Social Psychology of Education (2025) 28:87
https://doi.org/10.1007/s11218-025-10035-7

Misperceptions of progress towards racial equality in educational attainment and their implications for policy preferences

Alexander S. Browman[1] · **David B. Miele**[2]

Received: 29 April 2024 / Accepted: 12 February 2025

Abstract

Educational inequities between White Americans and Black and Latinx Americans have grown in recent decades. However, the present research documents that many members of the public may be misinformed about this reality. Three initial studies, with 813 undergraduates and online participants, demonstrate that many individuals overestimate the progress made towards reaching White-Black and White-Latinx equality in degree attainment over time, incorrectly believing that Black and Latinx Americans' degree attainment rates increased by more than twice as much as they actually had from 1980 to 2015. This work also documents potential consequences of these misperceptions: two follow-up experiments, with 621 undergraduates and online participants, find that correcting these misperceptions reduced attributions of these disparities to a lack of effort among Black students and increased support for equity-enhancing policies, especially among those most prone to these misperceptions. However, these corrective effects weakened over time. Together, these results suggest that unfounded optimism regarding progress towards racial equity in education may pose a major barrier to actual progress in this domain.

Keywords Racial inequality · Education · Perceptions · Affirmative action

This work was supported by funding from the College of the Holy Cross (awarded to ASB) and from the James S. McDonnell Foundation (Collaborative Grant No. 220020483, awarded to DBM). The authors thank Sidney May, Ashley Dumais, Gabriela Jimenez-Thompson, Camille McCobb, Ahana Nagarkatti, Sabrina Ramos, Cymeria Robshaw, and Juliana Tronsky for their feedback and assistance with data collection and coding. The authors declare no competing interests related to this work.

✉ Alexander S. Browman
abrowman@holycross.edu

[1] Department of Psychology, College of the Holy Cross, 1 College Street, Worcester, MA 01610, USA

[2] Department of Counseling, Developmental, and Educational Psychology, Lynch School of Education and Human Development, Boston College, Chestnut Hill 02467, MA, USA

Published online: 22 March 2025

1 Introduction

On May 17, 1954, the Supreme Court of the United States ruled unanimously in *Brown v. Board of Education of Topeka* that racial segregation in public education was unconstitutional. In their decision, the Court emphasized that "it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity... is a right which must be made available to all on equal terms" (Supreme Court of the United States 1954, p. 493). Landmarks of civil rights progress like *Brown* and the Civil Rights Acts that followed have unquestionably enabled Americans from systematically marginalized racial groups to have *better* educational outcomes today than was previously possible (Rothstein 2014). However, almost 70 years after *Brown*, racial inequities in education not only persist, but some have grown. For example, in higher education—the primary engine for "succeed[ing] in life" in the U.S., to quote *Brown* (see Chetty et al. 2017)—the gaps in degree attainment between White and Black Americans and between White and Latinx Americans *widened* by 8.31 and 9.29 percentage points (p.p.), respectively, between 1980 and 2015, and were still 3.76 p.p. and 3.14 p.p. higher in 2022 than in 1980 (National Center for Education Statistics 2022).

While little (if any) progress has been made towards achieving racial equality in higher education attainment in the United States, the extent to which members of the public are aware of this reality remains an open question. Several prominent psychological theories provide a foundation for examining this topic. Specifically, decades of research suggest that humans have, to varying degrees, a fundamental need to experience their world as stable, orderly, and predictable (see Jost et al. 2008). As a result, people are generally motivated to rationalize their society's structures, institutions, and trajectories as fair and just, as this enables them to justify the status quo and thus oppose societal changes that would reduce their sense of stability and predictability (see Jost et al. 2008; Kraus et al. 2022). Such tendencies appear to be especially strong among individuals who have primarily experienced or witnessed fairness (versus unfairness) in their own lives, either via specific early experiences they have had within their family, or as a result of being a member of racial or socioeconomic groups that generally experience more favorable outcomes and less discrimination in their society (e.g., Dalbert and Radant 2004; Hoolihan and Thomas 2020).

In line with these general psychological tendencies, despite widespread knowledge of certain elements of the country's history of racial inequities and oppression (e.g., slavery, Jim Crow laws, segregation), many Americans appear committed to a general belief that steady, consistent progress has been and continues to be made toward racial equality (Hagerman 2018; Kraus et al. 2022; Richeson 2020; Southern Poverty Law Center 2018). For example, with regard to racial equality in wealth, American participants have estimated that the average Black American family had about 50% of the amount of wealth of the average White American family in 1963, and believe this had grown to 90% by 2016. In reality, Black families only had 5% of White family's wealth in 1963, and that figure

had only grown to 10% by 2016 (Kraus et al. 2017, 2019). In other words, many members of the public both severely underestimate racial wealth inequity in the past, and severely overestimate how much progress has been made towards attaining racial wealth equality, suggesting a general need to view their society's history and trajectory as more fair and just than they are.

Given these findings, many people may hold similar misperceptions about racial educational inequality. Indeed, only 8 years after *Brown* invalidated hundreds of years of legal racial segregation in and even exclusion from public education, 83% of Americans believed that Black students now had "as good a chance" as White students to "get a good education" (Gallup 2004). In reality, Black Americans were still less than half as likely to have a bachelor's degree or higher as White Americans at that time (National Center for Education Statistics 2022). And while this attainment gap remained large in 2023, when the Supreme Court deemed it unconstitutional for universities to continue considering student race as one of many factors when making admissions decisions, they stated that their decision was consistent with the "Court's view [in 2003] that race-based preferences would, by 2028, be unnecessary" (Supreme Court of the United States 2023, p. 33) because "the number of minority applicants with high grades and test scores has indeed increased" (Supreme Court of the United States 2003, p. 343). In other words, there has been a perception among many members of the public and influential members of government that the country has made and continues to make consistent progress towards achieving racial equality in education. The present Studies 1-3 therefore had two goals: to quantify the extent to which many Americans may be aware of how little progress has actually been made over time towards achieving racial equality in college degree attainment; and to identify specific ideologies and background characteristics that could make some individuals especially prone to such overestimates, and thus more likely to benefit (accuracy-wise) from corrective interventions designed to bring their beliefs about inequality in line with reality.

We then examined whether people's misperceptions of progress towards racial educational equality can be durably corrected, and the implications of such corrections for their level of support for policies that could increase equality. On one hand, a large body of extent research suggests that correcting misinformation that people have already internalized is very difficult and often unsuccessful, especially for politically polarized topics like the persistence of racial inequities (for meta-analytic review, see Chan and Albarracín 2023). However, prior studies have also found that such corrections can be successful under certain conditions. Most notably, corrective attempts that provided detailed information about how targets' beliefs were incorrect were more likely to be successful than those that simply told targets that their beliefs were incorrect (see Chan and Albarracín 2023). More specifically, attempts that have involved directly juxtaposing the mistaken information that people currently hold with correct information have been shown to be especially effective Ecker et al. (2011). In Studies 4-5, we therefore examined whether people's misperceptions of progress towards racial educational equality could be durably corrected by directly juxtaposing our previous participants' misperceptions (from Studies 1-3) with correct information about the state of these inequities.

We also sought to test whether exposure to such corrective information has the potential to strengthen people's level of support for policies that could reduce inequities. Prior research supports this possibility. For example, although many Americans greatly underestimate the extent of wealth inequality in the U.S. (Kiatpongsan and Norton 2014; Norton and Ariely 2011), presenting them with more accurate data about the U.S. wealth distribution increases their support for interventions designed to reduce financial inequities, such as taxing the wealthy and giving income assistance to the poor (McCall et al. 2017). Similarly, many Americans also overestimate the percentage of police officers who are female or non-White, but providing them with corrective information about the true (low) levels of race and gender representation in American policing increases both public and police support for diversity reforms (Peyton et al. 2022).

Given these prior findings, if there is a tendency for many people in the U.S. to overestimate the amount of progress that has been made towards achieving racial equality in higher education attainment, increasing their awareness of the actual lack of progress that has occurred could lead to a positive shift in their attitudes towards policies designed to actively address them. In the context of inequities in bachelor's degree attainment, an especially relevant category of policies is race-conscious admissions, in which institutions consider student race as one of many factors in their admissions decisions. Identifying factors that influence public attitudes towards such policies is important, because while race-conscious policies have been shown to be effective at improving the higher education outcomes of Black and Latinx Americans (Carnevale et al. 2023; Hill 2017; Liu 2022; Long and Bateman 2020), public support for them has long been low (Gallup 2003; Pew Research Center 2022), which helped fuel the legal challenges that ultimately imperiled these policies (Lyke 2024). Thus, in Studies 4-5, we also tested the effects of exposure to corrective information about racial educational inequities on people's level of support for race-conscious admissions policies.

Finally, little prior research has examined whether attempts to correct people's accuracy regarding racial inequities hold beyond the session in which the information was provided, with that prior research finding that the effects on accuracy weaken over time (Callaghan et al. 2021). In addition, we know of no studies that have examined the staying power of such corrective efforts on people's support for equity-enhancing policy. Thus, Studies 4-5 tested both the immediate impacts *and* the durability over time of correcting people's misperceptions of progress towards racial educational equality on both belief accuracy and policy support.

The present studies were conducted with samples of current university students (Studies 1, 2, and 4) and members of the general public recruited on Amazon's Mechanical Turk (MTurk; www.mturk.com) crowdsourcing platform (Studies 3 and 5). Although our samples were, on average, more educated, higher in household income, and more likely to be White than the U.S. population at-large (see Table 1 for study demographics), this enabled us to test our research questions on a segment of the population that has outsized influence on local and national policies in the United States (Schaffner et al. 2020). In addition, members of these racial and socioeconomic groups, who generally experience more favorable outcomes and less discrimination in the U.S., may be especially likely to view their society's structures,

Table 1 Participant demographics

	Study 1	Study 2	Study 3	Study 4	Study 5
Final *N*	156	232	425	177	444
Min. effect size detectable (Hedges' *g*) with statistical power of.80	0.225	0.184	0.136	0.445	0.275
Gender					
Male	31	45	244	45	218
Female	125	186	176	131	224
Non-binary or gender fluid	0	0	3	1	1
Undisclosed	0	1	2	0	1
Age [*M* (*SD*)]	19.4 (1.1)	19.1 (1.1)	37.8 (11.0)	19.0 (0.8)	41.9 (12.2)
Race-ethnicity					
White alone	69.9%	64.2%	78.4%	71.8%	71.6%
Black or African-American alone	5.1%	4.7%	6.4%	4.0%	8.6%
Latino or Hispanic alone	3.8%	4.3%	3.8%	0.6%	4.3%
Asian alone	9.0%	16.4%	4.5%	6.8%	7.4%
Native American, Alaskan, or Hawaiian alone	0.0%	0.0%	0.0%	0.0%	0.5%
Two or more of the above	10.9%	9.9%	6.4%	15.8%	6.3%
Other or undisclosed	0.0%	0.4%	0.7%	1.1%	1.4%
Own/parental income [*M* (*SD*)]	6.49 (2.30)	6.97 (1.96)	4.16 (1.78)	7.09 (2.22)	4.75 (2.02)
1) Under $15,000	4.5%	0.9%	7.3%	1.7%	8.3%
2) $15,000–$24,999	3.2%	3.9%	12%	4%	8.6%
3) $25,000–$34,999	3.2%	1.7%	16.9%	4.5%	7.4%
4) $35,000–$49,999	8.3%	4.7%	20.2%	3.4%	17.3%
5) $50,000–$74,999	10.9%	7.8%	21.2%	9%	21.8%
6) $75,000–$99,999	15.4%	15.1%	11.8%	7.3%	17.6%
7) $100,000–$150,000	17.3%	20.3%	7.1%	15.8%	12.2%
8) $150,000–$199,999	7.7%	15.1%	2.6%	11.3%	2.5%
9) Over $200,000	29.5%	29.3%	0.5%	40.7%	4.3%
Undisclosed	0%	1.3%	0.5%	2.3%	0%
Own/parental highest education [*M* (*SD*)]	4.94 (1.33)	–	3.99 (1.24)	5.15 (1.26)	4.33 (1.27)
1) Did not complete high school	3.8%	–	0.5%	3.4%	0.7%
2) Completed high school	5.1%	–	15.5%	5.1%	10.4%
3) Began but did not complete college	5.1%	–	21.6%	1.7%	19.4%
4) Completed an Associate degree	5.8%	–	14.8%	3.4%	10.1%
5) Completed a Bachelor's degree	39.1%	–	40.9%	36.2%	43.9%
6) Completed a post-secondary degree	41%	–	6.1%	50.3%	15.5%
Undisclosed	0%	–	0.5%	0%	0%
Conservative political orientation [*M* (*SD*)]	2.62 (1.13)	2.67 (1.18)	2.89 (1.49)	2.81 (1.10)	3.07 (1.57)

Note: In Studies 1, 2, and 4, the student participants reported their parents' income and highest level of educational attainment. In Studies 3 and 5, participants reported their own income and highest level of educational attainment

institutions, and trajectories as fair and just (e.g., Dalbert & Radant, 2004; Hoolihan and Thomas 2020). Thus, if people's misperceptions of educational inequities do inform their levels of support for equity-enhancing policies, then it is among these specific populations that such misperceptions could represent an especially potent barrier to the implementation of more equitable policies. However, we acknowledge that the use of these non-representative samples has implications for the generalizability of the present findings to the U.S. population as a whole. We address this further in the General Discussion.

