

Supplemental Materials (SM)

Mindful attention reduces linguistic intergroup bias Tincher, Lebois, and Barsalou

SM Appendix A Complete Instructions Used in the Experiment

Mindful Attention Instructions:

“We would like you to view and think about these scenes using the “observing perspective.”

- First, observe the thoughts and other reactions you have about these scenes. As you have a specific thought or reaction, you’ll notice that it first arises, and then it dissipates - similar to how waves arise on the ocean and then dissipate.
- Second, understand that these thoughts and reactions are just transitory, fleeting mental states. These fleeting mental states may include thoughts about the scene, internal bodily reactions, emotional reactions, and so forth.

What’s different about this “observing” perspective is that you experience your thoughts and reactions about the scene as fleeting mental states. You remain aware that they’re just thoughts and reactions as you are sitting here in the room. In summary, when you use the “observing perspective” rather than live out the event, you simply observe your thoughts and reactions to it in the present moment. As you notice your thoughts and reactions to the events in the scenes, please don’t try to avoid or suppress them. Just remain aware that they’re thoughts and reactions, and observe them as mental states that arise and dissipate.”

Immersion Instructions:

“We would like you to view and think about these scenes by completely immersing yourself in them. When you completely “immerse yourself” in an event, you live the experience. You travel in time to the event. You project yourself into it. It seems like you’re actually there. It’s as if the event were happening in the moment. When you completely “immerse yourself” in an event, you also often experience it in vivid detail that might include:

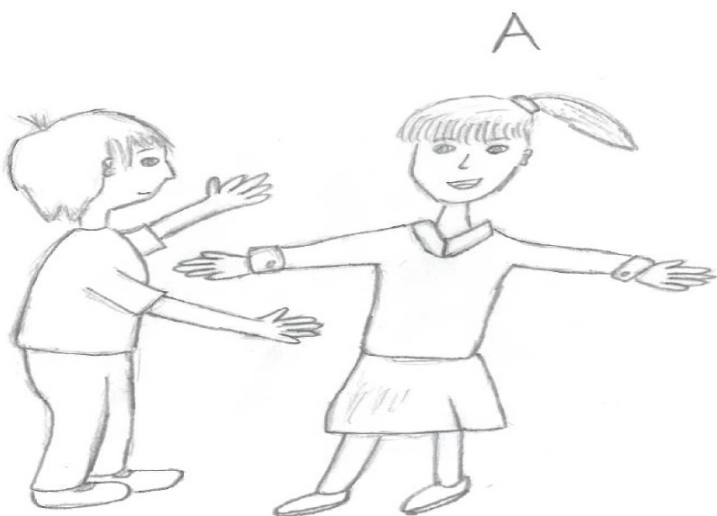
- colors, sounds, smells, and other sensory aspects of being there in the situation
- emotions and feelings that arise while living the event
- physical sensations and bodily states that also arise while living the event, such as your heartbeat, an adrenaline rush, tightening of the chest, feeling tense, and faster breathing
- you might seem to hear what yourself and other people are saying in the situation

In summary, when you completely “immerse yourself” in an event, it’s as if you were having a vivid daydream that you enter and live to the fullest. As a result of living the event in vivid detail, it almost seems real to you. You experience it almost as if it were actually happening.”

SM Appendix B
Complete Materials Used in the Experiment

Four Practice Cartoon Events with Their Corresponding Description Options

Positive Behavior Examples (embracing someone and reading a book)



- 1) A is reaching out to the other person.
- 2) A is about to hug the other person.
- 3) A likes the other person.
- 4) A is nice.



