Supplementary Material

Method

Stimuli selection. Target stimuli (*love, vacation, joy, romance, paradise, success, beauty, smile, garbage, vomit, poison, sewage, pest, despair, cockroach, disgust*) were taken from Livingston & Brewer (2002) and were chosen to minimize semantic links between primes and target words, so that any priming effects can be attributed to affect. Word length and number of syllables were equated across positive and negative words, which were also equally strongly valenced. More information can be found in Livingston and Brewer (2002). Prime stimuli were selected from Ma, Correll, & Wittenbrink (2015) and were chosen on the basis of racial prototypicality (greater than 3 on a scale anchored at 1 [not prototypical] and 5 [highly prototypical]) and the proportion of respondents who categorized each face as the appropriate race (>95%). Faces were also selected only if no hair or bangs covered the forehead. The stimuli used were BM-001, BM-002, BM-005, BM-019, BM-021, BM-023, BM-025, BM-026, BM-029, BM-032, BM-034, BM-036, BM-037, BM-038, BM-039, BM-041, BM-045, BM-200, BM-202, BM-210, BM-213, BM-216, BM-223, BM-227, BM-229, BM-233, BM-236, BM-240, BM-245, BM-247, BM-249, BM-251, WM-003, WM-006, WM-017, WM-023, WM-026, WM-029, WM-031, WM-032, WM-040, WM-200, WM-201, WM-203, WM-204, WM-205, WM-206, WM-213, WM-214, WM-216, WM-220, WM-221, WM-224, WM-229, WM-230, WM-232, WM-234, WM-238, WM-241, WM-245, WM-248, WM-249, WM-254, and WM-258. All stimuli were converted to grayscale, cropped, and resized to 800x1200. The average age for the face primes was 29.5 years old for the Black men and 29.1 for the White men.

PCA. A sequential temporospatial PCA was conducted first on the data from the categorization task and then the priming task data. Data from all electrodes excluding HEOG, VEOG, and the nose electrode from the categorization task were first submitted to a temporal PCA using a Promax rotation with a covariance relationship matrix (Kayser & Tenke, 2003) and Kaiser weighting (Dien, Beal, & Berg, 2005). A parallel test (Horn, 1965) comparing the Scree plot of the factors extracted from the dataset to a Scree plot of a random dataset determined 20 temporal factors should be extracted from the data. Then, to reduce the spatial dimensions of the data set, a separate spatial PCA on each temporal factor was performed with an Infomax rotation (Dien, 2012). A similar parallel test determined that three spatial factors should be extracted from each temporal factor. The first spatial factor of temporal factors 1, 3, 5, 6, 7, 9, and 10 were determined to correspond meaningfully to areas of the grand averaged waveform and were ordered temporally and labeled by their temporal order (Virtual Factor 1, or VF-1, for the factor occurring earliest in the time, VF-2 for the second, etc.).

A similar approach was used on the priming task data. Sixteen temporal factors were extracted from the temporal PCA. Two spatial factors were subsequently extracted from each of those temporal factors. The first spatial factor of each of the temporal factors was ordered temporally, and the first three components had latencies and distributions similar to VF-1, VF-2, and VF-3 extracted from the categorization task data.

Results

Behavioral priming effect. Given the lack of a pattern in the reaction time data from the evaluative priming task indicative of racial priming, additional analyses were performed to more closely investigate the behavioral responses in the task. First, we investigated whether the appearance of a priming effect varied across subjects, such that, for example, some subjects demonstrated a typical priming effect and others showed the opposite. To compare bias across participants, a behavioral bias score was calculated for each subject by adding the difference in

RT to congruent and incongruent targets following Black faces to the difference between congruent and incongruent targets following White faces. In other words:

Behavioral bias =

RT(incongruent – congruent Black trials) + RT(incongruent – congruent White trials), where congruence is determined by stereotypical fit between race and valence (Black with negative, White with positive)

This is a way of algebraically quantifying the interaction between race and valence for each individual, making it easier to examine individual differences in bias (e.g., Ito et al., 2015; Payne, 2005; Wittenbrink et al., 1997). A higher behavioral bias score indicated a pattern of interaction associated with bias (facilitation of "congruent" trials compared to "incongruent" trials). Behavioral bias scores were normally distributed across subjects (see Figure S1), with the majority of subjects demonstrating no evidence for an interaction between race and valence indicative of bias.

