


# Not Just for Stereotyping Anymore: Racial Essentialism Reduces Domain- General Creativity

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Carmit T. Tadmor<sup>1</sup>, Melody M. Chao<sup>2,3,4</sup>,  
Ying-yi Hong<sup>3,4</sup>,  
and Jeffrey T. Polzer<sup>5</sup>

<sup>1</sup>Recanati School of Business, Tel Aviv University; <sup>2</sup>Department of Management, Hong Kong University of Science and Technology; <sup>3</sup>Nanyang Business School, Nanyang Technological University; <sup>4</sup>School of Psychology, Beijing Normal University; and <sup>5</sup>Organizational Behavior Unit, Harvard University

## Abstract

Individuals who believe that racial groups have fixed underlying essences use stereotypes more than do individuals who believe that racial categories are arbitrary and malleable social-political constructions. Would this essentialist mind-set also lead to less creativity? We suggest that the functional utility derived from essentialism induces a habitual closed-mindedness that transcends the social domain and hampers creativity. Across studies, using both individual difference measures (in a pilot test) and experimental manipulations (Experiments 1, 2a, and 2b), we found that an essentialist mind-set is indeed hazardous for creativity, with the relationship mediated by motivated closed-mindedness (Experiments 2a and 2b). These results held across samples of majority cultural-group members (Caucasian Americans, Israelis) and minority-group members (Asian Americans), as well as across different measures of creativity (flexibility, association, insight). Our findings have important implications for understanding the connection between racial intolerance and creativity.

## Keywords

creativity, essentialism, lay theories of race, social construction, categorical thinking, closed-mindedness, cognitive style, social cognition, motivated cognition, stereotyping, racial and ethnic attitudes and relations

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The rapid globalization of the social world confronts society with two pressing issues: how to promote interracial or inter-ethnic understanding and how to increase creativity in the workforce. Though these two issues may seem unrelated, we argue that racial-ethnic stereotyping and creative stagnation share a common mechanism: the normative human tendency to rely on stringent categorization processes. Stereotyping can be conceptualized as the strict adherence to commonly held beliefs about social groups when judging individual members of those groups (Macrae & Bodenhausen, 2000; Stangor & Lange, 1994). Similarly, creative stagnation can be defined as the rigid activation of typical category attributes when solving a particular problem (Sassenberg & Moskowitz, 2005; Schooler & Melcher, 1995; Ward, 1994, 1995).

Although these two concepts concern very different outcomes, they both occur when people fixate on existing category information and conventional mind-sets. Consequently, factors that increase the tendency for categorical thinking in the social domain may not only increase stereotyping, but may also stifle creativity outside the social domain. In the research reported here, we tested this novel prediction by focusing on

racial essentialism, which is associated with overreliance on racial categories and has been consistently shown to result in increased racial stereotyping and discordant intergroup relations (Bastian & Haslam, 2006; Hong, Levy, & Chiu, 2001; Jayaratne et al., 2006; Keller, 2005; No et al., 2008). We suggest that the functional utility derived from this categorical mind-set induces a habitual closed-mindedness that transcends the social domain and hampers creativity.

Beliefs about racial essentialism lie along a continuum. *Essentialist beliefs* lie at one end of this continuum: People with these beliefs hold that racial groups possess an underlying essence (often biological or genetic) that represents deep-seated and unalterable properties indicative of traits and abilities. *Nonessentialist beliefs* lie at the other end of this continuum: People with these beliefs hold that racial categories are arbitrary and malleable social-political constructions

## Corresponding Author:

Carmit T. Tadmor, Tel Aviv University, Recanati School of Business, Tel Aviv University, Tel Aviv 69978, Israel  
E-mail: ctadmor@post.tau.ac.il

(Chao, Chen, Roisman, & Hong, 2007; No et al., 2008). People endorsing racial essentialism partition their social world into discrete racial categories that cannot be combined or altered (Bastian, Loughnan, & Koval, 2011; Hong, Chao, & No, 2009). The resulting stability, order, and uniformity in categorization allow individuals to make relatively quick social judgments and enjoy a heightened sense of simplicity, predictability, and control (Keller, 2005; Levy, Chiu, & Hong, 2006). Given the functional utility of such categorical thinking in providing meaning and coherence (Webster & Kruglanski, 1997), we expected that once activated, the essentialist mind-set would lead to a habitual reluctance to consider or merge alternative frames and perspectives that oppose conventional knowledge more generally. Thus, the strict boundaries and fixedness associated with the rigid conceptual network of the essentialist mind-set would induce a generalized closed-mindedness that would transcend the social sphere to become a habitual tool for making sense of the world.