2 Studies 1-3

The methodologies and conclusions of Studies 1-3 were highly similar. Thus, for concision, we describe the methods together and present the result in a meta-analytically combined format wherever possible (see the "Meta-Analytic Modeling" section of the Supplementary Online Materials [SOM] for details). Complete materials, data, and analytic code for all 5 studies in this paper are available at https://osf.io/438d5.

2.1 Participants

Participants in Studies 1-2 (*N*s = 156 and 232) were American college students recruited from a departmental participant pool at a private university in the Northeastern United States, who received partial course credit for their participation in a 30-minute session. Participants in Study 3 ($N = 425$) were American adults recruited from MTurk, who were paid $1.50 USD for participating in a 10-minute session. All data were collected between April 2018 and May 2019—several years prior to the Supreme Court decision that deemed race-conscious admissions policies unconstitutional (Supreme Court of the United States 2023). See Table 1 for detailed demographic information for all five studies, and the SOM ("Data Exclusions") for details about data exclusions for all five studies. Table 1 also includes the results of sensitivity analyses for all five studies, which indicates the smallest effect size that each study could reliably detect with statistical power of 0.80, when using one-sample t-tests to compare participants' degree attainment estimates to actual degree attainment rates. The present studies were well powered to detect the great majority of the effects of interest that emerged.

2.2 Materials

2.2.1 Perceived and actual progress toward racial equality in education attainment

To capture their perceptions of progress toward racial equality in educational attainment, participants indicated their perceptions of past and recent educational attainment rates for both White and non-White Americans. Specifically, participants were asked to estimate what percentage of "Non-Hispanic White or Caucasian

Americans," "Black or African Americans," and (in Studies 1 and 3) "Hispanic and Latinx Americans," aged 25 to 29 years old, had a bachelor's degree or higher in the year 1980, and in the year 2015. The differences between participants' estimates of a specific group's degree attainment in 1980 versus in 2015 (e.g., Black attainment in 2015 - Black attainment in 1980) represented measures of *perceived gains in educational attainment for that racial-ethnic group*, while the differences between participants' estimates of White versus Black and White versus Latinx degree attainment in 1980 versus in 2015 represented measures of *perceived progress towards racial equality in educational attainment* (e.g., [White attainment in 1980 - Black attainment in 1980] - [White attainment in 2015 - Black attainment in 2015]).

To determine the accuracy of participants' perceptions of progress towards racial equality in education attainment, we used the actual educational attainment rates of White, Black, and Latinx Americans (aged 25 to 29 years old) in both 1980 and 2015 produced by the National Center for Education Statistics (NCES; National Center for Education Statistics, 2022). See the SOM ("Actual and Perceived Degree Attainment Metrics") for additional details about the actual and perceived degree attainment metrics used in this work, as well as for discussions of secondary measures and findings.

2.2.2 Just-world beliefs

Finally, we assessed participants' endorsement of a belief systems that might predict both their perceptions of racial progress and their attitudes towards race-conscious admissions policies: just-world beliefs. Prior research suggests that when a person believes that their society is a fair and just place where people generally get what they deserve, they are more likely to believe that any historical attainment gaps that once existed between White, Black, and Latinx Americans will have been closed over time (Kraus et al. 2017, 2019). Furthermore, if a person believes that society is fair and just today, such that everyone, regardless of race, now has an equal opportunity to be successful in school, this could lead that person to believe that policies that provide additional opportunities to members of historically marginalized groups (e.g., race-conscious admissions policies) are no longer necessary (Wilkins and Wenger 2014). Thus, we assessed participants' just-world beliefs with the 6-item Belief in a Just World Scale (e.g., "I believe that, by and large, people get what they deserve"; 1 = "strongly disagree," 7 = "strongly agree"; *M*s = 3.50−3.92, *SD*s = 0.88−1.46, McDonald's ωs = 0.72−0.94; Dalbert 1999).[1]

[1] We also assessed whether four other broad belief systems and background characteristics might predict both their perceptions of racial progress and their attitudes towards race-conscious admissions policies: support for maintaining status hierarchies, support for maintaining economic inequities, social network racial homogeneity, and political conservatism. None of these emerged as significant predictors—see the SOM ("Supplementary Measures and Analyses") for details.

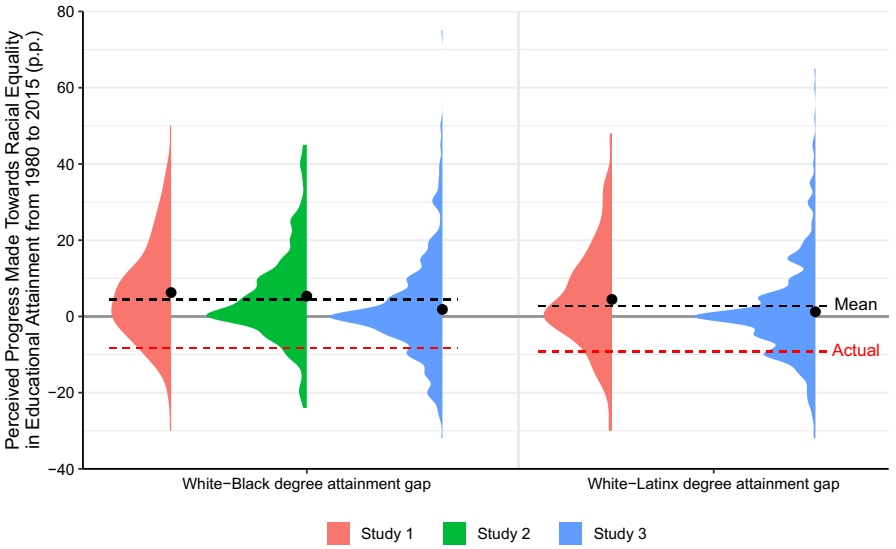

Fig. 1 Comparison between participants' estimates of progress towards achieving White-Black and White-Latinx equality in degree attainment in Studies 1-3 (distribution plots, with the black points denoting the individual study mean estimates, and the black dotted lines denoting the meta-analytic mean across all 3 studies), and actual progress towards equality based on NCES statistics (red dotted lines)

2.3 Results

Across all three studies, participants significantly misperceived the extent to which society has made progress toward racial educational equality. As depicted in Fig. 1 (dotted red lines), NCES statistics show that from 1980 to 2015, the educational attainment gaps between White and Black Americans and between White and Latinx Americans *widened* by 8.31 p.p. and 9.29 p.p., respectively. However, participants believed that these gaps had *narrowed* by $M_{\text{meta-analytic}} = 4.38$ p.p. [95% CIs: 1.70 p.p., 7.07 p.p.] and 2.72 p.p. [−0.45 p.p., 5.89 p.p.] over that period of time (dotted black lines)—both significant overestimates of progress, Hedges' $g_{\text{meta-analytic}} = -0.980$ [−1.219, −0.740] and −0.872 [−1.042, −0.701], $ps < .001$.

These findings support the general idea that many people may overestimate progress towards racial equality in educational attainment. However, because estimated progress was calculated based on participants' estimates of past and recent levels of educational attainment for three distinct racial groups, it is important to examine whether these overestimates of progress are primarily due to inaccurate estimates of (a) *past* levels of racial educational inequality, (b) *recent* levels of racial educational equality, (c) changes in *White* Americans' levels of educational attainment, and/or (d) changes in *Black* and *Latinx* Americans' levels of educational attainment.

We found that participants overestimated past degree attainment levels. NCES statistics show that the actual degree attainment rates of White, Black, and Latinx Americans in 1980 were 24.99%, 11.55%, and 7.66%, respectively. However, participants believed that these rates were, meta-analytically, 41.52% [32.96%, 50.07%],

20.40% [13.39%, 27.41%], and 16.02% [9.33%, 22.72%]. Critically, while these are all significant overestimates, $gs_{\text{meta-analytic}} = 0.605–0.829$, $ps \leq .003$, the overestimates for White Americans (16.53 p.p.) were much greater than those for Black Americans (8.84 p.p.) and Latinx Americans (8.37 p.p.). As a result, participants significantly overestimated the magnitudes of both 1980 racial educational attainment gaps—actual White-Black gap in 1980: 13.44 p.p., perceived White-Black gap: $M_{\text{meta-analytic}} = 21.00$ p.p. [17.05 p.p., 24.96 p.p.], $g_{\text{meta-analytic}} = 0.411$ [0.271, 0.550], $p < .001$; actual White-Latinx gap: 17.33 p.p., perceived White-Latinx gap: $M_{\text{meta-analytic}} = 23.74$ p.p. [16.84 p.p., 30.63 p.p.], $g_{\text{meta-analytic}} = 0.348$ [0.024, 0.671], $p = .035$.

Participants also overestimated recent degree attainment levels. While the actual degree attainment rates of White, Black, and Latinx Americans in 2015 were 43.03%, 21.28%, and 16.41%, respectively, participants believed they were, meta-analytically, 59.37% [47.06%, 71.68%], 42.70% [29.41%, 55.98%], and 35.33% [20.42%, 50.25%]—again, all significant overestimates, $gs_{\text{meta-analytic}} = 0.848–1.129$, $ps \leq .010$. However, in contrast to their estimates of past degree attainment, the overestimates for White Americans' recent degree attainment levels (16.34 p.p.) were *smaller* than those for Black Americans (21.41 p.p.) and Latinx Americans (18.92 p.p.). As a result of this shift in overestimates, participants significantly *underestimated* the magnitudes of both 2015 racial educational attainment gaps—actual White-Black gap in 2015: 21.75 p.p., perceived White-Black gap: $M_{\text{meta-analytic}} = 16.66$ p.p. [13.59 p.p., 19.73 p.p.], $g_{\text{meta-analytic}} = -0.272$ [−0.417, −0.127], $p < .001$; actual White-Latinx gap: 26.62 p.p., perceived White-Latinx gap: $M_{\text{meta-analytic}} = 20.84$ p.p. [17.13 p.p., 24.55 p.p.], $g_{\text{meta-analytic}} = -0.325$ [−0.563, −0.087], $p = .007$.

This shift—from more significantly overestimating White Americans' educational attainment in the past, to more significantly overestimating Black and Latinx Americans' educational attainment in the present—suggests a key explanation for why people might misperceive societal progress toward racial educational equality: they may believe Black and Latinx Americans have experienced significantly greater *gains* in educational attainment over time than White Americans have. As shown in Fig. 2, our results support this explanation: participants significantly *overestimated* the gains experienced by Black and Latinx Americans between 1980 and 2015—actual gains: 9.73 p.p. and 8.75 p.p., estimated gains: $Ms_{\text{meta-analytic}} = 22.24$ p.p. [15.75 p.p., 28.73 p.p.] and 19.25 p.p. [11.03 p.p., 27.47 p.p.], $gs_{\text{meta-analytic}} = 0.916$ [0.477, 1.356] and 0.799 [0.289, 1.310], $ps \leq .002$. By contrast, they were statistically *correct* in estimating White Americans' educational gains over that same time period—actual gains: 18.04%, estimated gains: $M_{\text{meta-analytic}} = 17.80\%$ [13.83%, 21.76%], $g_{\text{meta-analytic}} = -0.015$ [−0.344, 0.313], $p = .928$.

Finally, participants' just-world beliefs also predicted their perceptions of progress towards racial equality in educational attainment. Specifically, participants who believed more (versus less) strongly that they lived in a fair and just society were significantly more likely to believe that both Black Americans, $r_{\text{meta-analytic}} = 0.154$ [0.087, 0.222], $p < .001$, and Latinx Americans, $r_{\text{meta-analytic}} = 0.107$ [0.026, 0.187], $p = .009$, had experienced greater educational attainment gains over time. These participants were also more likely to believe that the educational gaps between both White and Black Americans, $r_{\text{meta-analytic}} = -0.146$ [−0.213, −0.079], p

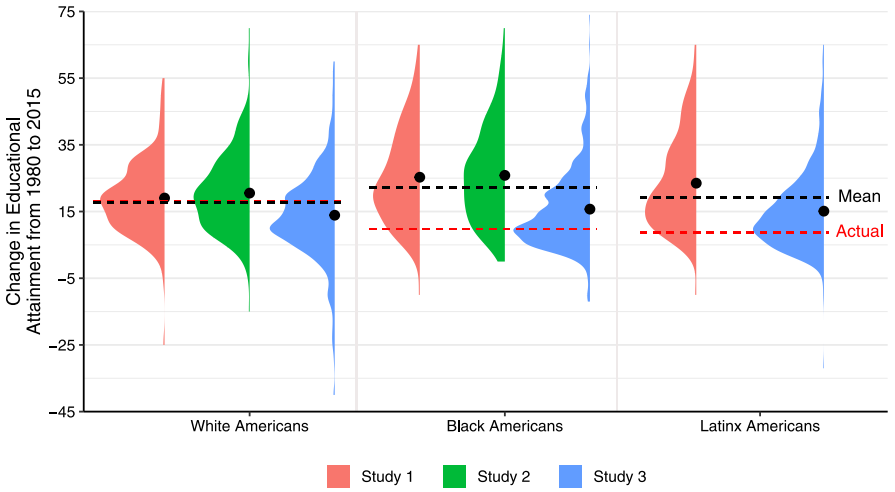

Fig. 2 Comparison between participants' estimates of educational attainment gains experienced by White, Black, and Latinx Americans from 1980 to 2015 (distribution plots, with the black points denoting the individual study mean estimates, and the black dotted lines denoting the meta-analytic mean across all 3 studies), and actual educational attainment gains made by each group over this period based on NCES statistics (red dotted lines)

$< .001$, and between White and Latinx Americans, $r_{\text{meta-analytic}} = -0.101$ [−0.182, −0.020], $p = .014$, had become smaller over time.

