

*Innovative Teaching  
and Learning Project  
(ITLP)*

# Unconscious bias and the value of training for medical students

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## Introduction

The term unconscious (implicit) bias and its possible effects in multiple disciplines has been recognised for some time (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012; Sabin, Rivara, & Greenwald, 2008). In medical education, implicit bias is especially important since it may impact quality of care (Goldyne, 2007). Therefore, some institutions are beginning to integrate training for students to illuminate biases and develop strategies to manage them.

As a part of a reciprocal best practices exchange with Baylor College of Medicine (BCM), stemming from an NIH grant partnership, Texas A&M Health Science Center (HSC) College of Medicine (COM) replicated an implicit associations (IA) workshop that has taken place at BCM for a number of years. Texas A&M HSC COM attended training through BCM, slightly revised shared materials and then implemented the activity. The purpose was to determine whether or not the workshop, including small group discussions at Texas A&M HSC COM, effectively enabled students to identify possible unconscious biases and to discuss their potential impact on patient care.

## Innovation

In the spring of 2014, Texas A&M HSC COM conducted IA workshops simultaneously across four campuses. A total of 143 students, 28 in Location A, 31 in Location B, 19 in Location C and 65 in Location D participated in the Texas A & M University Institutional Review Board approved study. Participants were asked to choose and complete implicit associations tests (IATs) prior to attending. The purpose of completing the IATs prior to the workshop was to set the stage for small group discussions about

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implicit bias by illuminating potential biases and providing an opportunity for self-reflection. At the beginning of the workshop, participants were asked to identify which IATs they had completed. Weight was the most common (84%), followed by disability (42%) and age (40%). During the small groups, participants were asked to discuss their IAT experience and indicate how they felt about the results. Then, they were asked to discuss the importance of learning more about yourself, and the ways implicit biases may affect clinical practice. Participants were also asked to rank their own exposure to diversity (1–“limited” to 7–“a great deal”). The mean score was 5.49, and 85% of the respondents self-reported above-average experience with diversity (5 or higher).

### Evaluation

To assess the impact of the workshops, which focused on awareness and impact of biases, a pre-workshop and a post-workshop questionnaire were utilised. Each questionnaire had the same set of 11 Likert-type items pertaining to thoughts, feelings and attitudes towards biases; their potential consequences in the practice of medicine; and how confident the participants felt about their ability to become aware of and respond to their own biases. In addition, the pre-workshop questionnaire included items related to participants' previous experiences with diversity and IA, and self-rated personality measures. The pre-workshop questionnaire was administered after students took the IATs, so it may have influenced participants' responses. The post-workshop questionnaire included workshop evaluation.

Cronbach's alpha was calculated as a measure of reliability on the set of mirror items. This analysis resulted in a score of 0.811 for the pre-workshop items and a score of 0.797 for the post-workshop items. These values suggest an acceptable degree of reliability with respect to how well these items together measure the participants' underlying opinions and beliefs concerning biases.

In addition to the reliability analysis, descriptive statistics were calculated for all items. Wilcoxon signed-rank tests were also used to measure the differences between the pre- and post-workshop sets of mirror items and test for statistical significance.

### Outcomes

Generally, participants rated the mirror items slightly higher after the workshop (see Table 1). The last three items were an exception, with the same mean for “individuals can become aware of their own biases,” and slightly lower mean scores for “individuals can manage their own biases” and “individuals can eliminate their own biases.”

These results suggest that after completing the workshop, participants felt more aware of their own biases yet, at the same time, felt it was more likely they have hidden biases and need to be more aware of these biases. They also agreed more strongly that physicians have hidden biases and that those biases affect medical decisions and patient relationships (see Table 1). Additionally, after the workshop, participants appeared to feel more strongly that individuals cannot eliminate their own biases. Overall, 89.5% of participants agreed that participating in the workshop increased their awareness of their own potential personal biases.

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Table 1  
Mirror Item Means and Standard Deviations

	My awareness of biases	Physicians have hidden biases	Biases affect medical decisions	Biases affect patient relationships	Likely I have hidden biases	Should be more aware of biases	Confident to discover biases	Confident to manage biases	Individuals can become aware of biases	Individuals can manage biases	Individuals can eliminate biases
Pre-test Mean (SD)	4.91 (1.13)	6.07 (0.93)	5.87 (1.02)	6.04 (0.93)	5.30 (1.32)	6.02 (1.10)	5.73 (1.02)	5.80 (0.99)	4.87 (0.70)	4.73 (0.76)	3.73 (1.28)
Median	5	6	6	6	6	6	6	6	5	5	4
Post-test Mean (SD)	5.41 (0.95)*	6.26 (0.73)*	6.06 (0.87)*	6.20 (0.77)*	5.83 (1.03)*	6.32 (0.81)*	5.85 (0.73)	5.96 (0.71)	4.87 (0.74)	4.69 (0.90)	3.40 (1.49)*
Median	6	6	6	6	6	7	6	6	5	5	3
Cohen's d	0.41	0.23	0.21	0.20	0.46	0.31	0.13	0.16	0.00	0.06	0.24

\* Post-test mean differences for these items were statistically significant at the  $p < .05$  level.

Some differences were observed between the four locations among all the items on the pre- and post-workshop questionnaires. Only two were statistically significant, but they were less than 15% different in magnitude and represented extremes between the four mean values by location for those items. Therefore, it is unlikely that location played a role in influencing the results. Additionally, 32 observations were missing for the post-questionnaire measure of bias self-awareness. It is possible that this introduced selection bias into the results. However, there was no drop in responses for similar items following the workshop. Therefore, even if selection bias influenced this item, it is unlikely that the overall conclusions were impacted.

**What next?**

While participants indicated a familiarity with diversity and implicit associations prior to the workshop, the results suggest that the IA workshop influenced the participant's thoughts, feelings and attitudes towards biases in medicine. The results showed more agreement with items related to importance of biases and whether the participants, physicians and individuals possess them. However, there was less agreement and no significant differences on items related to managing and eliminating biases. Perhaps this is due to the fact that the workshop focused on awareness and impact of biases and not how to work through those.

Based on these findings, training that includes specific cases and requires participants to work through actual situations and discuss how to manage and deal with hidden biases should be developed and implemented. Administering the pre-workshop questionnaire prior to having participants complete the IATs may impact the outcomes of the workshop, and this should be considered. The self-reporting and pre-post test design

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also provided some limitations with respect to data collection. Due to the sensitive nature of biases, participants may have responded the way they thought they should respond instead of reporting how they actually believed and/or felt.

Offering the workshop as an interprofessional activity would also provide a unique educational opportunity as participants consider different roles and responsibilities and how implicit biases may affect patient care. Conducting the IA workshop in an interprofessional fashion as well as providing a follow up case-based workshop focused on managing biases, as indicated above, may also yield promising outcomes.

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