This generalized rigidity was expected to crystallize thought and prevent the spread of activation to distant concepts, thereby impeding divergent thinking and creative insight (Schooler & Melcher, 1995). Indeed, the act of producing something creative occurs when people move beyond pre-existing associations and instead generate novel ideas, flexibly frame the same problem in multiple ways, or recombine existing ideas to make novel connections (Guilford, 1950; Mednick, 1962; Sassenberg & Moskowitz, 2005; Schooler & Melcher, 1995; Ward, Smith, & Finke, 1999). These creative processes occur more readily when people take into account and combine multiple categories and representations (e.g., Simonton, 1988; Tadmor, Galinsky, & Maddux, 2012) rather than rely on what they believe are fixed, essential characteristics of category membership (Ward, 1994, 1995). Thus, we expected that an essentialist mind-set would undermine general creative potential and that this deleterious effect would be due to essentialists' closed-minded tendency to avoid divergent views.

As a pilot test, we sampled 57 Caucasian Americans to explore whether racial essentialism is simultaneously associated with increased stereotyping and reduced creative potential. We assessed racial essentialism by asking participants to what degree they agreed with the statement, "To a large extent, a person's race biologically determines his or her abilities and traits" (taken from the racial essentialism scale of No et al., 2008). To assess stereotyping, we measured the degree to which participants believed that African Americans were uneducated, violent, and irresponsible (Levy, Stroessner, & Dweck, 1998;  $\alpha = .88$ ). To measure creativity, we asked participants to come up with as many different uses of a brick as possible (Guilford, 1950); two coders then coded the number of different categories generated (Cohen's  $\kappa = .89$ ). This measure of creativity, known as *flexibility*, offered a direct test of our hypothesis given that successful performance required individuals to break preexisting assumptions about an object and approach it from novel perspectives. As expected,

essentialism positively predicted stereotyping ( $\beta = 0.42, p = .002$ ) and negatively predicted flexibility ( $\beta = -0.42, p = .005$ ), even when controlling for gender, age, and the Big Five personality characteristics (Gosling, Rentfrow, & Swann, 2003).

These promising initial results revealed that racial essentialism, which has consistently been shown to influence stereotyping in existing research, is also negatively associated with creativity. Of course, we did not design the cross-sectional pilot study to test the causal relationship between essentialism and creativity. In our subsequent experiments, we utilized the fact that, like other lay theories (e.g., Chiu, Hong, & Dweck, 1997; Hong et al., 2003), beliefs about racial essentialism are a part of people's declarative knowledge and, therefore, follow the principles of knowledge activation (Higgins, 1996): They can be activated by experimental manipulation (No et al., 2008). This approach capitalizes on the tenet that although there are chronic differences in people's endorsement of racial essentialism, the temporary accessibility of racial essentialist beliefs can be heightened or dampened after reading persuasive arguments that respectively support or undermine those beliefs. Thus, to establish causality, we manipulated essentialist beliefs and assessed subsequent creativity in three experiments. In Experiment 1, we tested our causal hypothesis that racial essentialism suppresses creativity. In Experiments 2a and 2b, we tested the mediating role of closed-mindedness. To demonstrate the robustness of the essentialism-creativity relationship, we focused each study on different populations of participants and on a different measure of creativity.