In summary, in all three studies, participants were largely unaware of the lack of progress that has been made towards achieving racial equality in education, and these inaccuracies were most pronounced among those who held the belief that their society is generally fair and just.

3 Studies 4-5

Given the general lack of awareness of the ongoing racial gaps in education attainment observed in Studies 1-3, Studies 4-5 tested whether (a) these beliefs could be experimentally corrected, (b) correcting these misperceptions could increase support for equity-enhancing policies, (c) these effects can persist over time, and (d) those with stronger just-world beliefs might be especially sensitive or resistant to the effects of such corrections. Many of the methods and conclusions of Studies 4-5 were similar. Thus, for concision, we again describe the methods together and present the result in a meta-analytically combined format wherever possible.

3.1 Participants

Participants in Study 4 were 177 American college students recruited from departmental participant pools at one private university and one liberal arts college, both

in the Northeastern United States, who received partial course credit for their participation in a 30-minute session. Participants in Study 5 were 444 American adults recruited from MTurk who were paid $2.00 USD for participating in an initial 10-minute session. In addition, 292 of these initial session participants (65.8% of the original sample) also chose to complete a 1-minute follow-up survey between 42 and 65 days after they completed the original Study 5 materials, for which they received an additional $0.20 USD. All data were collected between March and August 2022—approximately 1 year prior to the Supreme Court decision that deemed race-conscious admissions policies unconstitutional (Supreme Court of the United States 2023).

3.2 Methods

3.2.1 Experimental conditions

Participants in Studies 4-5 were first randomly assigned to either the corrective information intervention condition or to the no-information control condition. Those who were randomly assigned to the control condition (*N*s = 61 and 167) proceeded directly to the next part of the study without receiving an informational intervention.

For those assigned to the corrective information intervention (*N*s = 116 and 277), the aim was to first inform these participants that many Americans believe that degree attainment rates have become more equal between White and Black Americans over time, and to then demonstrate that this is, in reality, not the case. This two-pronged approach was modeled on prior research, which has shown both that providing naïve individuals with more correct information about racial disparities can help reduce their misperceptions about the magnitude of these disparities (Bonam et al. 2019; Callaghan et al. 2021), and that directly juxtaposing the mistaken information that people currently hold with such corrective information further enhances the likelihood that the knowledge correction effort will be successful (Ecker et al. 2011, 2022; Peyton et al. 2022).

To accomplish this, participants assigned to the corrective information intervention read one of two versions of an article created for these studies. Both versions were titled "Americans Overestimate Progress Towards Racial Educational Equality," were ostensibly presented as being from Forbes Magazine, and began with materials adapted from an existing Atlantic Magazine article by Richeson (2020) that explained that Americans tend to view their country's racial history as "a linear path, one that, admittedly, begins in a shameful period but moves unerringly in a single direction—toward equality." Both then stated that "new research demonstrates that this belief is often misguided," and presented a summary of the primary meta-analytic results from Studies 1-3—that Americans "correctly believed that in 1980, White Americans were about twice as likely to have earned a degree as Black Americans... [but] also believed that by 2015, this gap had been reduced to only 1.4 times."

The two versions then diverged slightly, as we were initially interested in whether participants would be differentially influenced by hearing that the White-Black

degree attainment gap had *widened* over time (as the absolute rates suggest [a White-Black attainment gap in 2015 of 21.7 p.p. > a White-Black attainment gap in 1980 of 13.4 p.p.]) versus that it had *not narrowed* over time (as a ratio of the rates would suggest [degree attainment rates of 43.0% and 21.3% for White and Black Americans in 2015 = "White Americans were still twice as likely as Black Americans to have a bachelor's degree or higher in 2015"]). Thus, the two versions diverged in whether they presented the gap as having not changed (*N*s = 59 and 137) or as having worsened over time (*N*s = 57 and 140), before presenting the same closing paragraph. Both versions used ratio framings ("White Americans were [still twice / 2.4 times] as likely as Black Americans to have a bachelor's degree or higher in 2015"), for two reasons. First, a pilot study suggested that participants found it easier to understand ratios versus absolute rates. Second, ratio framings only provide information about the *relative* past and recent attainment rates of White versus Black Americans; they did *not* provide the *specific* past, recent, or past-to-recent-change in attainment levels of White and Black Americans. This enabled us to examine, as in Studies 1-3, whether any effects of the articles on participants' perceptions of racial progress were primarily due to effects on their estimates of (a) past levels of racial educational inequality, (b) recent levels of racial educational equality, (c) changes in White Americans' levels of educational attainment, and/or (d) changes in Black Americans' levels of educational attainment. The ratio used in the "worsening" article was based on the rounded average of the White-Black and White-Latinx ratios (also rounded) in 2015.

Participants assigned to the corrective information intervention then completed article credibility and comprehension checks. The 7-item credibility check (e.g., "I found the article trustworthy"; McDonald's ωs = 0.92 and 0.98) confirmed that both articles were seen as equally believable and credible, $M\text{s}_{\text{meta-analytic}}$ = 5.26 [4.77, 5.75] (no-change article) and 5.23 [4.86, 5.60] (worsening article), $g_{\text{meta-analytic}}$ = 0.010, p = .920. A comprehension check asked participants to indicate which of the following 3 options was true of their article: "Americans correctly believe that racial educational outcomes became more equal between 1980 and 2015" (inaccurate description of both article), "Americans believe that racial educational outcomes became more equal between 1980 and 2015, but in reality, these outcomes did not become more or less equal over that time period" (most accurate description of the no-change article), or "Americans believe that racial educational outcomes became more equal between 1980 and 2015, but in reality, these outcomes became less equal over that time period" (most accurate description of the worsening article). This measure confirmed that most participants understood the specific message their article conveyed (i.e., 82.9% chose the response that most accurately described their article) and that nearly all participants understood the more general message that both articles conveyed—that the racial degree attainment gap had not narrowed over time (i.e., 96.5% selected either the 2nd or 3rd response option).

Finally, participants in all conditions completed a 5-item manipulation check (e.g., "How much progress has been made toward educational equality for racial minorities in the US?"; McDonald's ωs = 0.85 and 0.91; Brodish et al. 2008). Analyses revealed that both articles reduced participants' broad perceptions of progress towards racial educational equality compared to control participants, $M\text{s}_{\text{meta-analytic}}$

= 3.63 [3.39, 3.87] (no-change article) and 3.50 [3.05, 3.95] (worsening condition) versus 4.03 [3.50, 4.56] (control condition), gs$_{\text{meta-analytic}} \geq -0.333$, ps $\leq < .001$, and the effects of the two articles on this measure were statistically equivalent to each other, $g_{\text{meta-analytic}} = 0.083$, $p = .412$.

To summarize, while participants generally understood the specific message their article conveyed, both articles were effective at conveying the more general message that the racial degree attainment gap had not narrowed over time, and thus both equally reduced participants' general perceptions of progress towards racial educational equality compared to control participants. After considering these comprehension and manipulation check results, we made two analytic decisions. First, participants exposed to either article were only retained for analyses if their comprehension check responses (both the one described above, and an open-ended one in which participants wrote "a few sentence summary that you could use to explain the main point of the article to someone who has not read the article") indicated that they believed the racial degree attainment gap had either worsened or not improved. Second, the two article conditions were combined into a single corrective information intervention condition for analyses.

3.2.2 Attributions regarding the racial attainment gap and support for race-conscious admissions policies

We hypothesized that correcting participants' misperceptions regarding the persistence of racial inequities in bachelor's degree attainment would lead them to hold more egalitarian attributions regarding why these gaps persist, and would increase their support for policies that could narrow them. However, as discussed previously, many Americans believe that access to educational opportunities has been equal since *Brown* and the Civil Rights Acts (Gallup 2004). It therefore also seemed plausible that informing them that progress towards achieving racial equality in educational attainment had not been made despite this assumed equality of opportunity might produce backfire effects. Specifically, it might lead them to attribute this lack of progress to innate differences between racial groups, like intelligence or effort (e.g., Browman and Miele 2024; Hutchings et al. 2021), and would likely reduce their support for race-conscious admissions policies.

To test these competing possibilities, we first assessed participants' attitudes towards policies designed to enhance racial equity in education. Specifically, participants indicated their level of agreement or disagreement with four statements about race-conscious admissions policies, adapted from prior work (e.g., "In order to increase the number of Black students studying at their schools, colleges and universities should be allowed to consider race along with other factors when choosing students to admit"; Ms = 4.49 and 3.89, SDs = 1.27 and 1.83, McDonald's ωs = 0.87 and 0.94; Iyer et al. 2003; Kravitz and Platania 1993).

We then measured three sources of potential attributions for why the racial attainment gap persists. First, we assessed the extent to which participants' interpreted the lack of progress towards racial equity in educational attainment as indicative of a lack of effort by Black students (3 items, e.g., "In general, if Black college students simply tried harder, they would be just as successful as White college students"; Ms

= 3.34 and 4.50, *SD*s = 1.06 and 1.34, McDonald's ωs = 0.67 and 0.79; Ikizer and Blanton 2016).

Second, we tested whether whether participants' interpreted this lack of progress as evidence that academic ability is generally an innate and unchangeable trait, using the 8-item Implicit Theories of Intelligence Scale (e.g., "To be honest, people can't really change how intelligent they are"; *M*s = 4.76 and 4.68, *SD*s = 1.23 and 1.62, McDonald's ωs = 0.96 and 0.98; Dweck 2000) and the 4-item Brilliance Beliefs Scale (e.g., "Succeeding in college requires a special aptitude that just can't be taught"; *M*s = 2.77 and 2.68, *SD*s = 0.84 and 0.99, McDonald's ωs = 0.60 and 0.79; Leslie et al. 2015).

Third, we examined the extent to which participants' interpreted this lack of progress as evidence that people of different races are biologically different, including with regard to intelligence. In Study 4, these beliefs were assessed using three scales adapted from prior work: 10 items from the Genetically Based Racism Scale (e.g., "Racial differences in academic ability are caused by genetics"; $M = 2.21$, $SD = 1.10$, McDonald's $\omega = 0.96$; Parrott et al. 2005); the 22-item Race Conceptions Scale (e.g., "Racial groups are primarily determined by biology"; $M = 4.04$, $SD = 0.73$, McDonald's ωs = 0.87; Williams and Eberhardt 2008); and 3 items from the Belief in Race as a Biological Construct Scale (e.g., "People from different races are biologically/genetically different from one another"; $M = 3.46$, $SD = 1.43$, McDonald's ωs = 0.83; Tawa and Kim 2011). Study 5 included only the same 10 items from the Genetically Based Racism Scale ($M = 2.35$, $SD = 1.34$, McDonald's ωs = 0.97; Parrott et al. 2005). All measures described in this section used 1 ("strongly disagree") to 7 ("strongly agree") response scales.

3.2.3 Perceived progress toward racial equality in education attainment

In Study 5, participants indicated their perception of past and recent educational attainment by White and Black Americans, using the same measures as in Studies 1-3—White Americans: past: $M = 40.04\%$ ($SD = 19.09\%$), recent: 50.83% (19.48%); Black Americans: past: 19.24% (11.13%), recent: 31.06% (16.40%).

3.2.4 Persistence of corrective information effects over time

Because many Americans' misperceptions of racial inequities in bachelor's degree attainment are likely the result of continuous exposure to the narrative that their country is making constant progress toward justice and equity (Pinkney 1986; Seamster and Ray 2018), it is important to examine whether the effects of exposure to corrective information can persist over time, or whether they degrade as people return to the contexts that have continually promoted the racial progress narrative (Callaghan et al. 2021; Salter et al. 2018). Thus, Study 5 participants also re-completed (T2) the same measures of their perceptions of White and Black Americans' past and recent levels of educational attainment—White Americans: past: $M = 34.43\%$ ($SD = 18.58\%$), recent: 46.68% (18.20%); Black Americans: past: 16.61% (10.09%), recent: 29.82% (14.65%)—and their levels of support for race-conscious

admissions policies ($M = 3.92$, $SD = 1.87$) between 42 and 65 days after the initial study session (T1).

3.2.5 Just-world beliefs

Finally, as discussed, we found in Studies 1-3 that misperceptions of progress were most pronounced among those who believed their society to be generally fair and just. In Studies 4-5, we therefore examined whether the misperceptions and attitudes of those with stronger just-world beliefs might be especially sensitive or resistant to the corrective effects of such an intervention. Thus, in both studies, we assessed all participants' just-world beliefs using the same measure as in Studies 1-3 (Ms = 3.71 and 3.86, SDs = 0.99 and 1.46, McDonald's ωs = 0.76 and 0.94). Participants' just-world beliefs did not statistically differ by condition in either study, ts ≤ 0.90, ps $\geq .370$.