Patterns of bias in the reaction times were also analyzed across the course of the task, using the approach presented in the main text to investigate change in the P2 over the course of the experiment. A multilevel model was specified using the same random effects structure reported in the main text to analyze reaction times in the evaluative priming task. In addition to Race and Valence, Trial was included as a predictor. The analysis revealed a significant Valence by Trial interaction, $b = .03$, $z = 3.34$, $p < .001$, but no 3-way Valence x Race x Trial interaction, $b = -.01$, $z = -1.2$, $p = .212$ (see Figure S2 and Table S4). Based on these analyses, we conclude that while the valence effect decreased over the course of the task, the interaction between Race and Valence did not change over the course of the task. In other words, the (lack of a) pattern of bias was stable over the course of the task.

Based on these results and further review of the literature on evaluative priming, we conclude that the lack of priming effect is likely due to parameters of the task itself. A number of modifications were made that altered the task from parameters that have been determined to be ideal for elicited the priming phenomenon. For example, the target word was masked after 200 ms rather than remaining on the screen until the response was made, and a response deadline of 800 ms was enforced. Although this is a rather long response window, it is unusual and may have had unknown consequences on the priming phenomenon. Additionally, the SOA was 360 ms, much longer than commonly used (usually a 150-200 ms presentation of the prime is used, followed by an ITI that is shorter than 100 ms to result in a SOA that is 300 ms or less; see Klauer & Musch, 2003; Spruyt, Gast, & Moors, 2011) because we did not want activity related to the target word to interrupt the processes of interest elicited by the face prime. Previous research has extensively researched the effect of SOA on affective priming (e.g., Hermans, De Houwer, & Eelen, 2001; Klauer, Rossnagel, & Musch, 1997). This long SOA is beyond the window of SOA that reliably elicits a priming effect and is likely the main reason we don't find a priming effect in this study.

Testing differences in P2 amplitude between tasks. When P2 data from both tasks were analyzed together with race, fixation, and task as predictors (the random effects structure was the same as that used as in the P2 analyses for each task separately), a significant effect of task emerged, $b = -2.2$, $z = -31.9$, $p < .001$, as did Task x Race ($b = .31$, $z = 3.2$, $p = .001$) and Task x Fixation ($b = .23$, $z = 2.35$, $p = .019$) interactions, indicating that the effects of Race and Fixation were larger in the categorization task compared to the priming task. Consistent with previous work linking the P2 to attention to outgroups (e.g., Amodio, 2010; Dickter & Bartholow, 2007), this may suggest that differential allocation of attention by group membership is enhanced when social categorization is task relevant, but because task-order and task-relevance were confounded here, additional research is needed to validate this conclusion.

Supplementary Tables

Table S1

Random effects for Multilevel Models Testing the Effect of Race, Fixation, and Word Valence (When Applicable) on Reaction Time to Targets in Each Task Separately.

Evaluative Priming Task					
Groups		Variance	Std. Dev.	Corr.	
Subject	Intercept	1518.1	39.0		
	Word Valence	298.4	17.3	-.38	
Target Word	Intercept	107.3	10.4		
Residual		5632.4	75.1		
Race Categorization Task					
Groups		Variance	Std. Dev.	Corr.	
Subject	Intercept	1342.2	36.6		
	Race	228.6	15.1	-.06	
	Fixation	24.2	4.9	.61	-.22
Target Face	Intercept	45.3	6.7		
Residual		6788.5	82.4		

Table S2

Random effects for Multilevel Models testing the effect of Race, Fixation, and Task (When Applicable) on P2 amplitude in Each Task Separately and Both Tasks Together.