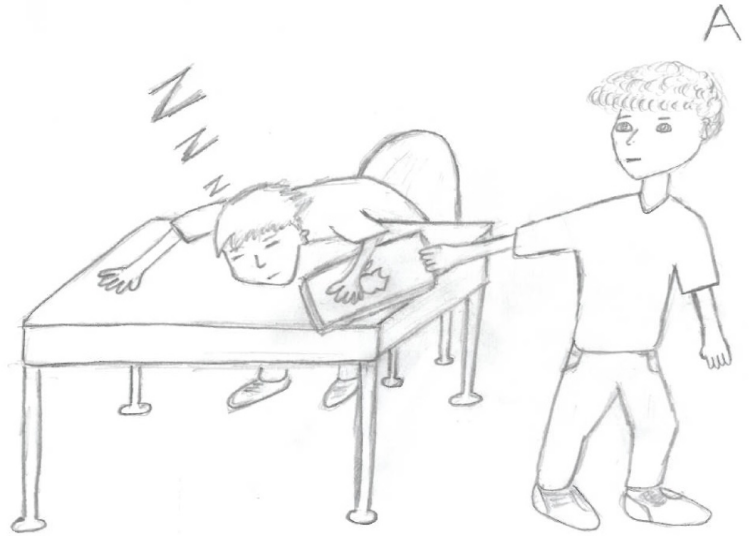
- 1) A is writing notes.
- 2) A is studying.
- 3) A enjoys studying.
- 4) A is motivated.

Negative Behavior Examples (cheating on a test and stealing a laptop)

Answer
Key →



- 2) A is going to cheat on a test.
- 3) A doesn't care about cheating on the test.
- 4) A is dishonest.



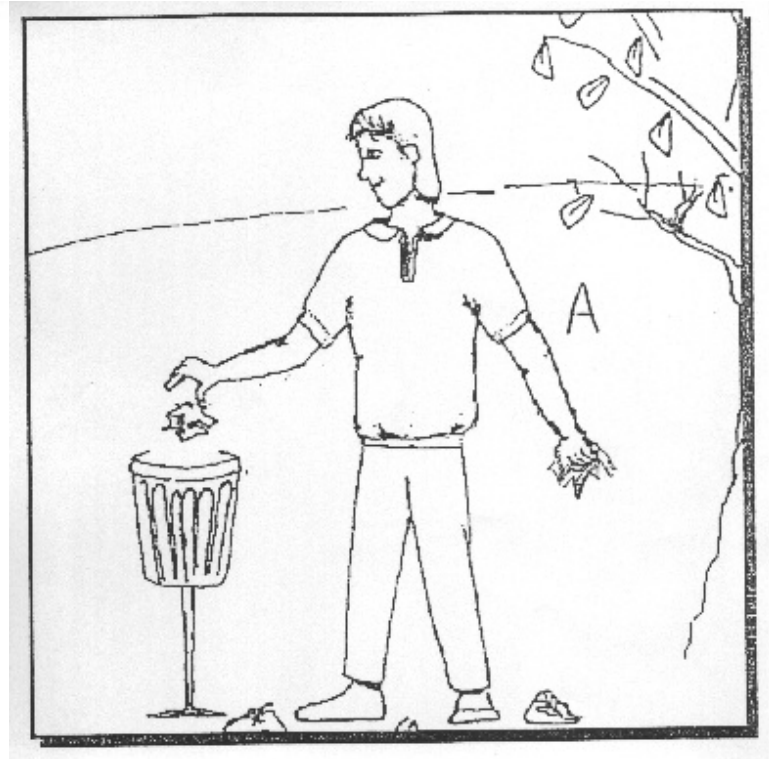
- 2) A is stealing.
- 3) A doesn't mind stealing someone's laptop.
- 4) A is immoral.

Eight Critical Cartoon Events with Their Corresponding Description Options

Positive Behavior Examples (walking an elderly person across the road, recycling trash, picking another person up off the ground, and running)



- 1) A is walking an elderly person across the road.
- 2) A is helping an elderly person across the road.
- 3) A cares for elderly people.
- 4) A is caring.



- 1) A is picking up trash.
- 2) A is looking after the park.
- 3) A respects nature.
- 4) A is conscientious.



- 1) A is picking up the other person
- 2) A is helping the other person.
- 3) A is concerned about the other person.
- 4) A is considerate.