3.3 Results

3.3.1 Perceptions of progress toward racial equality in education attainment

As shown in Fig. 3, Study 5 participants in the no-information control condition misestimated that the White-Black educational attainment gap had narrowed over time by 5.84 p.p. ($SD = 15.63$ p.p.). This is similar to Studies 1-3, in which participants misestimated that the educational attainment gap between Black and White Americans had narrowed over time by 4.38 p.p. [95% CIs: 1.70

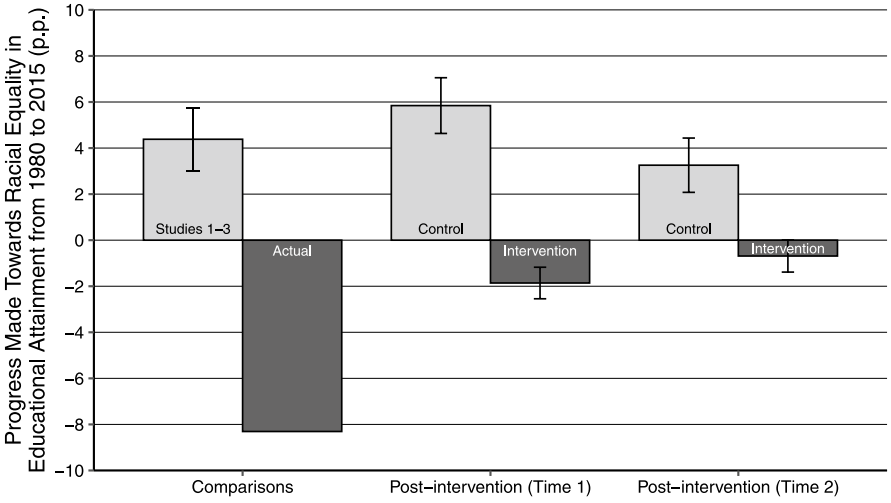

Fig. 3 Estimates of progress towards achieving White-Black equality in degree attainment from participants in the corrective information intervention and control conditions in Study 5, with the meta-analytic estimate of progress from Studies 1-3 and the actual level of progress based on NCES statistics included as comparisons. Error bars represent ±1 *SEM*

p.p., 7.07 p.p.]. By contrast, exposure to corrective information led participants to more accurately estimate that the gap had widened over time, by 1.86 p.p. (*SD* = 11.38 p.p.). This between-condition difference was statistically significant, $t(272.60) = 5.54$, $p < .001$, Hedges' $g = 0.585$.

Most notably, this finding was driven solely by the corrective information's effect on perceptions of Black Americans' *recent* educational attainment levels. Participants in the control condition estimated Black Americans' educational attainment levels in 2015 ($M = 36.10\%$, $SD = 17.88\%$) to be significantly higher (and thus were less accurate) than did those who were exposed to corrective information ($M = 28.02\%$, $SD = 14.65\%$), $t(298.27) = 4.93$, $p < .001$, Hedges' $g = 0.506$ (actual Black attainment in 2015: 21.28%). As a result, participants in the control condition estimated that Black Americans had experienced significantly greater educational attainment gains over time ($M = 17.94$ p.p., $SD = 12.82$ p.p.) than did those exposed to the corrective information ($M = 8.12$ p.p., $SD = 12.00$ p.p.), $t(441) = 8.13$, $p < .001$, Hedges' $g = 0.796$. In fact, while (similar to Studies 1-3) those in the control condition overestimated Black Americans' educational attainment gains over time—actual Black attainment change from 1980 to 2015: 9.73 p.p., $t(166) = 8.27$, $p < .001$, Hedges' $g = 0.637$—those exposed to corrective information *underestimated* Black Americans' educational attainment gains, $t(275) = -2.22$, $p = .027$, Hedges' $g = -0.133$. While such underestimation also denotes inaccuracy, participants exposed to corrective information were more accurate in their estimates of Black Americans' educational attainment gains (inaccuracy = 1.61 p.p.) than those in the control condition (inaccuracy = 8.21 p.p.). By contrast, exposure to corrective information did not significantly influence perceptions of the past, recent, or past-to-recent-change in educational attainment levels of White Americans, or of the past educational attainment levels of Black Americans, ts ≤ 1.59, ps $\geq .112$.

3.3.2 Attributions regarding the racial attainment gap and support for race-conscious admissions policies

Exposure to corrective information had significant effects on participants' attributions and policy preferences regarding the racial attainment gap. Participants exposed to corrective information attributed Black college students' academic struggles significantly less to a lack of effort ($M_{\text{meta-analytic}} = 3.81$ [2.62, 5.01]) than those in the control condition ($M_{\text{meta-analytic}} = 4.13$ [3.13, 5.12]), $g_{\text{meta-analytic}} = -0.235$, $p = .038$. Those exposed to corrective information also reported significantly greater support for race-conscious admissions policies ($M_{\text{meta-analytic}} = 4.31$ [3.73, 4.90]) than those in the no-information control condition ($M_{\text{meta-analytic}} = 3.96$ [3.42, 4.49]), $g_{\text{meta-analytic}} = 0.208$, $p = .013$. Critically, no backfire effects emerged: compared to control participants, exposure to corrective information did not significantly strengthen participants' views that academic ability is unchangeable or that people from different racial groups are biologically different, ts ≤ 1.45, ps $\geq .15$.

3.3.3 Persistence of corrective information effects over time

Examining Study 5's longitudinal data, we found that exposure to the corrective information at T1 continued to yield significantly lower estimates of progress towards White-Black educational attainment equality at T2 compared to those assigned to the control condition at T1. Specifically, at T2, treated participants continued to estimate that, between 1980 and 2015, the White-Black achievement gap *widened* (by 0.69 p.p. [$SD = 9.09$ p.p.]), while those in the control condition continued to estimate that the gap had *narrowed* (by 3.26 p.p. [$SD = 13.02$ p.p.]), between-condition difference: $t(202.64) = 2.88$, $p = .004$, $g = 0.361$ (see Fig. 3).

Critically, however, the magnitude of the estimated difference in progress between conditions diminished significantly between T1 and T2, $F(1, 290) = 7.02$, $p = .008$. Specifically, just as the main effects of condition at T1 were driven solely by the corrective information's effect on perceptions of Black Americans' *recent* educational attainment levels, the reduction in estimates of progress toward White-Black educational equality were driven solely by significant between-condition changes from T1 to T2 (i.e., a condition × time interaction) in participants' estimates of Black Americans' recent educational attainment levels, $F(1, 290) = 18.72$, $p < .001$. That is, from T1 to T2, corrective information condition participants' estimates of Black Americans' recent educational attainment levels grew by 2.68 p.p., while, unexpectedly, control participants' overestimates fell by 4.34 p.p.—both statistically significant changes, ts ≥ 2.56, ps $\leq .011$. As a result, the between-condition difference in participants' estimates of Black Americans' recent educational attainment levels were no longer significant at T2, $t(290) = -1.62$, $p = .107$.

Between-condition changes from T1 to T2 also emerged in participants' perceptions of Black Americans' educational attainment gains over time, $F(1, 290) = 26.60$, $p < .001$. From T1 to T2, corrective information participants' estimates of the 1980-2015 change in Black Americans' attainment levels grew by 5.24 p.p.—a statistically significant change, $t(290) = -5.90$, $p < .001$. This means that while these participants had significantly *underestimated* Black Americans' educational gains at T1, by T2, they had rejoined untreated participants in significantly *overestimating* these gains, $t(169) = 2.31$, $p = .022$, $g = 0.319$. By contrast, control participants' estimates did not significantly change from T1 to T2, $t(290) = 1.76$, $p = .079$. As a result, the between-condition difference in participants' estimates of Black Americans' educational attainment gains over time were smaller at T2 than they had been at T1, though still statistically significant, $t(290) = -3.42$, $p < .001$. No significant between-condition changes from T1 to T2 emerged for perceptions of the educational attainment levels (past or recent) or gains for White Americans, or of the past educational attainment levels of Black Americans, Fs ≤ 3.51, ps $\geq .062$.

Finally, support for race-conscious admissions policies did not change significantly from T1 to T2, neither for participants in the corrective information condition, $t(290) = -0.07$, $p = .941$, nor for those in the control condition, $t(290) = -0.97$, $p = .335$. However, the non-significant changes that occurred were sufficient to render the between-condition differences non-significant at T2, $t(290) = 1.45$, $p = .149$. Supporting the possibility that such changes in policy support were the result of the above-mentioned changes in participants' perceptions of Black

Americans' attainment gains, we found that across conditions, the more these estimates increased from T1 to T2, the (marginally) more their support for race-conscious admissions decreased from T1 to T2, $r(290) = -0.10$, $p = .080$.

3.3.4 Moderation by just-world beliefs

Finally, we examined whether the above effects were similar or different among those with stronger versus weaker just-world beliefs. For concision, we provide an overview of key findings here, with complete results available in the SOM ("Supplementary Measures and Analyses").

Most notably, these analyses revealed that the backsliding effects described above were largely driven by participants with stronger just-world beliefs. Among participants exposed to the corrective information at T1, those with stronger just-world beliefs (+1 *SD*) showed significant increases from T1 to T2 in the inaccuracies of their perceptions of Black Americans' recent educational attainment levels, $EMM_{\text{T1-T2}} = -4.12$, $t = -2.70$, $p = .007$, and of Black Americans' educational gains over time, $EMM_{\text{T1-T2}} = -6.44$, $t = -4.96$, $p < .001$. Similarly, support for race-conscious admissions policies diminished sufficiently among those with stronger just-world beliefs to erase the significant effect of the intervention on these participants by T2, $t(288) = 0.83$, $p = .409$.

4 General discussion

The dominant historical narrative in the United States has long focused on highlighting moments of racial progress while downplaying continuing trends of racial inequality (Hagerman 2018; Kraus et al. 2022; Richeson 2020; Southern Poverty Law Center 2018). The present findings demonstrate an important consequence of this pervasive narrative: many people in the U.S. may have internalized the view that significant progress toward racial equality in education has been made over time, even when it has not.

This work also highlights one mechanism by which the narrative of racial progress might actually hinder progress: by shifting the criteria people use to judge whether sufficient progress has already been made. For example, in 2019 and 2020, degree attainment levels for Black and Latinx Americans, respectively, reached 29.1% and 24.9% (see the SOM ["Actual and Perceived Degree Attainment Metrics"] for further discussion of these post-Studies 1-3 attainment levels, which do not alter the primary conclusions discussed above). In judging whether these attainment levels indicate sufficient racial progress, a person might compare these values to an envisioned ideal of true racial equality (Brodish et al. 2008; DeBell 2017). Such a perspective would highlight that these attainment levels that Black and Latinx Americans only reached in 2019 and 2020 were reached by White Americans around 1995 and 1980, respectively, and they may therefore lead them to conclude that race-conscious policies continue to be necessary to achieve equity. By contrast, another person might compare these values to Black and Latinx Americans' past degree attainment levels (Brodish et al. 2008). This perspective would highlight

that these values are the highest ever degree attainment levels for these groups and represent dramatic increases compared to the past (e.g., 11.6% and 7.7% in 1980), and they may therefore conclude that race-conscious policies are no longer needed. Thus, the present findings demonstrate the potential implications of the mainstream narrative's focus on comparing the present to the past while downplaying continuing trends of racial inequality: a reduction in support for equity-enhancing policies (Kraus et al. 2022; Onyeador et al. 2020; Richeson 2020). Indeed, part of the Supreme Court's logic for prohibiting universities' use of race-conscious admissions policies—specifically, the "Court's view [in 2003] that race-based preferences would, by 2028, be unnecessary" (Supreme Court of the United States 2023, p. 33) because "the number of minority applicants with high grades and test scores has indeed increased" (Supreme Court of the United States 2003, p. 343)—appears to draw from a past-focused view of progress that ignores continuing trends of inequity.

Optimistically, this work also demonstrates that these misperceptions of progress may be sensitive to correction. Participants presented with information that directly contradicted these misperceptions adopted more accurate estimates of the White-Black degree attainment gap. Corroborating prior work (Callaghan et al. 2021), they also maintained closer-to-accurate beliefs up to 2 months after exposure to this intervention. However, while prior corrective interventions have led people to *distort past inequities* (i.e., "if there has not been too much progress... the past must not have been as bad as I thought," Onyeador et al. 2020, p. 758), the present approach successfully *increased people's accuracy regarding recent educational inequities*, specifically by increasing their accuracy regarding Black Americans' more recent degree attainment levels. The ability of the present approach to increase accuracy is important because, as Studies 4-5 demonstrate, awareness of the true state of racial educational inequities is likely an important prerequisite for the introduction and support of policies designed to reduce such inequities (Kraus et al. 2022; Richeson 2020).

Also in contrast to prior work (Callaghan et al. 2021; Hutchings et al. 2021), exposure to corrective information had positive consequences for people's attitudes about both the individual efforts of students from systematically marginalized groups, and policies designed to enhance racial equality in education, without strengthening beliefs that can negatively influence such attitudes (e.g., beliefs that associate race with intellectual capacity; Browman and Miele 2024). These findings support the idea that the widespread ambivalence toward racial equity-enhancing policies (see Pew Research Center 2022, and supplementary analyses from the present Studies 1-3), and the tendency to predominantly attribute racial inequity to individual-level factors like ability and effort, may be due to both a lack of knowledge about the true state of racial inequities today (Salter et al. 2018) and to a motivated tendency to ignore or minimize those realities in order to maintain the psychologically comforting view that their society is fair and just (see Kraus et al. 2019, and the present Studies 1-3). Indeed, prior research suggests that White and wealthier individuals—who were oversampled in the present work—are more likely to lack accurate knowledge about the state of racial inequities (Bonam et al. 2019), and to view their society's structures, institutions, and trajectories as fair and just (Dalbert & Radant, 2004; Hoolihan and Thomas 2020).