## Experiment 1: The Causal Link Between Racial Essentialism and Creativity

### Method

Each of 72 Jewish-Israeli undergraduates (40 women, 32 men; mean age = 24.18 years,  $SD = 3.34$ ) was randomly assigned to one of three conditions: an essentialism-prime, a nonessentialism-prime, or a no-prime control group. In the essentialism and nonessentialism conditions, we manipulated beliefs about racial essentialism by asking participants to read an article that vividly described fictitious scientific research supporting either racial essentialist or nonessentialist beliefs, respectively (Chiu et al., 1997; Hong et al., 2003; No et al., 2008). No et al. (2008) established the effectiveness of these articles in activating racial essentialism or nonessentialism mind-sets: In their study, participants who read the essentialist article reported significantly greater agreement with essentialist views of race than did participants who read the nonessentialist article. For our experiment, the essays were translated into Hebrew and then back-translated into English by two bilinguals to verify accuracy. Participants in the no-prime control group were given a scientific article about the properties of water.

Then, in an ostensibly unrelated research project, we measured creativity in the three conditions using the Remote

Associates Test (RAT; Mednick, 1962). This task, which assesses participants' ability to form a new combination that links mentally distant associative elements, requires identifying a single target word that is strongly associated with three distinct stimulus words (e.g., given the words "manners," "round," and "tennis," the correct answer would be "table"). Participants completed the test in Hebrew. They got two examples and then six problems to solve. The items were constructed and verified by native Hebrew speakers to ensure that they were linguistically and conceptually sound.

After completing all assignments, participants filled out No et al.'s (2008) 8-item racial essentialism scale ( $\alpha = .86$ ) as a manipulation check. On this 6-point scale, higher scores indicate stronger essentialist beliefs. To ensure that participants in the three conditions did not differ in their reading experiences, we also asked them to indicate on 5-point scales (a) the difficulty of the task and (b) how happy, excited, enthusiastic, and proud they currently felt; the latter four items ( $\alpha = .84$ ) were averaged to create a mean positive-mood score.

## Results

**Manipulation check.** As Table 1 shows, the manipulation was effective,  $F(2, 69) = 12.30, p = .0001, \eta_p^2 = .26$ . Participants in the essentialism condition scored significantly higher on racial essentialism than did participants in either the nonessentialism condition ( $p = .0001$ ) or the no-prime condition ( $p = .024$ ). Further, as Table 1 also shows, participants did not significantly differ in their ratings of perceived task difficulty,  $F(2, 69) = 1.83, p = .17, \eta_p^2 = .05$ , or positive mood,  $F(2, 69) = 1.04, p = .36, \eta_p^2 = .03$ . Participants in all three conditions reported being in a moderately positive mood, which indicates that the essays did not induce a negative mood or distress in the participants.

**Creativity.** As predicted, a one-way analysis of variance revealed a significant main effect of condition,  $F(2, 69) = 3.80, p = .027, \eta_p^2 = .10$ , with participants in the essentialism condition solving significantly fewer RAT problems correctly than participants in either the nonessentialism condition ( $p = .015$ ) or the no-prime condition ( $p = .034$ ). Results for participants in the nonessentialism and no-prime conditions did not significantly differ ( $p = .807$ ; see Table 1).

## Experiments 2a and 2b: Closed-Mindedness as a Mediator of the Essentialism-Creativity Link

Findings from Experiment 1 replicated and extended the results of our pilot study by demonstrating that the relationship between essentialism and creativity generalized to a different cultural population and to a different creativity task. Moreover, Experiment 1 is the first to provide evidence for the causal impact of essentialism on creativity. In the next two experiments, we examined closed-mindedness as the underlying mechanism driving the essentialism-creativity link. Specifically, we tested the mediation hypothesis directly using the same priming manipulation as in Experiment 1, and we assessed creativity using the Duncker (1945) candle problem, in which participants have to figure out how—using only a candle, a pack of matches, and a box containing tacks—they can attach the candle to a wall so that the candle burns properly without dripping wax on the table or floor. This is a classic insight problem, the correct solution of which requires the ability to relax preexisting assumptions and to shift one's representation of the problem until the solution becomes evident (Schooler & Melcher, 1995): The box of tacks can be used as a candleholder and not just as a repository for tacks (Duncker, 1945).

To examine the generalizability of the essentialism-creativity causal relationship to both majority and minority cultural members, we recruited a sample of Caucasian Americans for Experiment 2a and a sample of Asian Americans for Experiment 2b. Both experiments had similar methods.