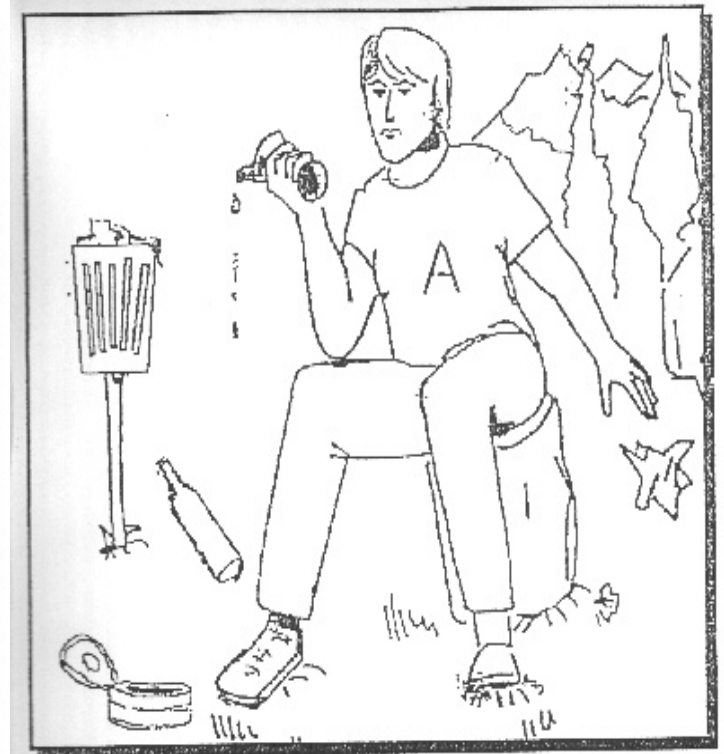


- 1) A is running.
- 2) A is training.
- 3) A loves sports.
- 4) A is athletic.

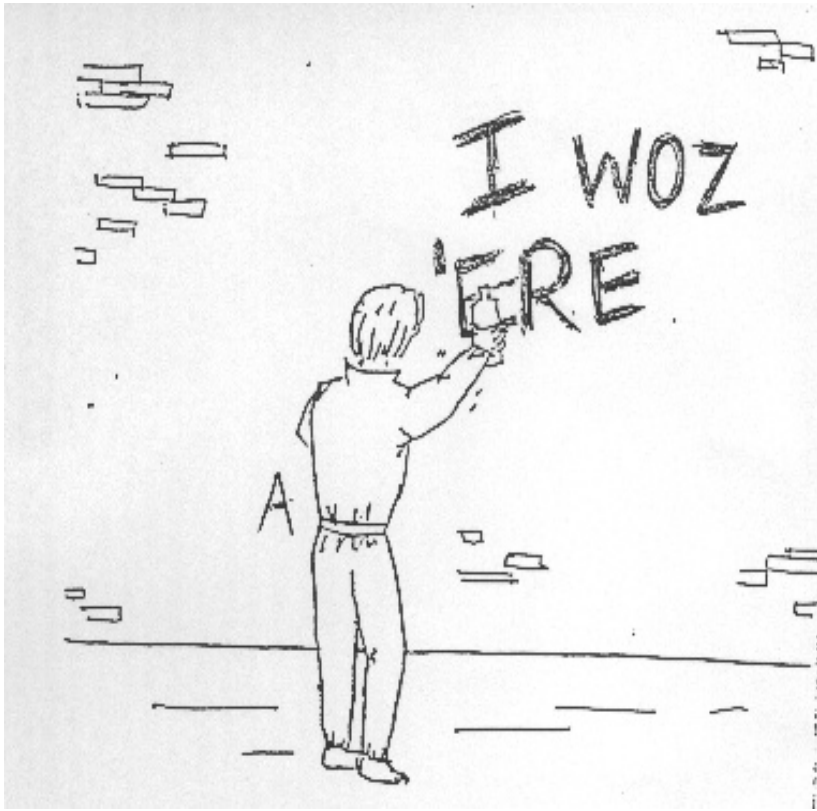
Negative Behavior Examples (telling a sexist joke, throwing trash on the ground, spray-painting a wall, and hitting another person)



- 1) A is telling a sexist joke.
- 2) A is spreading a sexist joke.
- 3) A enjoys sexist humor.
- 4) A is sexist.



- 1) A is throwing trash on the ground.
- 2) A is littering the park.
- 3) A disrespects nature.
- 4) A is disrespectful.



- 1) A is spray-painting the wall.
- 2) A is vandalizing the wall.
- 3) A doesn't care about other people's property
- 4) A is destructive.



- 1) A is hitting the other person.
- 2) A is hurting the other person.
- 3) A hates the other person.
- 4) A is aggressive.