Critically, however, the benefits of corrective information for both accuracy and policy support declined over our relatively short follow-up period. In line with much extant research on correcting misinformation (see Chan and Albarracín 2023), these findings suggest that a one-time correction is unlikely to permanently dislodge a deeply held narrative of racial progress, as participants are likely to return to the kinds of daily interactions and contexts that originally led them to internalize that narrative (Salter et al. 2018). This highlights the importance of creating more comprehensive and mainstream efforts to *preempt* the internalizing of inaccurate historical narratives (Pinedo et al. 2021; Salter et al. 2018). Indeed, a wealth of research on inoculation theory suggests that just as vaccinations containing a weakened dose of a virus can trigger the production of antibodies to protect against future infection, exposing a target to a "microdose" of misinformation on a topic while preemptively debunking (or "prebunking") that misinformation can help them develop attitudinal resistance against future misinformation on that topic (McGuire 1964; Roozenbeek et al. 2022). Unfortunately, this runs counter to recent attempts by state legislatures to restrict teaching about the continued inequities that exist between systematically marginalized and advantaged groups (Young and Friedman 2022). In effect, such legislation serves to limit teachers' ability to prebunk the notion that the country's racial history has moved "unerringly... toward equality" (Richeson 2020). This, our findings suggest, could strengthen the misleading narrative that racial inequities are continuously decreasing (Pinedo et al. 2021; Ray 2022), and therefore that equity-enhancing policies are no longer needed (Kraus et al. 2022; Onyeador et al. 2020; Richeson 2020).

Finally, regarding generality, we note that many participants in the present studies were more educated, higher in household income, and more likely to be White than the U.S. population at-large. Notably, it seems probable that people with or currently working towards a bachelor's degree may be more likely to assume that the average American also has a bachelor's degree (e.g., Hoy and Mager 2021), which could produce greater overestimates among such participants. In addition, people's estimates of educational attainment rates may be sensitive to how they are asked to estimate these outcomes—for example, being asked to estimate absolute rates of attainment (as in the present work) versus relative rates of attainment (e.g., Black Americans' rates of attainment relative to White Americans'). Thus, in order to attain a more complete understanding of the nature of these misperceptions in the American *general* public, future studies should aim to assess these misperceptions with more nationally-representative samples, as well as with alternative measurement approaches.

That being said, prior research has shown that the participants who were oversampled in the present work—White, wealthier, and more educated individuals—have outsized influence on local and national policies in the United States (Schaffner et al. 2020), are more likely to focus on progress compared to past inequities (Brodish et al. 2008), and are more likely to view their society as a fair and just place (Kraus et al. 2017). As a result, if people's misperceptions of educational inequities inform their levels of opposition to equity-enhancing policies (as the present findings suggest), then it is among the populations examined in the present work that such misperceptions could represent an especially potent barrier to the implementation

of more equitable policies. The present findings may therefore be especially valuable for understanding for whom corrective interventions might be most effective at influencing policy decisions.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11218-025-10035-7.

Declarations

Conflict of interest The authors declare no competing interests related to this work.

References

Bonam, C. M., Nair Das, V., Coleman, B. R., & Salter, P. (2019). Ignoring history, denying racism: Mounting evidence for the Marley hypothesis and epistemologies of ignorance. *Social Psychological and Personality Science, 10*(2), 257–265. https://doi.org/10.1177/1948550617751583

Brodish, A. B., Brazy, P. C., & Devine, P. G. (2008). More eyes on the prize: Variability in White Americans' perceptions of progress toward racial equality. *Personality and Social Psychology Bulletin, 34*(4), 513–527. https://doi.org/10.1177/0146167207311337

Browman, A. S., & Miele, D. B. (2024). Are low-ability students mentally represented as low-SES, academically incapable, and undeserving of support? *Journal of Social Issues*. https://doi.org/10.1111/josi.12649

Callaghan, B., Harouni, L., Dupree, C. H., Kraus, M. W., & Richeson, J. A. (2021). Testing the efficacy of three informational interventions for reducing misperceptions of the Black–White wealth gap. *Proceedings of the National Academy of Sciences, 118*(38), e2108875118. https://doi.org/10.1073/pnas.2108875118

Carnevale, A. P., Mabel, Z., & Campbell, K. P. (2023). *Race-conscious affirmative action: What's next*. Georgetown University Center on Education and the Workforce.

Chan, M. S., & Albarracín, D. (2023). A meta-analysis of correction effects in science-relevant misinformation. *Nature Human Behaviour, 7*(9), 1514–1525. https://doi.org/10.1038/s41562-023-01623-8

Chetty, R., Friedman, J., Saez, E., Turner, N., & Yagan, D. (2017). *Mobility report cards: The role of colleges in intergenerational mobility*. https://web.archive.org/web/20181004072206/http://www.nber.org/papers/w23618

Dalbert, C. (1999). The world is more just for me than generally: About the personal belief in a just world scale's validity. *Social Justice Research, 12*(2), 79–98. https://doi.org/10.1023/A:1022091609047

Dalbert, C., & Radant, M. (2004). Parenting and young adolescents' belief in a just world. *The justice motive in adolescence and young adulthood: Origins and consequences* (pp. 11–25). Routledge. https://doi.org/10.4324/9780203575802

DeBell, M. (2017). Polarized opinions on racial progress and inequality: Measurement and application to affirmative action preferences. *Political Psychology, 38*(3), 481–498. https://doi.org/10.1111/pops.12342

Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Taylor & Francis.

Ecker, U. K., Lewandowsky, S., Swire, B., & Chang, D. (2011). Correcting false information in memory: Manipulating the strength of misinformation encoding and its retraction. *Psychonomic Bulletin & Review, 18*(3), 570578.

Ecker, U. K., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L. K., Brashier, N., Kendeou, P., Vraga, E. K., & Amazeen, M. A. (2022). The psychological drivers of misinformation belief and its resistance to correction. *Nature Reviews Psychology, 1*(1), 13–29. https://doi.org/10.1038/s44159-021-00006-y

Gallup. (2003). *Public: Only merit should count in college admissions*. https://news.gallup.com/poll/8689/Public-Only-Merit-Should-Count-College-Admissions.aspx

Gallup. (2004). *Race and education 50 years after brown v. Board of education*. https://news.gallup.com/poll/11686/Race-Education-Years-After-Brown-Board-Education.aspx

Hagerman, M. A. (2018). *White kids: Growing up with privilege in a racially divided America*. NYU Press.

Hill, A. J. (2017). State affirmative action bans and STEM degree completions. *Economics of Education Review, 57*, 31–40. https://doi.org/10.1016/j.econedurev.2017.01.003

Hoolihan, E. C., & Thomas, K. J. (2020). The relationships between bonding social capital, personal belief in a just world and well-being: An analysis of a diverse student sample. *Social Psychology of Education, 23*(6), 1609–1626. https://doi.org/10.1007/s11218-020-09596-6

Hoy, C., & Mager, F. (2021). Why are relatively poor people not more supportive of redistribution? Evidence from a randomized survey experiment across ten countries. *American Economic Journal: Economic Policy, 13*(4), 299–328. https://doi.org/10.1257/pol.20190276

Hutchings, V. L., Carr, S., Hudgins, K., & Walker, Z. (2021). *If only they knew*: *Informing blacks and whites about the racial wealth gap*. https://www.youtube.com/watch?v=FmnUu2f5iA4

Ikizer, E. G., & Blanton, H. (2016). Media coverage of "wise'' interventions can reduce concern for the disadvantaged. *Journal of Experimental Psychology: Applied, 22*(2), 135–147. https://doi.org/10.1037/xap0000076

Iyer, A., Leach, C. W., & Crosby, F. J. (2003). White guilt and racial compensation: the benefits and limits of self-focus. *Personality and Social Psychology Bulletin, 29*(1), 117–129. https://doi.org/10.1177/0146167202238377

Jost, J. T., Ledgerwood, A., & Hardin, C. D. (2008). Shared reality, system justification, and the relational basis of ideological beliefs. *Social and Personality Psychology Compass, 2*(1), 171–186. https://doi.org/10.1111/j.1751-9004.2007.00056.x

Kiatpongsan, S., & Norton, M. I. (2014). How much (more) should CEOs make? A universal desire for more equal pay. *Perspectives on Psychological Science, 9*(6), 587–593. https://doi.org/10.1177/1745691614549773

Kraus, M. W., Onyeador, I. N., Daumeyer, N. M., Rucker, J. M., & Richeson, J. A. (2019). The misperception of racial economic inequality. *Perspectives on Psychological Science, 14*(6), 899–921. https://doi.org/10.1177/1745691619863049

Kraus, M. W., Rucker, J. M., & Richeson, J. A. (2017). Americans misperceive racial economic equality. *Proceedings of the National Academy of Sciences, 114*(39), 10324–10331. https://doi.org/10.1073/pnas.1707719114

Kraus, M. W., Torrez, B., & Hollie, L. (2022). How narratives of racial progress create barriers to diversity, equity, and inclusion in organizations. *Current Opinion in Psychology, 43*, 108–113. https://doi.org/10.1016/j.copsyc.2021.06.022

Kravitz, D. A., & Platania, J. (1993). Attitudes and beliefs about affirmative action: Effects of target and of respondent sex and ethnicity. *Journal of Applied Psychology, 78*(6), 928–938. https://doi.org/10.1037/0021-9010.78.6.928

Leslie, S., Cimpian, A., Meyer, M., & Freeland, E. (2015). Expectations of brilliance underlie gender distributions across academic disciplines. *Science, 347*(6219), 262–265. https://doi.org/10.1126/science.1261375

Liu, H. (2022). How do affirmative action bans affect the racial composition of postsecondary students in public institutions? *Educational Policy, 36*(6), 1348–1372. https://doi.org/10.1177/0895904820961007

Long, M. C., & Bateman, N. A. (2020). Long-run changes in underrepresentation after affirmative action bans in public universities. *Educational Evaluation and Policy Analysis, 42*(2), 188–207. https://doi.org/10.3102/0162373720904433

Lyke, S. B. (2024). Defense against the dark arts: The diversity rationale and the failed affirmative defense of affirmative action. *Washington and Lee Law Review, 80*(5), 1873–1935.

McCall, L., Burk, D., Laperrière, M., & Richeson, J. A. (2017). Exposure to rising inequality shapes Americans' opportunity beliefs and policy support. *Proceedings of the National Academy of Sciences, 114*(36), 9593–9598. https://doi.org/10.1073/pnas.1706253114

McGuire, W. J. (1964). Inducing resistance against persuasion: Some contemporary approaches. *Advances in Experimental Social Psychology, 1*, 191–229. https://doi.org/10.1016/S0065-2601(08)60052-0

National Center for Education Statistics. (2022). *Table 104.20. Percentage of persons 25 to 29 years old with selected levels of educational attainment, by race/ethnicity and sex: Selected years, 1920 through 2022*. https://nces.ed.gov/programs/digest/d22/tables/dt22_104.20.asp

Norton, M. I., & Ariely, D. (2011). Building a better America-one wealth quintile at a time. *Perspectives on Psychological Science, 6*(1), 9–12. https://doi.org/10.1177/1745691610393524

Onyeador, I. N., Daumeyer, N. M., Rucker, J. M., Duker, A., Kraus, M. W., & Richeson, J. A. (2020). Disrupting beliefs in racial progress: Reminders of persistent racism alter perceptions of past, but not current, racial economic equality. *Personality and Social Psychology Bulletin, 47*, 753–765. https://doi.org/10.1177/0146167220942625

Parrott, R. L., Silk, K. J., Dillow, M. R., Krieger, J. L., Harris, T. M., & Condit, C. M. (2005). Development and validation of tools to assess genetic discrimination and genetically based racism. *Journal of the National Medical Association, 97*(7), 980–990.

Pew Research Center. (2022). *U.S. Public continues to view grades, test scores as top factors in college admissions*. https://www.pewresearch.org/fact-tank/2022/04/26/u-s-public-continues-to-view-grades-test-scores-as-top-factors-in-college-admissions/

Peyton, K., Weiss, C. M., & Vaughn, P. E. (2022). Beliefs about minority representation in policing and support for diversification. *Proceedings of the National Academy of Sciences, 119*(52), e2213986119. https://doi.org/10.1073/pnas.2213986119

Pinedo, A., Vossoughi, N., & Lewis, N. A. (2021). Critical pedagogy and children's beneficial development. *Policy Insights from the Behavioral and Brain Sciences, 8*(2), 183–191. https://doi.org/10.1177/23727322211033000

Pinkney, A. (1986). *The myth of black progress*. Cambridge University Press.

Ray, V. (2022). *On critical race theory: Why it matters & why you should care*. Penguin Random House.

Richeson, J. A. (2020). Americans are determined to believe in black progress. *The Atlantic*. https://webcache.googleusercontent.com/search?q=cache:_mxvu0KpFUoJ:https://www.theatlantic.com/magazine/archive/2020/09/the-mythology-of-racial-progress/614173/+&cd=2 &hl=en &ct=clnk &gl=us

Roozenbeek, J., van der Linden, S., Goldberg, B., Rathje, S., & Lewandowsky, S. (2022). Psychological inoculation improves resilience against misinformation on social media. *Science Advances, 8*(34), eabo6254. https://doi.org/10.1126/sciadv.abo6254

Rothstein, R. (2014). *Brown v. Board at 60: Why have we been so disappointed? What have we learned?* https://files.epi.org/2014/EPI-Brown-v-Board-04-17-2014.pdf

Salter, P. S., Adams, G., & Perez, M. J. (2018). Racism in the structure of everyday worlds: a cultural-psychological perspective. *Current Directions in Psychological Science, 27*(3), 150–155. https://doi.org/10.1177/0963721417724239

Schaffner, B. F., Rhodes, J. H., & La Raja, R. J. (2020). *Hometown inequality: Race, class, and representation in American local politics*. Cambridge University Press.