## Method

Forty-five Caucasian Americans (29 women, 16 men; average age = 19.07 years,  $SD = 0.87$ ) participated in Experiment 2a, and 56 Asian American undergraduates (32 women, 24 men; average age = 19.33 years,  $SD = 1.05$ ; mean time spent living in the United States = 12.75 years,  $SD = 6.85$ ; 39.3% were born in the United States) participated in Experiment 2b. In the two experiments, each participant was randomly assigned to either the essentialism or nonessentialism condition. The priming manipulations in the two conditions were the same as in Experiment 1.

**Table 1.** Means for Key Measures in Experiment 1

Measure	Essentialism condition	Nonessentialism condition	No-prime condition
Racial essentialism (manipulation check)	3.89 <sub>a</sub> (0.93)	2.57 <sub>b</sub> (0.97)	3.26 <sub>c</sub> (0.96)
Task difficulty (manipulation check)	2.44 <sub>a</sub> (0.80)	2.83 <sub>a</sub> (0.92)	2.33 <sub>a</sub> (1.11)
Positive mood (manipulation check)	2.74 <sub>a</sub> (0.68)	2.97 <sub>a</sub> (0.75)	2.63 <sub>a</sub> (1.01)
Number of RAT problems solved correctly	3.22 <sub>a</sub> (1.25)	4.25 <sub>b</sub> (1.68)	4.14 <sub>b</sub> (1.46)

Note: Standard deviations are given in parentheses. Within a row, means with different subscripts are significantly different ( $p < .05$ ). Racial essentialism was rated on a 6-point scale (No et al., 2008); higher scores indicate stronger essentialist beliefs. Task difficulty and positive mood were rated on 5-point scales. RAT = Remote Associates Test (Mednick, 1962).

All participants completed No et al.'s (2008) racial essentialism scale as a manipulation check (Experiment 2a:  $\alpha = .88$ ; Experiment 2b:  $\alpha = .84$ ). Creativity was measured using the Duncker (1945) candle problem. To measure closed-mindedness, we used the Closed-Mindedness subscale of the Need for Cognitive Closure scale (Webster & Kruglanski, 1994). To ensure that participants in the two conditions did not differ in how they interpreted the tone of their assigned essay, we asked participants to indicate how they felt about the general tone of the essay on a scale from 1 (*extremely pessimistic*) to 7 (*extremely optimistic*).

## Results

**Manipulation check.** The manipulation was marginally effective in Experiment 2a,  $F(1, 45) = 3.29, p = .077, \eta_p^2 = .07$ , and significantly effective in Experiment 2b,  $F(1, 56) = 7.22, p = .010, \eta_p^2 = .12$ . As Table 2 shows, participants in the essentialism condition in the two experiments scored higher on essentialism than did participants in the nonessentialism condition. In addition, participants in the two conditions of each experiment did not significantly differ in their ratings of how optimistic they found the tone of the essay—Experiment 2a:  $F(1, 45) = 0.65, p = .43, \eta_p^2 = .02$ ; Experiment 2b:  $F(1, 56) = 0.01, p = .94, \eta_p^2 = .00$  (see Table 2).

**Creativity.** Consistent with predictions, results showed that a higher percentage of participants in the nonessentialism condition correctly solved the Duncker candle problem compared with participants in the essentialism condition—Experiment 2a:  $\chi^2(1, N = 45) = 2.95, p = .086$ ; Experiment 2b:  $\chi^2(1, N = 56) = 4.52, p = .034$  (see Table 2). Results from a binary logistic regression also showed that the essentialism condition was a negative predictor of creative solutions—Experiment 2a:  $b = -1.10, SE = 0.65, Wald = 2.86, p = .091$ ; Experiment 2b:  $b = -1.19, SE = 0.57, Wald = 4.38, p = .036$ —with participants in the essentialism condition (coded as 1) being less likely to correctly solve the Duncker candle

problem than participants in the nonessentialism condition were (coded as 0).

**Closed-mindedness.** As expected, the priming manipulation caused participants in the essentialism condition to score higher on closed-mindedness than participants in the nonessentialism condition—Experiment 2a:  $F(1, 45) = 3.85, p = .056, \eta_p^2 = .08$ ; Experiment 2b:  $F(1, 56) = 5.10, p = .028, \eta_p^2 = .09$  (see Table 2).

