December 17, 2019

In light of a reporting error that was discovered in our article ["Stereotyping and evaluation in implicit race bias: Evidence for independent constructs and unique effects on behavior," by David M. Amodio and Patricia G. Devine, *Journal of Personality and Social Psychology*, 2006, 91, 652-661], we have decided to share the following analysis replication report, along with original data dataset and SPSS syntax for analyses (found at https://osf.io/3chzy).

Our corrigendum, submitted to the *Journal of Personality and Social Psychology*, states:

> "We note an error in the reporting of a statistical result in our article, "Stereotyping and evaluation in implicit race bias: Evidence for independent constructs and unique effects on behavior," by David M. Amodio and Patricia G. Devine (*Journal of Personality and Social Psychology*, 2006, 91, 652-661). This error concerns the reported association between scores on an implicit association test of evaluative racial bias and participants' interest in befriending an African American student (Study 2, p. 656). Due to an apparent transcription error, when moving this result from a table into the main text over the course of revisions, the reported sign of this effect was reversed, such that the association should been positive: $\beta = .32$, $t(28) = 1.79$, $p = .08$, $sr = .32$.

> This error came to light when data from this paper were shared with other authors for inclusion in a meta-analysis. When first discovered, it was initially thought that the error, being marginal and not essential for the conclusions, did not warrant a published corrigendum. However, following changes in reporting norms and in support of open science, we now report this error. All other effects reported in the paper were replicated in reanalysis, and the main results and theoretical conclusions of the article remain unchanged. More information about these results, including an analysis replication report, datasets, and analysis scripts, may be found at https://osf.io/3chzy."

Background & notes

The studies reported in this article were conducted between 2002 and 2004, during my final 1.5 years a PhD student at UW-Madison and first year as a postdoc at UCLA (with RAs continuing data collection at UW-Madison while I began my postdoc). The three reported studies were the only studies conducted in this program of research (i.e., there was no "file drawer" of unreported studies). The manuscript was first submitted on April 27, 2004, followed by three rounds of revision prior to acceptance. The final (third) revision was submitted on January 9, 2006 and was accepted on January 27, 2007.

The first study (Study 1 in the article) was originally designed for two objectives: (a) to test the degree of correlation between implicit measures of prejudice and stereotyping and (b) to explore individual differences effects of internal and external motivations to respond without prejudice (IMS and EMS, respectively); these are the reasons for the unusually large sample in Study 1. However, this exploratory aspect of the research was dropped, and the follow-up

studies (Studies 2 and 3) were designed to focus on the core hypothesis—of unique predictive effects of implicit prejudice and stereotyping on judgment and behavior—with smaller samples (i.e., more conventional sample sizes for the time).

Reanalysis report

Below, we report a reanalysis of all key results, using the original datasets and SPSS syntax files. As in the original article, all tests are two-tailed.

Except for the error reported in the published corrigendum, all original findings replicated in this reanalysis. However, it is notable that some minor errors were found. These appear to reflect typos, rounding errors, or incomplete updating of statistical coefficients when changing an analysis during revisions (e.g., in response to reviewer and editor requests). Such minor discrepancies are detailed below. None change the significance level of any result, nor any finding, interpretation, or conclusion.

Study 1 reanalysis

All results replicated in reanalysis. As in the original article, one-sample t-tests indicated that scores (*D*) on both the evaluative IAT (*M* = .51, SD = .42), $\underline{t}$(146) = 14.60, *p* < .001, and stereotyping IAT (*M* = .17, *SD* = .43), *t*(146) = 4.72, *p* = .001, were significantly greater than zero, indicating evidence for implicit bias on each measure. Although these statistical coefficients were replicated in re-analysis, the degrees of freedom were incorrectly reported in the original article as 147, instead of 146. We are not sure why this error occurred; it may have been a typo.

The main finding in Study 1—that scores on these two IATs were not significantly correlated—replicated in reanalysis, *r*(145) = .059, *p* = .479.

Study 2 reanalysis

Descriptives and correlations

One-sample t-tests indicated that the average evaluative IAT score (M = .32, SD = .17), t(30) = 10.58, p < .001, and average stereotyping IAT scores (M = .29, SD = .23), *t*(30) = 7.00, p < .001, were both significantly greater than zero. The correlation between scores on these two IATs was nonsignificant, *r*(29) = .165, p = .375.

IAT predictors of stereotype ratings

1. Analysis 1. *IAT scores predicting stereotype ratings of an African American student writer*. All results replicated in reanalysis (Table 1), except for an apparent typo for the stereotyping IAT effect in Step 2: the *t* value of 2.226 was erroneously rounded to 2.70 in the manuscript instead of 2.27.