Evaluative Priming Task						
Groups		Variance	Std. Dev.	Corr.		
Electrode nested within Subject	Intercept	0.39	0.62			
Subject	Intercept	7.36	2.71	-.34		
	Race	0.97	0.98	-.47	.28	
	Fixation	2.16	1.47	.30	-.56	-.49
	Race*Fixation	1.68	1.30			
Residual		74.5	8.62			
Race Categorization Task						
Groups		Variance	Std. Dev.	Corr.		
Electrode nested within Subject	Intercept	0.54	0.74			
Subject	Intercept	10.18	3.19	-.46		
	Race	3.43	1.85	-.53	.55	
	Fixation	3.11	1.76	.23	-.72	-.67
	Race*Fixation	6.91	2.63			
Residual		76.13	8.73			
Both Tasks						
Groups		Variance	Std. Dev.	Corr.		
Electrode nested within Subject	Intercept	0.48	0.69			
Subject	Intercept	7.33	2.71	-.38		
	Race	1.13	1.07	-.50	.49	
	Fixation	2.04	1.43	.25	-.70	-.65
	Race*Fixation	2.57	1.60			
Residual		75.70	8.70			

Table S3

Random effects for Multilevel Models testing the effect of Race, Fixation, and Task (When Applicable) on P2 amplitude in Each Task Separately, with Trial Included as a Predictor.

Evaluative Priming Task						
Groups		Variance	Std. Dev.	Corr.		
Electrode nested within Subject	Intercept	0.39	0.62			
Subject	Intercept	7.35	2.71	-.34		
	Race	0.96	0.98	-.47	.28	
	Fixation	2.14	1.46	.30	-.56	-.49
	Race*Fixation	1.68	1.29			
Residual		74.3	8.62			
Race Categorization Task						
Groups		Variance	Std. Dev.	Corr.		
Electrode nested within Subject	Intercept	0.54	0.74			
Subject	Intercept	10.18	3.18	-.46		
	Race	3.45	1.86	-.53	.56	
	Fixation	3.16	1.78	.23	-.73	-.67
	Race*Fixation	7.01	2.65			
Residual		76.00	8.72			

Note. Corresponds to models presented in Table 3.

Table S4

Results of Multilevel Model testing the Effect of Race, Word Valence, and Trial on Reaction Time in the Evaluative Priming Task.

	Evaluative priming task	
	b	*p*
Race	-4.68 (2.5)	.058
Word Valence	-22.5 (6.1)	.001
Trial	.04 (.01)	.000
Race x Word Valence	7.03 (3.5)	.044
Race x Trial	.01 (.01)	.111
Word Valence x Trial	.03 (.01)	.001
Race x Word Valence x Trial	-.01 (.01)	.212

Note. Unstandardized betas are presented. Standard errors of estimate are in parentheses. Satterthwaite approximations were used to estimate degrees of freedom to calculate p value. Variables were dummy coded; eyes = 0, forehead = 1; negative = 0, positive = 1.

Supplementary Figures

Figure S1. Depicts a histogram of behavioral bias across all participants. Patterns of responses are given for select participants across the distribution, illustrating the pattern of interaction quantified by the behavioral bias score. More positive bias scores represent a larger interaction in the expected direction (faster RTs to Black-negative and White-positive trials compared to Black-positive and White-negative trials).