**Mediation.** When closed-mindedness was included in the logistic regression analysis of the effect of priming on creativity, closed-mindedness emerged as a significant and negative predictor of creativity—Experiment 2a:  $b = -1.43, SE = 0.71, Wald = 4.07, p = .044$ ; Experiment 2b:  $b = -1.09, SE = 0.46, Wald = 5.71, p = .017$ —but the priming effect became nonsignificant—Experiment 2a:  $b = -0.74, SE = 0.70, Wald = 1.13, p = .287$ ; Experiment 2b:  $b = -0.87, SE = 0.61, Wald = 2.07, p = .150$  (see Fig. 1). Results from Preacher and Hayes's (2004) bootstrapping method provided further support for the existence of a mediation effect—Experiment 2a: indirect effect =  $-0.61, SE = 0.46, 95\%$  confidence interval (CI) =  $[-1.72, -0.01]$ ; Experiment 2b: indirect effect =  $-0.57, SE = 0.38, 95\%$  CI =  $[-1.50, -0.05]$ ; 5,000 bootstrap samples. These findings illustrate that the deleterious effects of racial essentialism on creativity are mediated by closed-mindedness among both majority- and minority-group members.<sup>1</sup>

## General Discussion

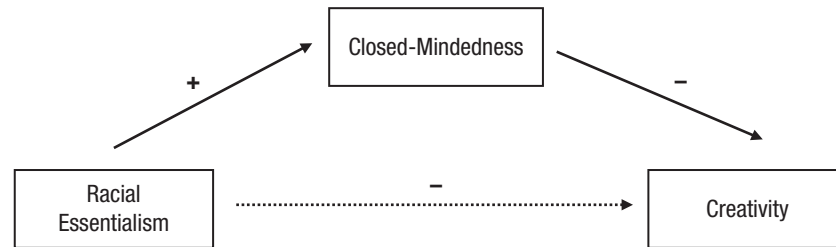
As in previous research (e.g., Levy et al., 2006), findings in our pilot study demonstrated the strong connection that exists between racial essentialism and stereotyping. In the current research, we showed for the first time that racial essentialism can also hamper creativity. This effect was consistent across manipulations of essentialism, multiple measures of creativity, and mainstream- or minority-group members. We further demonstrated the motivational mechanism underlying the

**Table 2.** Means for Key Measures in Experiments 2a and 2b

Measure	Experiment 2a (Caucasian Americans)		Experiment 2b (Asian Americans)	
	Essentialism condition	Nonessentialism condition	Essentialism condition	Nonessentialism condition
Racial essentialism (manipulation check)	3.76 (0.82)	3.21 (1.19)	3.45 (0.80)	2.84 (0.91)
Tone of the essay (manipulation check)	4.13 (0.88)	4.40 (1.36)	4.41 (0.89)	4.40 (1.04)
Creativity	25%	50%	27.6%	55.6%
Closed-mindedness	3.10 (0.57)	2.75 (0.63)	3.05 (0.71)	2.59 (0.80)

Note: Standard deviations are given in parentheses. Racial essentialism was rated on a 6-point scale (No et al., 2008); higher scores indicate stronger essentialist beliefs. The tone of the essay was rated on a scale from 1 (*extremely pessimistic*) to 7 (*extremely optimistic*). Creativity was measured by determining the percentage of individuals in each condition who correctly solved the Duncker (1945) candle problem. Closed-mindedness was measured using the 6-point Closed-Mindedness subscale of the Need for Cognitive Closure scale (Webster & Kruglanski, 1994).





**Fig. 1.** Model used in Experiments 2a and 2b to test the influence of racial essentialism on creativity, as mediated by closed-mindedness. Solid lines indicate paths expected to be significant in the full mediation model; the dotted line indicates a path expected to become nonsignificant in the full model once closed-mindedness is taken into account.

essentialism-creativity link: The racially essentialist mind-set spilled over to nonsocial contexts through the activation of a generalized closed-mindedness.