As in the original article, a regression predicting stereotype ratings of an African American student writer revealed a significant effect of stereotyping IAT scores but not evaluative IAT scores.

Table 1. *IAT scores predicting stereotype ratings of an African American student writer.*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	29	4.045	0.499		8.11	<.001	
	Eval IAT		-1.251	1.386	-0.165	-0.903	0.374	-0.165
Step 2	(Constant)	28	3.572	0.511		6.988	<.001	
	Eval IAT		-1.743	1.315	-0.23	-1.326	0.196	-0.227
	Ster IAT		2.148	0.948	0.394	2.266	0.031	0.388
	Dependent Variable: stereotype trait average							

2. Analysis 2: *IAT scores predicting ratings of nonstereotypic traits*. All results replicated (Table 2). Neither IAT predicted ratings of nonstereotypic traits.

Table 2. *IAT scores predicting ratings of nonstereotypic traits.*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	29	6.604	0.473		13.96	<.001	
	Eval IAT		-0.139	1.314	-0.02	-0.106	0.916	-0.02
Step 2	(Constant)	28	6.613	0.527		12.54	<.001	
	Eval IAT		-0.13	1.356	-0.018	-0.096	0.925	-0.018
	Ster IAT		-0.043	0.978	-0.008	-0.044	0.965	-0.008
	Dependent Variable: non-stereotype traits							

3. Analysis 3*: IAT scores predicting stereotype ratings of an African American student writer while adjusting for nonstereotypic trait ratings.* All results replicated (Table 3). Stereotyping IAT scores predicted stereotypic trait ratings after adjusting for both evaluative IAT scores and non-stereotypic trait ratings.

Table 3. *IAT scores predicting stereotype ratings of an African American student writer while adjusting for nonstereotyped trait ratings*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	28	7.85	1.181		6.646	<.001	
	nonster		-0.576	0.167	-0.539	-3.453	0.002	-0.539
	Eval IAT		-1.332	1.181	-0.176	-1.127	0.269	-0.176
Step 2	(Constant)	27	7.36	1.08		6.814	<.001	
	nonster		-0.573	0.15	-0.536	-3.806	0.001	-0.536
	Eval IAT		-1.817	1.08	-0.24	-1.682	0.104	-0.237
	Ster IAT		2.123	0.779	0.389	2.727	0.011	0.384
	Dependent Variable: stereotype trait average							

IAT predictors of affective responses

4. Analysis 4: *IAT scores predicting desire to befriend African American student writer*. This is the analysis described in the corrigendum; although the coefficients replicated, the sign of the reported beta in the original article was reversed for the effect of evaluative IAT score on the friendship rating.

Table 4. *IAT scores predicting desire to befriend African American student writer.*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	29	5.875	0.425		13.808	<.001	
	Ster IAT		0.371	1.142	0.06	0.325	0.748	0.06
Step 2	(Constant)	28	5.086	0.602		8.446	<.001	
	Ster IAT		0.041	1.116	0.007	0.037	0.971	0.007
	Eval IAT		2.771	1.549	0.324	1.789	0.084	0.32
	Dependent Variable: desire to befriend							

This error appears to have occurred in the course of revision, when transcribing the statistics from a table, where it was reported in earlier submissions, to the main text during the final round of revision. Following this erroneous transcription, this incorrect finding was apparently incorporated into the interpretational narrative of the manuscript (by contrast, it hadn't been mentioned in the text of earlier versions).

Importantly, this was a marginally significant result, and in both the original article and this reanalysis, it is considered to be tentative and not crucial to the main findings.

5. Analysis 5: *IAT scores predicting affect ratings of African Americans.* The dependent variable is participants' feelings thermometer rating of African Americans as a group, with their average rating for White, Latino, and Asian Americans included as a covariate. All results replicated.

Table 5. *IAT scores predicting feelings thermometer rating of African Americans, adjusting for average ratings of White, Latino, and Asian Americans.*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	29	-5.768	7.082		-0.814	0.422	
	covariate		1.032	0.094	0.898	11.016	<.001	0.898
Step 2	(Constant)	28	-4.162	7.134		-0.583	0.564	
	covariate		1.044	0.093	0.909	11.189	<.001	0.904
	Ster IAT		-8.522	6.844	-0.101	-1.245	0.223	-0.101
Step 3	(Constant)	27	-5.006	6.774		-0.739	0.466	
	covariate		1.139	0.1	0.992	11.395	<.001	0.873
	Ster IAT		-6.76	6.544	-0.08	-1.033	0.311	-0.079
	Eval IAT		-20.948	10.257	-0.179	-2.042	0.051	-0.156
	Dependent Variable: feelings thermometer rating of African Americans							
	Covariate: Ave feeling thermometer rating for White, Latino, and Asian Americans							

One slight discrepancy was found, however: the *t* value reported for the covariate in the published article appears to be taken Step 3 (*t* = 11.40) rather than Step 1 (*t* = 11.02). This error may have occurred when we changed our analysis from a simultaneous regression to stepwise regression, such that this value from the stepwise version was not updated in the revision.