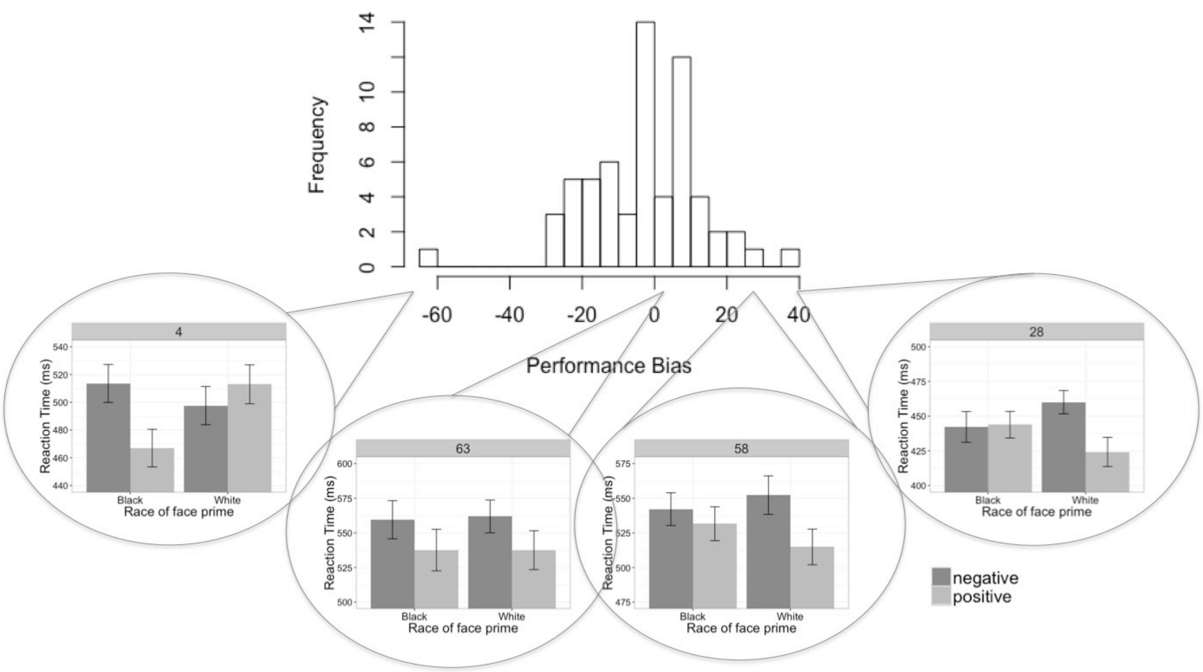
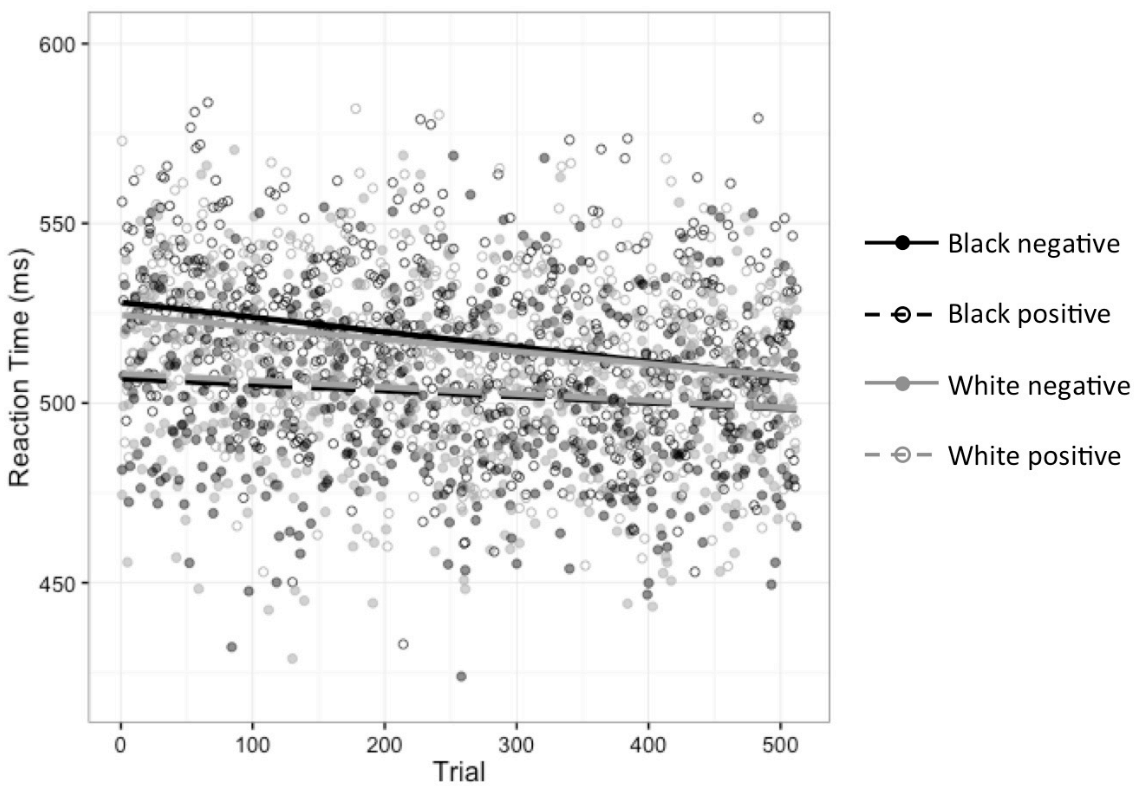


Figure S2. Shows the change in reaction time over the course of the evaluative priming task, separated by trial type. Here, each data point represents an average of all subjects for that trial for each trial type separately, for ease of viewing. In the model, each data point for each subject was included separately.



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