Seamster, L., & Ray, V. (2018). Against teleology in the study of race: Toward the abolition of the progress paradigm. *Sociological Theory, 36*(4), 315–342. https://doi.org/10.1177/0735275118813614

Southern Poverty Law Center. (2018). *Teaching hard history: American slavery*. https://www.splcenter.org/sites/default/files/tt_hard_history_american_slavery.pdf

Supreme Court of the United States. (1954). *Brown v. Board of education of topeka*. https://tile.loc.gov/storage-services/service/ll/usrep/usrep347/usrep347483/usrep347483.pdf

Supreme Court of the United States. (2003). *Grutter v. Bollinger* (539 U.S. 306).

Supreme Court of the United States. (2023). *Students for fair admissions v. President and fellows of harvard college*. https://www.scotusblog.com/case-files/cases/students-for-fair-admissions-inc-v-president-fellows-of-harvard-college/

Tawa, J., & Kim, G. S. (2011). How does biological belief in race relate to our feelings towards in-group and out-groups? A cognitive dissonance framework. *Current Research in Social Psychology, 16*(4), 1–10.

Wilkins, V. M., & Wenger, J. B. (2014). Belief in a just world and attitudes toward affirmative action. *Policy Studies Journal, 42*(3), 325–343. https://doi.org/10.1111/psj.12063

Williams, M. J., & Eberhardt, J. L. (2008). Biological conceptions of race and the motivation to cross racial boundaries. *Journal of Personality and Social Psychology, 94*, 1033–1047. https://doi.org/10.1037/0022-3514.94.6.1033

Young, J. C., & Friedman, J. (2022). *America's censored classrooms*. https://pen.org/report/americas-censored-classrooms/

Alexander S. Browman Ph.D., is an Assistant Professor of Psychology at the College of the Holy Cross. A social and educational psychologist by training, his research explores the beliefs that people hold about education and educational disparities, and how understanding these beliefs can help make education more equitable. In particular, he examines how students, teachers, and the public come to internalize inequities in educational contexts and policies, and the associated consequences academic motivation and performance, especially for students from less advantaged, lower-opportunity backgrounds. He then works to develop interventions designed to reform these internalized beliefs and the structural policies and practices that maintain them.

David B. Miele Ph.D., is an Associate Professor in the Department of Counseling, Developmental, and Educational Psychology at Boston College. He investigates students' beliefs about their ability, effort, and motivation, and examines how these beliefs influence their goal pursuit and self-regulation in academic contexts. At the broadest level, he is interested in how students can develop into effective, independent learners. Though much of his research has examined the motivation of college students, he is also interested in the learning and development of elementary school students and adolescents. In addition, he conducts research with parents and teachers in order to better understand how their beliefs influence the ways in which they support students' learning and motivation.

Supplementary Online Materials (SOM) for *Misperceptions of Progress Towards Racial Equality in Educational Attainment and Their Implications for Policy Preferences*

Data Exclusions

In Studies 1-3, four criteria were used to exclude data. First, 5 and 2 responses were excluded from Studies 2 and 3, respectively, because the participant either completed the study twice (so their second set of responses were removed), or they participated in both studies (so their Study 2 responses were removed). Second, partial or complete data of 1 participant in each of Studies 1 and 2 were excluded because they contained suspicious patterns of identical numeric responses to oppositely-valenced items (i.e., straightlining). Third, the degree estimates of 1 participant in Study 2 were excluded from analyses because their responses, which were meant to be percentages, were uninterpretable (e.g., 500000, 150000). Finally, 78 participants were excluded from Study 3 for having IP addresses that were identified as suspicious (Dennis et al., 2019; Prims et al., 2018) or non-American, or for failing attention checks. For the latter, Study 3 participants were presented with 2 attention check items: "I am accessing this survey via the internet" and "Right now, I do not have internet access." Participants responded using 7-point ("strongly disagree" to "strongly agree") response scales, and the items were embedded among numerous other items with the same 7-point response scale. As Study 3 was completed online, participants were excluded from analyses if they did not respond "strongly agree" and "strongly disagree," respectively. All of these exclusions were made before primary analyses were conducted, and the sample sizes noted in the main text and in Table 1 are the totals following the exclusions described here.

The same exclusion criteria as in Studies 1-3 were also used in Studies 4-5. First, 1 Study 5 participant's responses were excluded because the participant completed the study twice (so their second set of responses was removed). Second, partial or complete data of 1

and 2 participants in Studies 4-5, respectively, were excluded because they contained suspicious patterns of identical numeric responses to oppositely-valenced items (i.e., straightlining). Third, 3 Study 4 participants' support for race-conscious admissions scores were excluded because (using the criteria described in Studies 1-3) it was determined that they did not have an adequate understanding of what the term "affirmative action" meant. Finally, 23 and 60 participants were excluded from Studies 4-5, respectively, for either having IP addresses that were identified as suspicious or non-American, or for failing attention or comprehension checks. For the latter, in both studies, participants were presented with one attention check item—"This is here to screen out random responding; do not give a response to this item"—with a 7-point response scale, embedded among numerous other items with the same 7-point response scale. Participants were excluded from analyses if they provided a response to this item.

Actual and Perceived Degree Attainment Metrics

As noted in the main text, actual educational attainment rates for White, Black, and Latinx Americans were taken from statistics produced by the National Center for Education Statistics (NCES; National Center for Education Statistics, 2022). Specifically, data were drawn from the 2015 Digest of Education Statistics' Table 104.20 ("Percentage of persons 25 to 29 years old with selected levels of educational attainment, by race/ethnicity and sex"). This table provided data on the percentage of "White," "Black," and "Hispanic" Americans who had completed a "Bachelor's or higher degree" in various years from 1920-2015. Values for White and Black Americans were available from 1920-2015, but values for Hispanic Americans were only available from 1980-2015. This is because the "White" and "Black" values "include persons of Hispanic ethnicity for years prior to 1980" (see Footnote 1 of the NCES table). In other words, this data source did not disaggregate Hispanic ethnicity from "White" or "Black" race until 1980. It is for this reason that we focused on the year 1980 in the present work.

We also note a second potential source of such data: the United States Census Bureau's Current Population Survey (CPS) Historical Time Series Table A-2 ("Percent of People 25 Years and Over Who Have Completed High School or College, by Race, Hispanic Origin and Sex"). Although the CPS and NCES tables are both based on the same raw Census data, the CPS table includes two values that are different than the NCES table (White attainment in 1980: 25.0% [NCES] vs. 23.7% [CPS]; Black attainment in 2015: 21.3% [NCES] vs. 20.5% [CPS]). However, these differences are very minor (and appear to be due to changes over time in CPS' approach to racial classification [see table footnotes]), and their use in the place of the NCES data does not meaningfully change the results reported in the present work.

Finally, we note that in October 2019, NCES reported a sudden large positive change in degree attainment among Black Americans (29.1%, vs. 21.3%, 22.7%, 22.8%, and 22.6% in 2015, 2016, 2017, and 2018, respectively). Similarly, in October 2020, NCES reported a large positive change in degree attainment among Latinx Americans (24.9% vs. 16.4%, 18.7%, 18.5%, 20.7%, and 20.6% in 2015, 2016, 2017, 2018, and 2019, respectively). While participants in Studies 1-3 were explicitly instructed to estimate degree attainment in the year 2015 (to maintain consistency across the studies), it is important to question whether these participants might have become aware of these large changes and were adjusting their estimates accordingly. However, several factors make this possibility seem unlikely or even inconsequential. Foremost, all data for Studies 1-3 had already been collected (in April-May 2018, September 2018, and March-May 2019) by the time these changes were reported. In addition, the magnitude of participants' overestimates of degree attainment for all racial groups at both time points in all three studies (e.g., believing that the degree attainment rate for Black Americans was 42.70% in 2015, when in fact it was 21.28%) makes it seem unlikely that they were collectively aware of the actual degree attainment rates.

One might also argue that although participants were asked to provide estimates for 2015, perhaps their estimates would have been similar for 2019 or 2020, in which case their

estimates of recent racial gaps in educational attainment would have been much more accurate. However, prior research found that the same group of American respondents believed that significantly greater progress towards racial economic equality had been made by the year 2016 than by the year 2013 (Kraus et al., 2019). This suggests that participants likely would not have provided similar estimates for 2019 or 2020 as they did for 2015. Furthermore, even if participants would have provided similar estimates for 2019 or 2020 as they did for 2015, the White-Black attainment gap in 2019 was 15.86 p.p., and the White-Latinx gap in 2020 was 19.69 p.p., which was still higher than the gaps were in 1980 (13.44 p.p. and 17.33 p.p., respectively). Thus, even if the NCES' 2019 and 2020 values are used as the points of comparison, it would still be concluded that participants in Studies 1-3 significantly overestimated progress towards racial equality in degree attainment.

For these reasons, the present analyses were conducted using the NCES data for the years 1980 and 2015.

Meta-Analytic Modeling

As described in the main text, across Studies 1-3 and across Studies 4-5, results were meta-analytically combined wherever possible. All meta-analytic effect size estimates were calculated using the *meta* package in R, and all of the *meta* package functions used in the present work (*metacont*, *metacor*, *metagen*, and *metamean*) fit both fixed and random effects models, and conducted heterogeneity tests (i.e., Higgins & Thompson's I^2, Cochran's Q; see https://bookdown.org/MathiasHarrer/Doing_Meta_Analysis_in_R/heterogeneity.html). As discussed in the main text, there were notable differences in the samples between some studies (e.g., university students in Studies 1, 2, and 4, versus adults recruited on MTurk in Studies 3 and 5), and thus our default was to focus on random effects estimates, which we did in 61 of the 96 analyses conducted. However, there were a number of reasons why using fixed effects estimates also seemed appropriate. For one, results were only

meta-analytically combined across studies that used very similar methodologies (i.e., combining Studies 1-3, and combining Studies 4-5). In addition, each of the studies that were meta-analytically combined produced largely similar individual statistical results (in terms of significance at the $p < .05$ level). Thus, fixed effects estimates were reported when the *meta* package's heterogeneity tests suggested that heterogeneity was relatively low (i.e., $I^2 = 0\%$ in 31 analyses conducted; $I^2 \leq 37.8\%$ and the Q test was non-significant in the remaining 4 analyses conducted). The analytic code file (available at https://osf.io/438d5) indicates which results were reported using fixed effects estimates and which were reported using random effects estimates.

Measuring Support for Race-Conscious Admissions Policies

Participants' attitudes towards policies designed to enhance racial equity in education were assessed in all five studies. However, in the main text, we only reported the methods and results pertaining to these attitudes for Studies 4-5, as a primary goal of these studies was to test whether correcting participants' misperceptions of racial educational equality would influence their attitudes towards such policies. Given space restrictions and the quantity of distinct findings that emerged regarding participants' misperceptions of racial educational equality in Studies 1-3, as well as the fact that participants' policy attitudes were a more secondary concern of these studies, the measures and results from Studies 1-3 pertaining to these attitudes are described here and in the "Supplementary Measures and Analyses" section below.

In Studies 1-3, to assess their attitudes towards policies designed to enhance racial equity in education, participants' indicated their level of agreement or disagreement with nine statements about race-conscious admissions policies that were adapted from prior work (Iyer et al., 2003; Kravitz & Platania, 1993). Five of these items explicitly referred to "affirmative action" (e.g., "Affirmative action programs that help Black and Latinx/Hispanic students in college and university admissions should be supported") and

the remaining four items did not (e.g., "In order to increase the number of Black and Latinx/Hispanic students studying at their schools, colleges and universities should be allowed to consider race along with other factors when choosing students to admit").

Because five of the items explicitly referred to "affirmative action," near the end of the study, participants were asked to provide an open-ended response to the prompt "Please define affirmative action, in your own words." In reviewing these responses (and resolving initial disagreements through discussion), the first author and a research assistant determined that a number of participants did not have an adequate understanding of what the term "affirmative action" meant to answer these questions meaningfully. This resulted in the exclusion of 26, 54, and 9 support for race-conscious admissions policies scores from Studies 1-3's analyses, respectively.

Similarly, in Studies 4-5, support for the use of race-conscious admissions policies was assessed using modified versions of the measures from Studies 1-3. Specifically, participants in Study 4 responded to 22 items (again adapted from Iyer et al., 2003; Kravitz & Platania, 1993). As in Studies 1-3, because 14 of these items explicitly referenced "affirmative action," the scores of 3 participants were excluded because their responses to the prompt "Please define affirmative action, in your own words" indicated that they did not have an adequate understanding of what the term "affirmative action" meant to answer these questions meaningfully. We addressed this issue in Study 5 by presenting 4 items that did not refer explicitly to "affirmative action" on an isolated page of the survey; 14 other items that did refer explicitly to affirmative action were presented later, on a different page. For meta-analytic consistency, Studies 4-5's analyses focused only on those 4 non-explicit items; however, the results were largely unchanged when different items were analyzed.

Supplementary Measures and Analyses

Studies 1-3.

