)

Note. CSUB = California State University, Bakersfield; CSUSI = California State University, Channel Islands; CSUSB = California State University, San Bernardino; SDSU = San Diego State University; SSU = Sonoma State University. Campus demographics represent institutional data from 2009 to 2010. Institutional reports of the percentage of undergraduates in "Declined to state/Unknown" are not included in the estimates.

(b) "I can describe the differences between controlled and automatic thinking," and (c) "I can explain why conscious efforts *not to use* stereotypes do not always work." The weighted average of these 3 items had acceptable reliabilities ($\alpha_{\text{Time 1}} = .62$; $\alpha_{\text{Time 2}} = .66$).

Motivation to control prejudice. Students also completed an external and internal motivation to control prejudice scale (Plant & Devine, 1998). The external motivation subscale included 5 items measuring the degree to which students felt socially pressured not to express prejudice ($\alpha_{\text{Time 1}} = .77$, $\alpha_{\text{Time 2}} = .81$). A sample item was "Because of today's PC (politically correct) standards, I try to appear nonprejudiced toward (other) ethnic minorities." The internal motivation subscale included 5 items measuring the degree to which students felt motivated to control prejudice because of internalized ideals ($\alpha_{\text{Time 1}} = .68$, $\alpha_{\text{Time 2}} = .72$). A sample item was "I attempt to act in nonprejudiced ways toward (other) ethnic minorities because it is personally important to me." Responses were provided on 7-point Likert-type scales ranging from 1 (*Disagree strongly*) to 7 (*Agree strongly*).

Explicit and implicit assessments of racial attitudes. Before the discussions about prejudice, stereotyping, and discrimination, students were given the opportunity to complete an assessment of their explicit and implicit attitudes toward African Americans and European Americans. These measures were administered using the web-based version of Inquisit 2.0 (Draine, 2005). A URL was communicated to students allowing them to complete these measures in a way that ensured their privacy and the confidentiality of their responses but allowed us to match their data to responses provided to the questionnaires at Time 1 and Time 2. This step was completed either as an individual assignment outside of class or as part of a classroom session.

Explicit attitudes. Students indicated their explicit attitudes toward African Americans and European Americans on two self-report measures. First, two feeling thermometers assessed participants' attitudes toward each ethnic group separately (Alwin, 1997). For each ethnic group, they indicated whether they had relatively warm or favorable feelings toward the group or had more cold or unfavorable feelings toward the group. Responses were provided on a scale that ranged from 1 (*Very cold*) to 7 (*Very warm*). The order of the two target groups was randomized. Second, participants indicated their *relative* attitude toward these two groups. They were asked to select the statement that best described them among options ranging from 1 (*I strongly prefer European Americans to African Americans*) to 7 (*I strongly prefer African Americans to European Americans*). The midpoint of the Scale 4 reflected no preference (*I like European Americans and African Americans equally*).

Implicit attitudes. Next, students completed a version of the IAT in which European American (three female and three male) or African American (three female and three male) faces and positive (*happy, wonderful, love, pleasure, peace, joy, glorious, laughter*) or negative (*hurt, agony, evil, nasty, terrible, horrible, failure, awful*) words were presented sequentially at the center of the computer screen. Participants were asked to categorize, as quickly as possible, each stimulus by pressing a key that was either on the left or on the right side of the keyboard. Response latencies were recorded from the onset of a stimulus to its correct classification.

Each double categorization block included a total of 60 trials. Stimuli were selected alternately from each pair of concepts. In one block of trials, participants were asked to categorize, as fast as possible, European American faces and positive words on one side and African American faces and negative words on the other side. The opposite pairing was presented in the other block of trials. This time, African American faces were combined with positive words and European American faces shared the same response option as negative words. The order of the two critical blocks was counterbalanced across students.

The implicit measure was always completed after the explicit measure because it seemed more plausible that taking the IAT might have an impact on responses provided on self-report measures rather than the other way around. This assumption is based on the fact that performances on the IAT are less consciously controllable than responses on self-report measures (Cvencek, Greenwald, Brown, Gray, & Snowden, 2010; Nosek et al., 2007). It is worth noting that the order of implicit versus explicit measures has a minimal impact in most circumstances (Nosek, Greenwald, & Banaji, 2005).