Study 3 reanalysis

All Study 3 effects were replicated in reanalysis.

Descriptives and correlations

One-sample t-tests indicated that the average evaluative IAT score (*M* = .38, *SD* = .29), *t*(20) = 5.93, *p* < .001, and average stereotyping IAT score (*M* = .15, *SD* = .18), *t*(20) = 3.70, *p* < .001, were both significantly greater than zero. The correlation between scores on these two IATs was nonsignificant, *r*(19) = .02, *p* = .93.

IAT predictors of stereotype-consistent partner expectations

Analysis 1: *IAT scores predicting ratings of expected partner ability*. All results replicated.

Table 6. *IAT scores predicting ratings of expected partner ability*.

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	19	0.125	0.145		0.861	0.4	
	Eval IAT		-0.333	0.309	-0.24	-1.079	0.294	-0.24
Step 2	(Constant)	18	-0.021	0.145		-0.147	0.884	
	Eval IAT		-0.346	0.279	-0.249	-1.241	0.23	-0.249
	Ster IAT		1.026	0.442	0.466	2.318	0.032	0.465
	Dependent Variable: expected partner ability							

Analysis 2: *IAT scores predicting ratings of expected partner enjoyment*. All results replicated.

Table 7. *IAT scores predicting ratings of expected partner enjoyment.*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	19	0.028	0.139		0.199	0.844	
	Eval IAT		-0.074	0.295	-0.057	-0.249	0.806	-0.057
Step 2	(Constant)	18	-0.1	0.142		-0.706	0.489	
	Eval IAT		-0.085	0.272	-0.066	-0.31	0.76	-0.066
	Ster IAT		0.896	0.432	0.438	2.072	0.053	0.438
	Dependent Variable: expected partner enjoyment							

IAT predictors of interpersonal distance

Analysis 3*: IAT scores predicting seating distance from African American partner.* All results replicated.

Table 7. *IAT scores predicting seating distance.*

		df	B	Std. Error	Beta	t	p	sr
Step 1	(Constant)	19	1.768	0.227		7.794	<.001	
	Ster IAT		-0.365	0.98	-0.085	-0.373	0.714	-0.085
Step 2	(Constant)	18	1.326	0.297		4.467	<.001	
	Ster IAT		-0.402	0.903	-0.094	-0.445	0.662	-0.094
	Eval IAT		1.192	0.569	0.442	2.097	0.05	0.441
	Dependent Variable: seating distance (# chairs from partner)							

Summary & conclusions

This reanalysis of the original Amodio and Devine (2006) data reproduced the results reported in the published article, with the notable exception of the result reported in our corrigendum. Despite this error, the general pattern of findings, interpretations, and conclusions remains unchanged.

IAT Syntax

Study 1

```
T-TEST
 /TESTVAL=0
 /MISSING=ANALYSIS
 /VARIABLES=Deval Dster
 /CRITERIA=CI(.95).

CORRELATIONS
 /VARIABLES=Deval Dster
 /PRINT=TWOTAIL NOSIG
```

```
 /MISSING=PAIRWISE.
```

Study 2

```
T-TEST
 /TESTVAL=0
 /MISSING=ANALYSIS
 /VARIABLES=Deval Dster
 /CRITERIA=CI(.95).

CORRELATIONS
 /VARIABLES=Deval Dster
 /PRINT=TWOTAIL NOSIG
 /MISSING=PAIRWISE.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT sterave
 /METHOD=ENTER Deval
 /METHOD=ENTER Dster.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT nonster
 /METHOD=ENTER  Dster Deval.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT friend
 /METHOD=ENTER Dster
 /METHOD=ENTER Deval.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT thrmafam
 /METHOD=ENTER thrmwal
 /METHOD=ENTER Dster
 /METHOD=ENTER Deval.
```

Study 3

```
T-TEST
 /TESTVAL=0
 /MISSING=ANALYSIS
 /VARIABLES=Deval Dster
 /CRITERIA=CI(.95).

CORRELATIONS
 /VARIABLES=Deval Dster
 /PRINT=TWOTAIL NOSIG
 /MISSING=PAIRWISE.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT ability
 /METHOD=ENTER Deval
 /METHOD=ENTER Dster.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT enjoyment
 /METHOD=ENTER Deval
 /METHOD=ENTER Dster.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT seating
 /METHOD=ENTER Dster
 /METHOD=ENTER Deval.
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