SM Appendix C Additional Results

Internal consistencies. Internal consistency on the dependent measure of linguistic abstraction was calculated for the four negative behavior cartoon stimuli and four positive behavior cartoon stimuli once in each of the four experimental groups. Although every group saw the same stimuli, we calculated separate internal consistencies within each group, given that we expected responses to vary by group. Almost all Cronbach Alpha's reached an acceptable level. For the immersion/enemy group both negative items ($\alpha = .68$) and positive items ($\alpha = .51$) were reliable, and similarly so for the immersion/friend group (negative $\alpha = .68$; positive $\alpha = .50$). In the mindful attention/enemy group, negative items had excellent reliability ($\alpha = .75$), but positive items did not ($\alpha = .18$), and similarly so in the mindful attention/friend group (negative $\alpha = .66$; positive $\alpha = .25$). For reasons that aren't clear, positive items elicited diverse reactions in the mindful attention condition.

Nonmeditator subgroup. As in the complete sample, there was no difference between the behaviors that violated expectations when comparing the immersion and mindful attention groups (Negative friend behaviors: IMM vs. MA, M difference = .31, $t(27) = 1.15$, $SE = .27$, $p = .130$, $g_s = .42$; Positive enemy behaviors: IMM vs. MA, M difference = -.06, $t(28) = .32$, $SE = .19$, $p > .250$, $g_s = .11$). Again, we did not anticipate mindful attention would modulate responses to these unexpected actions.

In addition to the 3-way interaction discussed in the main text, there was a main effect of perspective type, $F(1,55) = 7.53$, $p = .008$, $\eta p^2 = .12$, and character type, $F(1,55) = 7.22$, $p = .010$, $\eta p^2 = .38$. Collapsed across character groups (friend and enemy), there were more concrete responses overall in the

mindful attention group ($M = 1.76$, $SE = .10$) than in the immersion group ($M = 2.11$, $SE = .09$; M difference = .35). Collapsed across perspective groups (immersion and mindful attention), there were more concrete responses overall in the enemy group ($M = 1.76$, $SE = .09$) than in the friend group ($M = 2.11$, $SE = .09$; M difference = .35).

As in the complete sample, there was a significant omnibus valence x character interaction replicating the overall LEB effect, $F(1,55) = 19.37$, $p < .001$, $\eta p^2 = .26$. Overall, positive behaviors were rated much more concretely in enemy groups ($M = 1.43$, $SE = .09$) compared to friend groups ($M = 2.24$, $SE = .10$; M difference = .81). There was no difference in abstractness for negative behavior ratings in the enemy ($M = 2.10$, $SE = .14$) and friend groups ($M = 1.98$, $SE = .14$; M difference = -.12). As discussed in the main text, a LEB effect for negative behaviors is not always demonstrated in the literature.