Summary of individual performance on IAT. Finally, students were given a summary of their average response time for the two different configurations (IAT blocks). They were informed whether they were faster at associating positive words with European Americans and negative words with African Americans or faster at doing the opposite pairings. To invite students to reflect on their performances, the following message accompanied this feedback: "Did you respond much more quickly on one of the configurations than on the other? If so, that configuration may be more consistent with your attitudes about these ethnic groups. Most respondents find it easier to associate European American with Good and African American with Bad compared to the reverse."

Teaching module. During the class meetings that followed the assessment of explicit and implicit attitudes, students were exposed to material relevant to the three discussion elements detailed earlier. These discussion elements were covered in a format that combined both lecture presentations and class discussions. On two of the campuses (CSUB and SSU), students also completed a reaction paper asking them to reflect on their learning experience.

Time 2—Post-teaching module assessment. When instructors were done covering the topic of prejudice, stereotyping, and discrimination, students completed the Time 2 questionnaire, which was identical to the Time 1 questionnaire.

Results

Explicit and Implicit Attitudes

Before focusing on the two outcomes of interest (perceived knowledge of implicit biases and motivation to control prejudice), we examined the pattern of explicit and implicit attitudes. On the feeling thermometers, students reported more positive feelings toward European Americans ($M = 5.27$, $SD = 1.24$) than toward African Americans ($M = 4.92$, $SD = 1.29$), $t(257) = -3.86$, $p < .001$, $d = 0.24$. Similarly, the mean on the measure of relative attitudes was below the midpoint of the scale ($M = 3.59$, $SD = 1.09$), suggesting a preference for European Americans over African Americans, $t(257) = -6.08$, $p < .001$, $d = 0.38$.[1] IAT data were analyzed using the algorithm recommended by Greenwald, Nosek, and Banaji (2003). Overall, participants displayed a reliable pro-European American attitude ($M = 0.30$, $SD = 0.42$), $t(257) = 11.39$, $p < .001$, $d = 0.71$. In sum, students displayed a more positive attitude toward European Americans than toward African Americans, but this pro-European American attitude was more pronounced at the implicit level (IAT) than at the explicit level (self-reports) when considering effect sizes.

Perceived Knowledge of Implicit Biases

Students reported being more confident about their perceived knowledge of implicit biases after completing the teaching module (Time 2, $M = 3.11$, $SD = 0.63$) than prior to it (Time 1, $M = 2.22$, $SD = 0.88$), $F(1, 252) = 127.35$, $p < .001$, $\eta^2 = .34$. Overall, the teaching module increased students' confidence in their perceived mastery of course material on implicit prejudices or stereotypes.

Motivation to Control Prejudice

The level of internal motivation to control prejudice did not change from Time 1 ($M = 5.56$, $SD = 0.91$) to Time 2 ($M = 5.57$, $SD = 0.92$), $F(1, 252) = 0.92$, $p = .34$. Similarly, the level of external motivation to control prejudice did not change from Time 1 ($M = 4.04$, $SD = 1.24$) to Time 2 ($M = 4.05$, $SD = 1.29$), $F(1, 253) = 0.14$, $p = .71$. Overall, the teaching module did not, on average, strengthen or weaken the motivation to control prejudice.

Predicting Perceived Knowledge of Implicit Biases

In the next sections, we report a series of regression analyses examining the extent to which perceived knowledge of implicit biases and motivation to control prejudice after completing the teaching module (Time 2) might be a function of the extent to which students displayed implicit or explicit prejudices toward African Americans. In these analyses, we controlled for preexisting individual differences (i.e., motivation to control prejudice and perceived knowledge at Time 1). By controlling for individual differences in perceived knowledge of implicit biases or motivation to control prejudice at Time 1, we put ourselves in a position to examine the relationships of interest (e.g., link between level of implicit bias and perceived knowledge at Time 2) without the influences of individual differences preceding the instructional activities. Bivariate correlations among the variables introduced in these analyses are reported in Table 2.

First, in a simultaneous regression analysis, we regressed the perceived knowledge of implicit biases at Time 2 on implicit and explicit attitudes, internal and external motivations to control prejudice at Time 1 and perceived knowledge of implicit biases at Time 2, to assess the unique predictive power of these variables. Figure 1A shows that students who were internally motivated to control prejudice (at Time 1) expressed greater confidence in their course knowledge of implicit biases (at Time 2). In contrast, students who controlled prejudices in response to external pressure (at Time 1) were somewhat less likely to feel confident about their understanding of how prejudices and stereotypes operate outside of conscious awareness (at Time 2). Also, the more students displayed implicit prejudice on the IAT, the more confident they were in their knowledge of implicit biases (at Time 2). This finding is particularly interesting because it suggests that students who seemed to benefit the most from the educational experience were those who displayed a strong implicit pro-White attitude. This observation stands in stark contrast to the idea that taking the IAT could be an aversive or counterproductive experience for students who are informed that they harbor relatively negative feelings toward an ethnic minority group. Finally, explicit

Table 2. Correlations Among Study Variables.