Primary results among Black and Latinx participants. As discussed in the main text, on average, participants in Studies 1-3 overestimated the amount of progress that has been made towards achieving racial equality in education. These effects were driven by a tendency to overestimated the educational gains experienced by Black and Latinx Americans over time, while correctly estimating White Americans' educational gains over that same time period. Notably, however, participants in these samples were largely White (69.9%, 64.2%, and 78.4%), which may explain why their average estimates were correct for White Americans—their own racial group—but incorrect for racial groups they are less personally familiar with. Indeed, prior research has found that White participants are more likely to overestimate racial economic equality than Black participants (Kraus et al., 2017). We therefore conducted secondary analyses to directly examine Black and Latinx participants perceptions' of racial differences in educational attainment. However, these analyses should be considered very preliminary and exploratory, as these studies only included data from 8, 11, and 27 Black participants and from 6, 10, and 16 Latinx participants.

Overall, these analyses suggested that Black and Latinx participants were *not* more accurate at estimating the degree attainment rates and progress of their own racial groups. As discussed in the main text, Black and Latinx Americans' degree attainment rates increased by 9.73 p.p. and 8.75 p.p., respectively, from 1980 to 2015. However, Black participants estimated that Black Americans' degree attainment rates increased by 18.00 p.p. [13.06 p.p., 22.93 p.p.] over this time, while Latinx participants estimated that Latinx Americans' degree attainment rates increased by 17.81 p.p. [14.35 p.p., 21.28 p.p.]—both significant overestimates, Hedges' gs = 0.619 [0.010, 1.227] and 0.947 [0.029, 1.864], ps = .046 and .043. By contrast, both groups' estimates of White Americans' degree attainment increases over time (Black participants' estimates: 12.59 p.p. [9.64 p.p., 15.54 p.p.]; Latinx participants' estimates: 18.60 p.p. [13.93 p.p., 23.27 p.p.]) were *statistically* correct, Hedges' gs = -0.504 [-1.108, 0.101] and 0.002 [-0.719, 0.723], ps = .102 and .996 (although

Black participants' *underestimate* of White Americans' degree attainment increases over time trended towards significance). As a result, the results that emerged among Black and Latinx participants were similar to the results that emerged among the samples as wholes. However, given the small numbers of Black and Latinx participants in these samples, these results should be considered exploratory and replicated with larger samples.

Additional measures.

Predictors of perceived progress toward racial equality in education attainment. In addition to their just-world beliefs, participants also completed measures assessing four other broad belief systems and background characteristics that, prior research suggests, might predict both their perceptions of racial progress and their attitudes towards race-conscious admissions policies. Unless otherwise indicated, participants responded to the following measures using 1 ("strongly disagree") to 7 ("strongly agree") response scales.

First and second, individuals vary in the extent to which they believe that society should be organized such that some groups have status (Sidanius & Pratto, 2001) or economic (Wiwad et al., 2019) advantages over others. Critically, such beliefs can motivate people to support policies that have unequal effects on different social groups. As a result, both belief systems have been shown to lead people to oppose equality-enhancing policies (Pratto et al., 1998; Wiwad et al., 2019), like race-conscious admissions policies (Gutiérrez & Unzueta, 2013). Furthermore, because intergroup ideologies generally lead people to construct "reasons for their attitudes toward policies that reflect their values about intergroup relations" (Pratto et al., 1998, p. 1853), it seems plausible that holding either of these beliefs might motivate people to believe that the reason that gaps between White and non-White Americans have persisted or even grown over time is because members of the latter groups are seen as inherently less capable and therefore deserving of their subjugation. Thus, we assessed support for maintaining status hierarchies with the Social Dominance Orientation-7 Scale (e.g., "Some groups of people are simply inferior to other groups"; 1 ["strongly oppose"] to 7 ["strongly favor"]; Ms = 2.02-2.31, SDs = 0.75-1.39,

McDonald's ωs = 0.92-0.98; Ho et al., 2015). Support for maintaining economic inequities was assessed with the Support for Economic Inequality Scale - Short Form (e.g., "The negative consequences of economic inequality have been largely exaggerated"; *M*s = 2.04-2.65, *SD*s = 0.88-1.57, McDonald's ωs = 0.89-0.96; Wiwad et al., 2019).

Third was social network racial homogeneity, as research has shown that people who experience less intergroup contact may be more likely to overestimate progress towards racial equality in wealth (Kraus et al., 2017) and to hold more negative attitudes towards equality-promoting policies (Brown et al., 2021). In the present work, participants indicated the racial homogeneity in their social networks (a) at work, in their (b) current and (c) childhood neighborhoods, and (d) in their current social relationships (1 ["virtually all of a different race than you"] to 5 ["virtually all the same race as you"]; *M*s = 3.60-3.71, *SD*s = 0.80-0.85, McDonald's ωs = 0.78-0.84; Kraus et al., 2017).

The final potential predictor measured was political conservatism, as research has suggested that political conservatives (versus liberals) may be more likely to both overestimate progress towards economic equality (Kraus et al., 2017; Norton & Ariely, 2011), and to oppose race-conscious admissions policies (Harrison et al., 2006). Conservatism was measured with two items (e.g., "I endorse many aspects of conservative political ideology"; *M*s = 2.62-2.89, *SD*s = 1.13-1.49, *r*s = -0.611 - -0.767; Eastwick et al., 2009).

Support for race-conscious admissions policies. To assess their attitudes towards policies designed to enhance racial equity in education, participants then indicated their level of agreement or disagreement with nine statements about race-conscious admissions policies, adapted from prior work (e.g., "In order to increase the number of Black and Latinx/Hispanic students studying at their schools, colleges and universities should be allowed to consider race along with other factors when choosing students to admit"; *M*s = 3.85-5.04, *SD*s = 1.08-1.96, McDonald's ωs = 0.89-0.98; Iyer et al., 2003; Kravitz & Platania, 1993).

Additional results.

Predictors of perceived progress toward racial equality in education attainment and support for race-conscious admissions policies. Despite generally having a liberal political lean (see Table 1), participants' average attitudes towards race-conscious admissions policies did not differ significantly from the midpoint of the 1-7 response scale, $M_{\text{meta-analytic}}$ = 4.55 [3.85, 5.26], $g_{\text{meta-analytic}}$ = 0.484 [-0.095, 1.064], p = .101, suggesting a general ambivalence regarding these policies. Replicating prior research, stronger just-world beliefs, support for maintaining status hierarchies and economic inequality, and political conservatism predicted lower support for race-conscious admissions, rs $\geq$ -0.25, ps $<$ .001; greater social network racial homogeneity was marginally predictive, $r_{\text{meta-analytic}}$ = -0.065, p = .078. However, only just-world beliefs also predicted their perceptions of progress towards racial equality in educational attainment. Specifically, participants who believed more (versus less) strongly that they lived in a fair and just society were significantly more likely to (a) believe that both Black Americans, $r_{\text{meta-analytic}}$ = 0.154 [0.087, 0.222], p < .001, and Latinx Americans, $r_{\text{meta-analytic}}$ = 0.107 [0.026, 0.187], p = .009, had experienced greater educational attainment gains over time, (b) believe that the educational gaps between both White and Black Americans, $r_{\text{meta-analytic}}$ = -0.146 [-0.213, -0.079], p < .001, and between White and Latinx Americans, $r_{\text{meta-analytic}}$ = -0.101 [-0.182, -0.020], p = .014, had become smaller over time, and (c) oppose race-conscious admissions policies, $r_{\text{meta-analytic}}$ = -0.249 [-0.318, -0.181], p < .001.

By contrast, neither participants' perceptions of Black or Latinx Americans' educational gains, nor their perceptions of progress towards educational equality between White and non-White Americans were significantly related to their support for maintaining status hierarchies or economic inequality, political conservatism, or social network racial homogeneity, rs $\leq$ 0.06, ps $\geq$ .099. There was only one exception: participants with more homogeneous social networks believed that Latinx Americans had experienced significantly more educational gains over time than those with more heterogeneous social networks,

$r_{\text{meta-analytic}} = 0.08$, $p = .040$. Furthermore, participants' opposition to race-conscious admissions policies was not related to their default perceptions of Black or Latinx Americans' educational gains, nor to their perceptions of progress towards educational equality between White and non-White Americans, $r\text{s}_{\text{meta-analytic}} \leq 0.034$, $p\text{s} \geq .430$. See SOM for additional analyses of mediation and moderation between these factors, which did not produce noteworthy results.

In summary, in all three studies, participants were largely unaware of the lack of progress that has been made towards achieving racial equality in education, and these inaccuracies were most pronounced among those who held the belief that their society is generally fair and just. These studies also revealed a general ambivalence towards race-conscious policies that could help to narrow racial gaps in educational outcomes, and, again, a more pronounced opposition to such policies among those with stronger just-world beliefs. Thus, although these studies did not find significant direct or indirect correlational relations between participants' default misperceptions of racial educational equality and opposition to race-conscious admissions policies, just-world beliefs did emerge as a reliable ideological predictor of both of these educational beliefs. Additionally, these results held regardless of participants' own race-ethnicity, suggesting that the racial progress narrative could be broadly internalized across much of the American population.

Mediation and moderation analyses. We conducted exploratory analyses to determine whether the significant relations between just-world beliefs and opposition to race-conscious admissions that emerged in Studies 1-3 were statistically *mediated* by participants' perceptions of racial educational gains or progress towards equality; they were not, $d\text{s} \leq 0.087$, $p\text{s} \geq .312$. We also examined whether the non-significant direct associations between participants' perceptions of racial educational gains/progress towards equality and their race-conscious admissions beliefs in Studies 1-3 were statistically *moderated* by their just-world beliefs; again, they were not, $d\text{s} \leq 0.118$, $p\text{s} \geq .116$. Thus, additional analyses of mediation and moderation between these factors did not produce

noteworthy results.

Studies 4-5.

Moderation by just-world beliefs. Here, we provide the complete results of our examination of whether the above effects were similar or different among those with stronger (versus weaker) just-world beliefs.

First, we found that exposure to the corrective information intervention increased accuracy immediately post-intervention (i.e., at T1) regarding Black Americans' recent educational attainment levels, Black Americans' gains over time, and progress towards White-Black educational equality over time, and reduced attributions of Black college students' academic struggles to individual-level failings equally for those with weaker just-world beliefs (-1 *SD*), $EMMs_{dif} \geq 7.36$, $ts \geq 3.36$, $ps < .001$, and stronger just-world beliefs (+1 *SD*), $EMMs_{dif} \geq 7.77$, $ts \geq 3.82$, $ps < .001$ (condition × just-world beliefs interaction terms: $bs \leq 0.606$, $ts \leq 0.494$, $ps \geq .621$). However, the T2 analyses suggest that the perceptions held by those with stronger just-world beliefs were *especially prone to backsliding over time*. Among those exposed to the corrective information at T1, those with stronger just-world beliefs (+1 *SD*) showed significant increases from T1 to T2 in the inaccuracies of their perceptions of Black Americans' recent educational attainment levels, $EMM_{T1\text{-}T2} = -4.12$, $t = -2.70$, $p = .007$, and of Black Americans' educational gains over time, $EMM_{T1\text{-}T2} = -6.44$, $t = -4.96$, $p = < .001$. By contrast, there were no significant changes from T1 to T2 in perceptions of Black Americans' recent educational attainment among treated participants with weaker just-world beliefs (-1 *SD*), $EMM_{T1\text{-}T2} = -1.30$, $t = -0.87$, $p = .383$. Treated participants with weaker just-world beliefs did show backsliding in terms of their perceptions of Black Americans' educational gains over time, $EMM_{T1\text{-}T2} = -4.09$, $t = -3.22$, $p = .001$, to a somewhat lesser degree (though not significantly so, $F = 1.61$, $p = .206$) than those with stronger just-world beliefs.

In addition, the positive effects of the corrective information intervention on support

for race-conscious admissions at T1 only emerged among participants with stronger just-world beliefs (+1 *SD*), Studies 4-5 $EMMs_{dif} = 1.06$ and 0.44, $ts = 4.03$ and 1.86, $ps < .001$ and .063. Exposure to the corrective information intervention had no notable effect on T1 support for race-conscious admissions for those with weaker just-world beliefs (-1 *SD*), $EMMs_{dif} \leq 0.20$, $ts \leq 0.77$, $p \geq .440$, potentially because such individuals were naturally more likely to support such policies (see Studies 1-3). This difference in the effect of condition on T1 support for race-conscious admissions for those with stronger versus weaker just-world beliefs (i.e., the condition × just-world beliefs interaction) was statistically significant, $g_{meta\text{-}analytic} = -0.207$ [-0.371, -0.043], $p = .013$. As a result, however, the backsliding reported above (in support for race-conscious admissions among treated participants) was also largely driven by those with stronger just-world beliefs. Specifically, from T1 to T2, support diminished most among participants with stronger just-world believe, and while this change was not statistically significant, $t(288) = 1.35$, $p = .179$, it was sufficient to erase the significant effect of the intervention on support noted among these participants at T1, $t(288) = 0.83$, $p = .409$.

Differences between retained and attrited participants (Study 5). As discussed in the main text, Study 5 was longitudinal in nature: 444 American adults completed the initial survey, and 292 of these initial participants (65.8% of the original sample) also completed a follow-up survey between 42 and 65 days after they completed the original survey. We therefore examined whether participants who chose to complete the follow-up survey differed on any of our measures from those who chose not to complete it. Compared to attrited participants, retained participants were older, $t(441) = -2.35$, $p = .019$, Hedges' $g = 0.23$, had significantly higher educational attainment levels, $t(442) = -2.44$, $p = .015$, $g = 0.24$, and had significantly lower estimates of the past-to-recent change in Black Americans' educational attainment levels, $t(441) = 1.99$, $p = .047$, $g = 0.20$. These differences were statistically significant, but relatively small. They also had marginally higher brilliance beliefs, $t(440) = -1.73$, $p = .084$, $g = 0.17$, and marginally

lower estimates of Black Americans' recent educational attainment levels, $t(442) = 1.76$, $p = .079$, $g = 0.18$. By contrast, retained and attrited participants were statistically similar on most measures, including income, subjective SES, political orientation, just-world beliefs, implicit theories of intelligence, estimates of White Americans' past, recent, or past-to-recent degree attainment levels/changes, estimates of Black Americans' past degree attainment levels, estimates of the past, recent, and past-to-recent White-Black attainment gap levels/changes, attributions regarding the racial attainment gap, or support for race-conscious admissions, ts ≤ 1.63, $p \geq .105$.