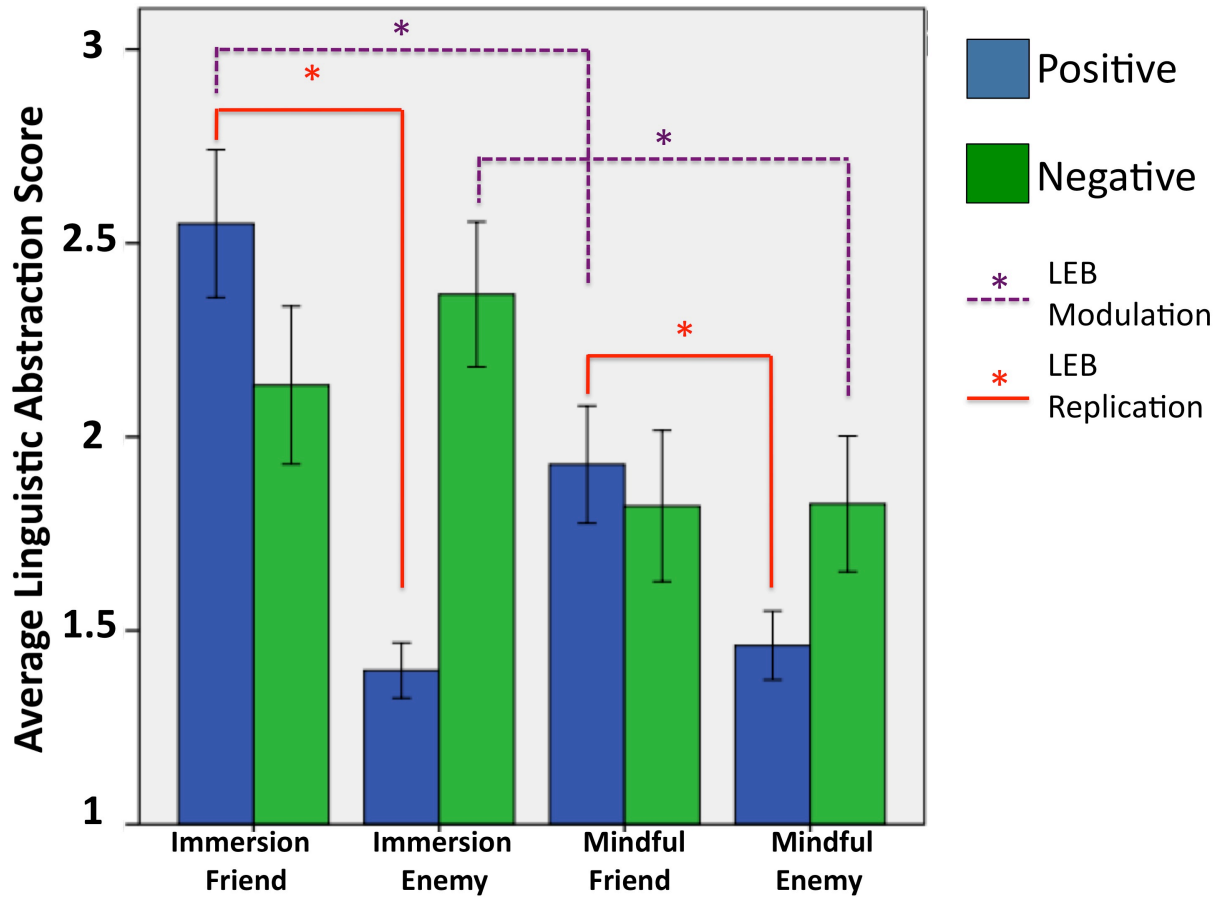
The main effect of behavior valence type, the valence x perspective type interaction, and the perspective type x character interaction were nonsignificant, $F(1,55) = 3.69$, $p = .060$, $\eta p^2 = .06$; $F(1,55) = .49$, $p > .250$, $\eta p^2 = .01$; and $F(1,55) = .79$, $p > .250$, $\eta p^2 = .01$, respectively.

Meditation experience subgroup. As in the complete sample, the expectation-violating behaviors (friend negative, enemy positive) were not significantly different between mindful attention and immersion groups, but we did not necessarily predict there would be a difference for these ratings (Negative friend behaviors: IMM vs. MA, M difference = .02, $t(11) = .06$, $SE = .32$, $p > .250$, $g_s = .03$; Positive enemy behaviors: IMM vs. MA, M difference = -.31, $t(10) = -1.00$, $SE = .31$, $p = .159$, $g_s = .53$).

In addition to the omnibus 3-way interaction results discussed in the main text, the LEB was replicated as indicated by the significant omnibus valence x character type interaction, $F(1,21) = 19.33, p < .001, \eta p^2 = .48$. Overall, positive behaviors were rated much more concretely in enemy groups ($M = 1.59, SE = .15$) compared to friend groups ($M = 2.30, SE = .14; M$ difference = .70). Negative behaviors were rated much more concretely for friend groups ($M = 1.66, SE = .16$) compared to enemy groups ($M = 2.34, SE = .18; M$ difference = -.69).