Variable	1	2	3	4	5	6	7
1. Implicit attitudes	—						
2. Explicit attitudes	.28**	—					
3. Time 1 internal motivation to control prejudice	−.15*	−.20**	—				
4. Time 1 external motivation to control prejudice	.09	.16**	−.11	—			
5. Time 1 perceived implicit biases knowledge	.06	.03	.16**	.02	—		
6. Time 2 perceived implicit biases knowledge	.13*	.00	.24**	−.12†	.24**	—	
7. Time 2 internal motivation to control prejudice	.04	−.16**	.47**	−.09	.04	.24**	—
8. Time 2 external motivation to control prejudice	.14*	.23*	−.02	.45**	.02	−.03	−.02

Note. †$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

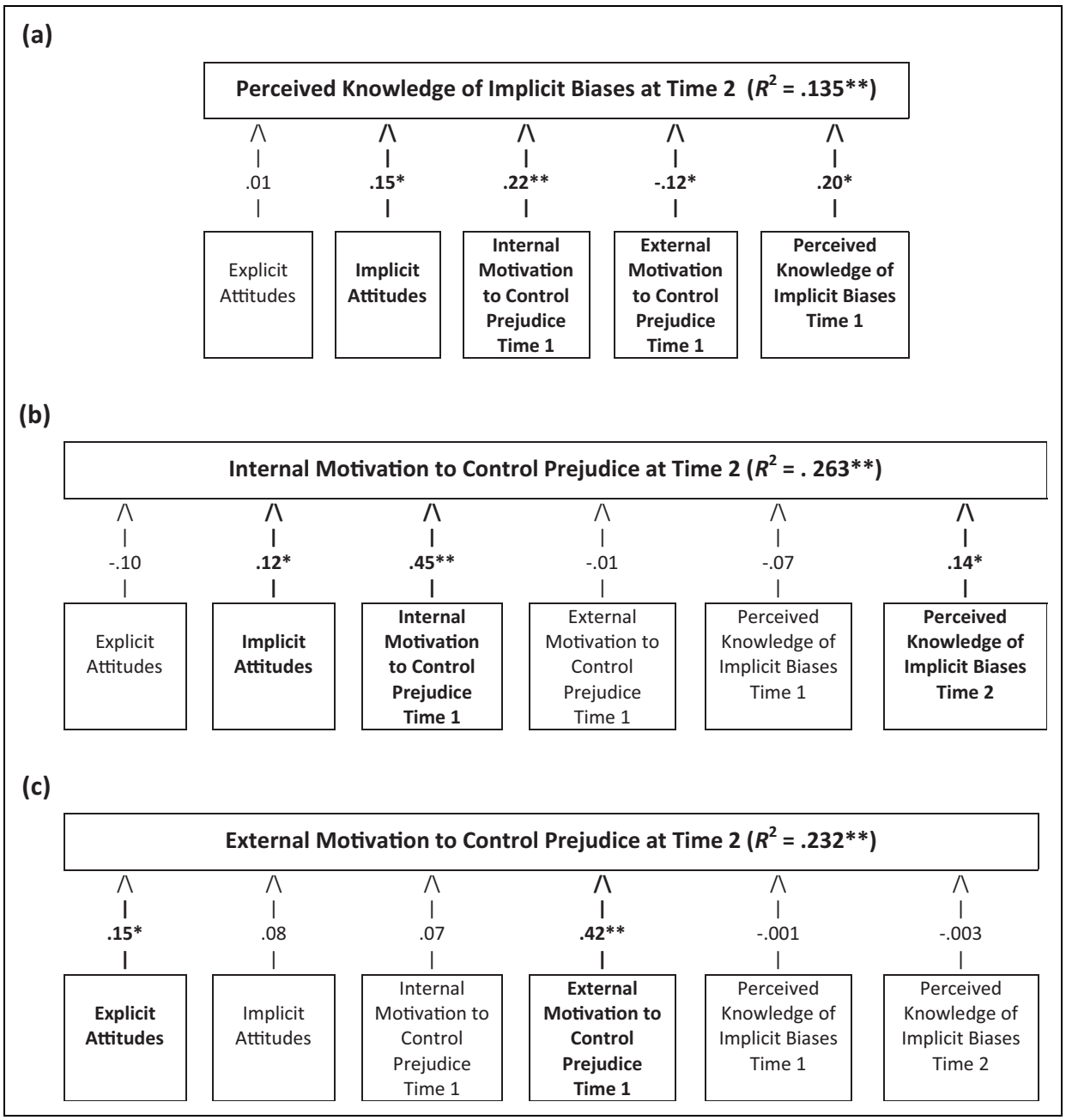

Figure 1. (A) Summary of regression analyses for predicting perceived knowledge of implicit biases, (B) internal motivation to control prejudice, and (C) external motivation to control prejudice at Time 2. β weights are presented and significant coefficients and their corresponding variables are in boldface. *$p < .05$. **$p < .01$.

attitudes had no significant effect on perceived knowledge of implicit biases (at Time 2).

Predicting Internal Motivation to Control Prejudice

Next, we regressed the internal motivation to control prejudice at Time 2 on implicit and explicit attitudes, internal and external motivations to control prejudice at Time 1 and perceived knowledge of implicit biases at Time 1 and Time 2. Figure 1B shows that students who displayed a strong implicit pro-European American attitude were more likely to report being internally motivated to control prejudice at Time 2. Consistent with the above findings on students' confidence in their knowledge of implicit biases, implicitly prejudiced students who completed the teaching module expressed a greater internalization of egalitarian standards. In addition, to the extent that students were confident in their knowledge of implicit biases at Time 2, they also were more motivated to control their prejudiced reactions for internal reasons at Time 2.

Predicting External Motivation to Control Prejudice

Finally, we examined the extent to which the external motivation to control prejudice at Time 2 was explained by the set of predictors included in the previous analysis. Figure 1C shows that students with a relatively strong explicit preference for European Americans over African Americans displayed a stronger motivation to control prejudice for external reasons at Time 2. This finding suggests that the teaching module sensitized these students to the possibility that their explicit prejudice was not consistent with social norms. The endorsement of the external motivation to control prejudice did not reflect an internalization of this goal but was nonetheless an interesting outcome of the teaching module. It lends further support to the need to consider both implicit and explicit attitudes and to draw distinctions between various psychological sources underlying the motivation to control prejudice.

Discussion