Additional Measures Not Discussed in the Main Text or SOM

- Estimates of the percentage of *all* Americans with a bachelor's degree or higher (Studies 1-3 and 5)
- Domain-general and identity-specific regulatory focus (Studies 1-2; Browman et al., 2017; Higgins et al., 2001)
- Ladder-based measure of subjective socioeconomic status (all studies; Adler et al., 2000)
- How long they have lived in the U.S. (all studies)
- Current, previous, and childhood zip code (Studies 1-2; please contact authors for this data)
- Academic decision-making task (Study 2; Axt et al., 2018)
- Perceived college autochthony (Studies 2 and 4; Martinovic & Verkuyten, 2013)
- Support for teaching about structural racism in school (Studies 4-5)

Data Analytic Software

All statistical analyses described in this work were conducted using R (Version 4.4.1; R Core Team, 2021) and the R-packages *afex* (Version 1.4.1; Singmann et al., 2021), *apaTables* (Version 2.0.8; Stanley, 2021), *careless* (Version 1.2.2; Yentes & Wilhelm, 2021), *data.table* (Version 1.16.0; Dowle & Srinivasan, 2021), *effectsize* (Version 0.8.9;

Ben-Shachar et al., 2020), *effsize* (Version 0.8.1; Torchiano, 2020), *emmeans* (Version 1.10.4; Lenth, 2021), *esc* (Version 0.5.1; Lüdecke, 2019), *ggdist* (Version 3.3.2; Kay, 2023), *ggplot2* (Version 3.5.1; Wickham, 2016), *ggstatsplot* (Patil, 2021), *irr* (Version 0.84.1; Gamer et al., 2019), *lavaan* (Version 0.6.18; Rosseel, 2012), *lme4* (Version 1.1.35.5; Bates et al., 2015), *lpSolve* (Version 5.6.20; Berkelaar et al., 2020), *Matrix* (Version 1.7.0; Bates & Maechler, 2021), *meta* (Version 7.0.0; Balduzzi et al., 2019; White et al., 2022), *metadat* (Version 1.2.0; White et al., 2022), *papaja* (Version 0.1.2; Aust & Barth, 2022), *plyr* (Version 1.8.9; Wickham, 2011), *psych* (Version 2.4.6.26; Revelle, 2021), *pwr* (Version 1.3.0; Champely, 2020), *qualtRics* (Version 3.2.1; Ginn et al., 2022), *rmarkdown* (Version 2.28; Xie et al., 2018, 2020), *rmdfiltr* (Version 0.1.3; Aust, 2020), *tidyr* (Version 1.3.1; Wickham, 2021), and *tinylabels* (Version 0.2.4; Barth, 2022).

Contributor Roles Taxonomy (CRediT) Statement

Conceptualization: ASB, DBM

Methodology: ASB, DBM

Software: ASB

Validation: ASB

Formal Analysis: ASB

Investigation: ASB

Resources: ASB, DBM

Data curation: ASB

Writing – Original Draft: ASB

Writing – Review & Editing: ASB, DBM

Visualization: ASB

Supervision: ASB

Project administration: ASB

Funding acquisition: ASB, DBM

References

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women. *Health Psychology*, *19*(6), 586–592. https://doi.org/10.1037/0278-6133.19.6.586

Aust, F. (2020). *Rmdfiltr: 'Lua'-filters for r markdown*. https://CRAN.R-project.org/package=rmdfiltr

Aust, F., & Barth, M. (2022). *papaja: Prepare reproducible APA journal articles with R Markdown*. https://github.com/crsh/papaja

Axt, J. R., Nguyen, H., & Nosek, B. A. (2018). The Judgment Bias Task: A flexible method for assessing individual differences in social judgment biases. *Journal of Experimental Social Psychology*, *76*, 337–355. https://doi.org/10.1016/j.jesp.2018.02.011

Balduzzi, S., Rücker, G., & Schwarzer, G. (2019). How to perform a meta-analysis with R: A practical tutorial. *Evidence-Based Mental Health*, *22*, 153–160.

Barth, M. (2022). *tinylabels: Lightweight variable labels*. https://cran.r-project.org/package=tinylabels

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Bates, D., & Maechler, M. (2021). *Matrix: Sparse and dense matrix classes and methods*. https://CRAN.R-project.org/package=Matrix

Ben-Shachar, M. S., Lüdecke, D., & Makowski, D. (2020). effectsize: Estimation of effect size indices and standardized parameters. *Journal of Open Source Software*, *5*(56), 2815. https://doi.org/10.21105/joss.02815

Berkelaar, M. et al. (2020). *lpSolve: Interface to 'lp_solve' v. 5.5 to solve linear/integer programs*. https://CRAN.R-project.org/package=lpSolve

Browman, A. S., Destin, M., & Molden, D. C. (2017). Identity-Specific Motivation: How

Distinct Identities Direct Self-Regulation across Distinct Situations. *Journal of Personality and Social Psychology*, *113*(6), 835–857. https://doi.org/10.1037/pspa0000095

Brown, J. R., Enos, R. D., Feigenbaum, J., & Mazumder, S. (2021). Childhood cross-ethnic exposure predicts political behavior seven decades later: Evidence from linked administrative data. *Science Advances*, *7*(24), eabe8432. https://doi.org/10.1126/sciadv.abe8432

Champely, S. (2020). *Pwr: Basic functions for power analysis*. https://CRAN.R-project.org/package=pwr

Dennis, S. A., Goodson, B. M., & Pearson, C. (2019). *Virtual private servers and the limitations of IP-based screening procedures: Lessons from the MTurk quality crisis of 2018*. https://doi.org/10.2139/ssrn.3233954

Dowle, M., & Srinivasan, A. (2021). *Data.table: Extension of 'data.frame'*. https://CRAN.R-project.org/package=data.table

Eastwick, P. W., Richeson, J. A., Son, D., & Finkel, E. J. (2009). Is love colorblind? Political orientation and interracial romantic desire. *Personality and Social Psychology Bulletin*, *35*(9), 1258–1268. https://doi.org/10.1177/0146167209338524

Gamer, M., Lemon, J., & <puspendra.pusp22@gmail.com>, I. F. P. S. (2019). *Irr: Various coefficients of interrater reliability and agreement*. https://CRAN.R-project.org/package=irr

Ginn, J., O'Brien, J., & Silge, J. (2022). *qualtRics: Download 'qualtrics' survey data*. https://CRAN.R-project.org/package=qualtRics

Gutiérrez, A. S., & Unzueta, M. M. (2013). Are admissions decisions based on family ties fairer than those that consider race? Social dominance orientation and attitudes toward legacy vs. affirmative action policies. *Journal of Experimental Social Psychology*, *49*(3), 554–558. https://doi.org/10.1016/j.jesp.2012.10.011

Harrison, D. A., Kravitz, D. A., Mayer, D. M., Leslie, L. M., & Lev-Arey, D. (2006).

Understanding attitudes toward affirmative action programs in employment: Summary and meta-analysis of 35 years of research. *Journal of Applied Psychology*, *91*(5), 1013–1036. https://doi.org/10.1037/0021-9010.91.5.1013

Higgins, E. T., Friedman, R. S., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: Promotion pride versus prevention pride. *European Journal of Social Psychology*, *31*(1), 3–23. https://doi.org/10.1002/ejsp.27

Ho, A. K., Sidanius, J., Kteily, N., Sheehy-Skeffington, J., Pratto, F., Henkel, K. E., Foels, R., & Stewart, A. L. (2015). The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO7 scale. *Journal of Personality and Social Psychology*, *109*(6), 1003–1028. https://doi.org/10.1037/pspi0000033

Iyer, A., Leach, C. W., & Crosby, F. J. (2003). White Guilt and Racial Compensation: The Benefits and Limits of Self-Focus. *Personality and Social Psychology Bulletin*, *29*(1), 117–129. https://doi.org/10.1177/0146167202238377

Kay, M. (2023). *ggdist: Visualizations of distributions and uncertainty.* https://doi.org/10.5281/zenodo.3879620

Kraus, M. W., Onyeador, I. N., Daumeyer, N. M., Rucker, J. M., & Richeson, J. A. (2019). The Misperception of Racial Economic Inequality. *Perspectives on Psychological Science*, *14*(6), 899–921. https://doi.org/10.1177/1745691619863049

Kraus, M. W., Rucker, J. M., & Richeson, J. A. (2017). Americans misperceive racial economic equality. *Proceedings of the National Academy of Sciences*, *114*(39), 10324–10331. https://doi.org/10.1073/pnas.1707719114

Kravitz, D. A., & Platania, J. (1993). Attitudes and beliefs about affirmative action: Effects of target and of respondent sex and ethnicity. *Journal of Applied Psychology*, *78*(6), 928–938. https://doi.org/10.1037/0021-9010.78.6.928

Lenth, R. V. (2021). *Emmeans: Estimated marginal means, aka least-squares means.*

https://CRAN.R-project.org/package=emmeans

Lüdecke, D. (2019). *Esc: Effect size computation for meta analysis (version 0.5.1).* https://doi.org/10.5281/zenodo.1249218

Martinovic, B., & Verkuyten, M. (2013). "We were here first, so we determine the rules of the game": Autochthony and prejudice towards out-groups. *European Journal of Social Psychology*, *43*(7), 637–647. https://doi.org/10.1002/ejsp.1980

National Center for Education Statistics. (2022). *Table 104.20. Percentage of persons 25 to 29 years old with selected levels of educational attainment, by race/ethnicity and sex: Selected years, 1920 through 2022.* https://nces.ed.gov/programs/digest/d22/tables/dt22_104.20.asp

Norton, M. I., & Ariely, D. (2011). Building a better america–one wealth quintile at a time. *Perspectives on Psychological Science*, *6*(1), 9–12. https://doi.org/10.1177/1745691610393524

Patil, I. (2021). Visualizations with statistical details: The 'ggstatsplot' approach. *Journal of Open Source Software*, *6*(61), 3167. https://doi.org/10.21105/joss.03167

Pratto, F., Stallworth, L. M., & Conway-Lanz, S. (1998). Social Dominance Orientation and the Ideological Legitimization of Social Policy1. *Journal of Applied Social Psychology*, *28*(20), 1853–1875. https://doi.org/10.1111/j.1559-1816.1998.tb01349.x

Prims, J. P., Sisso, I., & Bai, H. (2018). *Suspicious IP online flagging tool.* https://itaysisso.shinyapps.io/Bots

R Core Team. (2021). *R: A language and environment for statistical computing.* R Foundation for Statistical Computing. https://www.R-project.org/

Revelle, W. (2021). *Psych: Procedures for psychological, psychometric, and personality research.* Northwestern University. https://CRAN.R-project.org/package=psych

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*(2), 1–36. https://www.jstatsoft.org/v48/i02/

Sidanius, J., & Pratto, F. (2001). *Social dominance: An intergroup theory of social*

hierarchy and oppression. Cambridge University Press.

Singmann, H., Bolker, B., Westfall, J., Aust, F., & Ben-Shachar, M. S. (2021). *Afex: Analysis of factorial experiments*. https://CRAN.R-project.org/package=afex

Stanley, D. (2021). *apaTables: Create american psychological association (APA) style tables*. https://CRAN.R-project.org/package=apaTables

Torchiano, M. (2020). *Effsize: Efficient effect size computation*. https://doi.org/10.5281/zenodo.1480624

White, T., Noble, D., Senior, A., Hamilton, W. K., & Viechtbauer, W. (2022). *Metadat: Meta-analysis datasets*. https://CRAN.R-project.org/package=metadat

Wickham, H. (2011). The split-apply-combine strategy for data analysis. *Journal of Statistical Software*, *40*(1), 1–29. http://www.jstatsoft.org/v40/i01/

Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis*. Springer-Verlag New York. https://ggplot2.tidyverse.org

Wickham, H. (2021). *Tidyr: Tidy messy data*. https://CRAN.R-project.org/package=tidyr

Wiwad, D., Mercier, B., Maraun, M. D., Robinson, A. R., Piff, P. K., Aknin, L. B., & Shariff, A. F. (2019). The Support for Economic Inequality Scale: Development and adjudication. *PLoS ONE*, *14*(6), e0218685. https://doi.org/10.1371/journal.pone.0218685

Xie, Y., Allaire, J. J., & Grolemund, G. (2018). *R markdown: The definitive guide*. Chapman; Hall/CRC. https://bookdown.org/yihui/rmarkdown

Xie, Y., Dervieux, C., & Riederer, E. (2020). *R markdown cookbook*. Chapman; Hall/CRC. https://bookdown.org/yihui/rmarkdown-cookbook

Yentes, R. D., & Wilhelm, F. (2021). *Careless: Procedures for computing indices of careless responding*.

(Version Date: January 22, 2025 at 17:53:06 EST)