The current findings contribute to previous research in three important ways. First, the results suggest that stereotyping and creative stagnation are rooted in a similar tendency to overrely on existing category attributes. Thus, although these two outcomes are typically investigated as separate phenomena, it appears that they share essentialism as a common antecedent. Second, our research is the first to consider the effects of racial essentialism beyond intergroup relations. This contrasts with past research, which has been focused almost exclusively on illuminating essentialism's negative intergroup implications (Hong et al., 2009; Levy et al., 2006; Prentice & Miller, 2007). Thus, whereas previous research has consistently demonstrated how essentialist beliefs can hurt interracial relations, the current research demonstrates that such beliefs are also hazardous for general out-of-the-box thinking in domains that transcend the social sphere.

Finally, by investigating the motivational effects of essentialism, we highlighted for the first time a critical source through which individual differences in closed-mindedness may arise as well as elucidated a critical mechanism through which the effects of essentialism can be transferred to other domains. The fact that essentialism appears to exert its negative effects on creativity not through *what* people think but *how* people think dovetails nicely with recent research showing that it is the style of information processing rather than the content of one's thinking that determines creative potential (Leung & Chiu, 2010; Tadmor et al., 2012; Tadmor, Tetlock, & Peng, 2009).

Given the mediating role of closed-mindedness, future research could investigate whether essentialism also hinders performance in other domains that require flexibility, including real-world innovation, managerial success, and conflict resolution (e.g., Pruitt & Lewis, 1975; Tadmor et al., 2012; Tadmor & Tetlock, 2006). In addition, it would also be interesting to consider whether there are certain subgroups that would be more amenable to the influence of essentialist than of nonessentialist

ideas. From a practical perspective, the current research offers insights about how to overcome the constraining effects of essentialist beliefs. Indeed, the fact that we were able to prime racial essentialism in our studies attests to its malleability. Thus, though the long-term effects and boundary conditions of our manipulation have yet to be demonstrated, we speculate that it might be possible to devise an intervention program that will reduce racial essentialist beliefs and thus lead participants not only to become more socially tolerant but also to unleash their creative potential in the process. Until now, researchers and practitioners have pursued these goals independently (Tadmor, Hong, Chao, Wiruchnipawan, & Wang, 2012). The current research offers an important first step toward understanding how researchers might simultaneously achieve and mutually reinforce the benefits of reduced stereotyping and increased creativity.

### Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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### Note

1. The pattern of results was weaker in Experiment 2a than in Experiments 1 and 2b. Feedback provided by the Caucasian American participants in Experiment 2a revealed a potential explanation: Unlike participants in the other experiments, 2 participants in Experiment 2a considered the nonessentialist argument to be nonsensical and strongly resented the idea. Perhaps as a reactance (Brehm, 1966), these 2 participants ranked extremely high on the essentialism

scale ( $M = 5.75$  and  $M = 5$  on a 6-point scale), despite their assignment to the nonessentialism condition. Removal of these 2 participants yielded the predicted pattern of results. Specifically, the manipulation check was effective,  $F(1, 43) = 7.87, p = .008, \eta_p^2 = .16$ , with participants in the essentialism condition ( $M = 3.76, SD = 0.82$ ) ranking significantly higher on the measure of essentialism than participants in the nonessentialism condition ( $M = 2.99, SD = 0.99$ ).

In addition, results from a binary logistic regression demonstrated that the essentialism condition was a significant and negative predictor of creative solutions ( $b = -1.32, SE = 0.67, Wald = 3.91, p = .048$ ). The priming manipulation also caused participants in the essentialism condition to score significantly higher than participants in the nonessentialism condition on closed-mindedness,  $F(1, 43) = 4.68, p = .036, \eta_p^2 = .10$ . Finally, when closed-mindedness was taken into account, the priming manipulation no longer predicted creativity ( $b = -0.95, SE = 0.71, Wald = 1.77, p = .184$ ), but closed-mindedness emerged as a negative predictor of creativity ( $b = -1.35, SE = 0.73, Wald = 3.44, p = .064$ ). Results from Preacher and Hayes's (2004) bootstrapping method supported the existence of a mediation effect (indirect effect =  $-0.64, SE = 0.47, 95\% CI = [-1.77, -0.02]$ ; 5,000 bootstrap samples). That is, because the value of 0 is not in the confidence interval, we can conclude that the indirect effect was significant.

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