This work strongly suggests that instructional activities incorporating the three discussion elements that we distinguished and building around the IAT experience increased students' confidence in their understanding of the concepts of implicit biases (prejudices and stereotypes). This effect emerges despite the variability in testing conditions, instructor styles and demographics, and diverse student populations. Although it is not possible to identify the particular component of the instructional activities accounting for the change in perceived course knowledge, a better understanding of implicit prejudices and stereotypes was documented. Despite the fact that knowledge survey scores correlate with final course grades (Wirth & Perkins, 2005), we should not equate responses on a knowledge survey with a direct assessment of learning. This is particularly important in light of research showing that opinions of the quality of teaching activities poorly predict pedagogical effectiveness (Wesp, & Meile, 2008). It is quite possible that students inflated their ability to understand and apply the concepts of implicit prejudices and stereotypes.

Although we did not find direct evidence for the idea that our teaching module strengthens the motivation to control prejudice (Time 1 vs. Time 2 difference), several findings stress the variability of students' reactions to the teaching module, highlighting the role of egalitarian-based motivations. Most striking is the fact that students who display a stronger implicit pro-European American attitude on the IAT report being more internally motivated to control prejudice following the completion of the teaching module; a relationship accompanied by greater confidence in understanding implicit prejudices and stereotypes. Although caution in the interpretation of these correlational findings is needed, they are consistent with the idea that receiving a relatively high IAT score can create an opportunity to better understand implicit biases and to develop a personal commitment to nonprejudicial reactions. At a minimum, our findings document that there are noticeable individual differences in how students experience instructional activities. Some of our findings indicate that when we teach about issues related to prejudice and stereotyping, students' preexisting motivation to control prejudice and the extent to which they display implicit or explicit prejudices will have some bearing on how they respond to the teaching module. The experience of taking the IAT and exposure to relevant course material may trigger different responses as a function of students' internal and external motivations to control prejudice and responses on measures assessing their implicit and explicit attitudes. These variables are linked to proxies for students' learning but also to core motives or values relevant to the domain (e.g., motivation to control prejudice). Thus, it is worth considering reactions that, at first sight, might be seen as tangential to learning but are inherently linked to students' educational experiences.