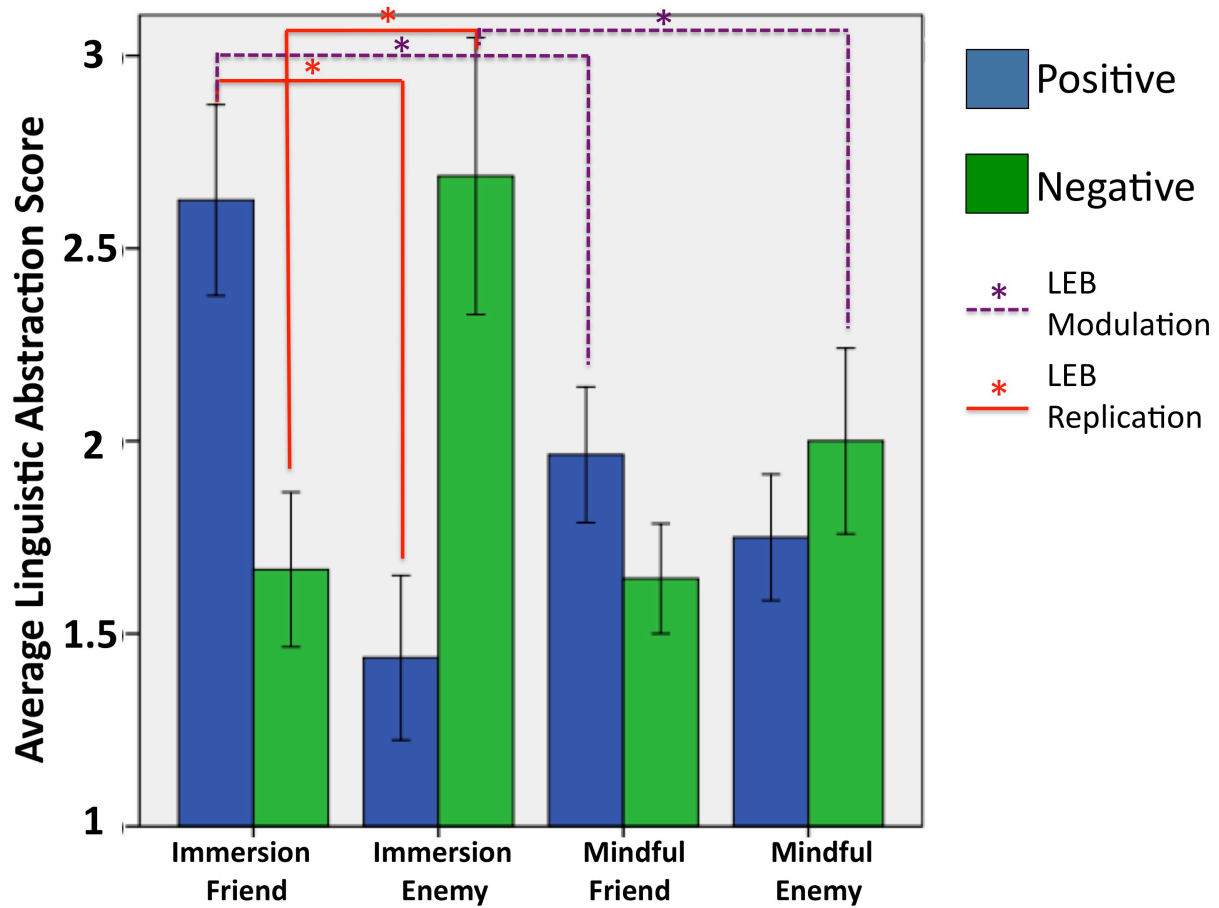
All other main effects and interactions were not significant, Perspective: $F(1,21) = 2.91, p = .103, \eta p^2 = .12$; Character: $F(1,21) = .001, p > .250, \eta p^2 = .00$; Valence: $F(1,21) = .12, p > .250, \eta p^2 = .01$; Valence x Perspective: $F(1,21) = .33, p > .250, \eta p^2 = .02$; Perspective x Character: $F(1,21) = .25, p > .250, \eta p^2 = .01$.

Results for Participants Without Meditation Experience



SM Fig. 1 Average linguistic abstraction scores for the four groups by behavior valence for just the participants without meditation experience. This bar graph displays the average linguistic abstraction response for each of the four groups broken out by positive and negative behavior stimuli for just meditation-naïve participants. Purple significance bars illustrate differences between groups representing the linguistic expectancy bias. Red significance bars illustrate significant reductions in the linguistic expectancy bias. * = $p < .05$. Standard error bars are \pm one SEM.

Results for Participants With Meditation Experience



SM Fig. 2 Average linguistic abstraction scores for the four groups by behavior valence for just the participants with meditation experience. This bar graph displays the average linguistic abstraction response for each of the four groups broken out by positive and negative behavior stimuli for just participants with meditation experience. Purple significance bars illustrate differences between groups representing the linguistic expectancy bias. Red significance bars illustrate significant reductions in the linguistic expectancy bias. * = $p < .05$. Standard error bars are +/- one SEM.