To the best of our ability, we attempted to standardized instruction through a teaching module that conveys the importance of implicit biases in a way that was eye-opening but not threatening. By emphasizing that implicit associations are the product of repeated experiences and socialization and at the same time are malleable and context sensitive, we reiterate one of the key take-home messages of most social psychology courses—that contexts influence our perceptions, attitudes, and behaviors (Myers, 2012). We familiarized students to the complexities of implicit prejudice dynamics while providing a positive and empowering outlook on what could otherwise be seen as depressing reality. We stressed that becoming aware of one's own implicit biases is often the first step toward personal and/or social change and that seeking out different experiences or contexts might produce implicit associations that are more aligned with one's deliberate goals.

Of course, our approach is not without limitations. Unfortunately, we cannot compare our results to a similar set of students who did not experience this teaching module. The effectiveness of our teaching module could be more firmly established using a quasi-experimental design. For example,

we could conduct a study comparing this specific teaching module to a module that does not include taking the IAT or to a lecture-based presentation of implicit biases. Then, we would be in a position to demonstrate that our approach effectively increases students' understanding of implicit relative to more traditional approaches.

Regardless of potential limitations, this project offers an important and useful model for supporting course redesign. By working on common lesson plans in an area in which we had shared pedagogical and scholarly expertise, we sought to create an effective learning experience. We now have some evidence that a module that teaches key conceptual issues about implicit biases combined with the experience of completing a cutting-edge research method such as the IAT can be an effective pedagogical tool.

Appendix

Instructions

This is a knowledge survey, not a test. The purpose of this survey is to improve various aspects of this course and to assess students' growth over the course of the semester. In the following knowledge survey, please rate your confidence to answer the questions with your present knowledge using the following rating scale:

If I were to answer this question right now, with my current knowledge, my professor would give me the following grade

F	D	C	B	A
0	1	2	3	4

For each of the following questions, please write in the ___ the number of the corresponding grade you believe you would get. Do your best to provide a totally honest assessment of your present knowledge.

1. ___ 1. I can define and provide examples of prejudice, stereotypes, and discrimination.
2. ___ 2. I can compare and contrast two theories that account for the origins of prejudice and discrimination.
3. ___ 3. I can explain the link between social categorization and stereotyping.*
4. ___ 4. I can discuss how one's social identities (i.e., race, religion, gender, academic major, etc.) may promote discrimination between groups.
5. ___ 5. I can give two explanations for why we stereotype groups that we are not part of (out-groups) more than groups that we are part of (in-groups).
6. ___ 6. I can describe three factors that play a role in the development of stereotypes.
7. ___ 7. I can explain how distinctiveness can breed stereotypes.
8. ___ 8. Research on stereotypes has identified various factors that increase stereotyping. I can identify at least three of these factors.
9. ___ 9. I can describe how cognitive resources play a role in stereotyping.
10. ___ 10. I can provide an example of an experimental study on stereotyping. I could indicate the independent and dependent variables.
11. ___ 11. I can describe the differences between controlled and automatic thinking.*
12. ___ 12. I can discuss research suggesting that it is difficult to change stereotypes.
13. ___ 13. I can explain how lay explanations (attributional processes) can play a role in the maintenance of stereotypes.
14. ___ 14. I can provide an example of sub-typing.
15. ___ 15. I can explain at least two ways to reduce stereotyping.
16. ___ 16. I can discuss when contact between members of different groups will reduce prejudice and when it will not.
17. ___ 17. I can explain how the process of categorizing people into groups (social categorization) can be used to reduce prejudice and discrimination.
18. ___ 18. I can describe an intervention that might be used to reduce prejudice between the Soris and the Talins, two fictitious and competitive groups.
19. ___ 19. I can explain why conscious efforts not to use stereotypes do not always work.*
20. *Note.* *Items used for the Perceived Knowledge of Implicit Biases Scale.

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Note

1. These two measures were standardized and combined to form an index of explicit attitudes. It is worth noting that reliable differences as a function of student ethnicity and campus were observed on this measure.

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