Higher education in the social sciences impacts essentialist conceptions of racial disparities

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Abstract

Conceptions of social disparities as natural and biologically-caused, known as "essentialist" conceptions, support the maintenance of social disparities. Surprisingly little research has examined whether formal educational experiences – directly teaching people about the nature and origins of social disparities – can reduce essentialist conceptions. We investigate how social science coursework (e.g., sociology, history, anthropology) impacts (a) essentialist vs. structural explanations for racial disparities, and (b) social essentialism more broadly, in a diverse group of undergraduates (n = 246). Results suggest that students who have completed such coursework show reduced endorsement of essentialist explanations for racial disparities, but enhanced endorsement of other dimensions of social essentialist thought (e.g., the view that social categories are meaningfully distinct from one another). Thus, social science coursework may have a nuanced impact on social essentialism. We discuss the questions these results raise regarding the relations between explanatory thinking and other dimensions of social essentialism.

Keywords: Essentialism; explanation; social disparities; social categories; race; education.

Introduction

People's conceptions of social disparities play a critical role in perpetuating them. In particular, a large literature finds that conceptions of social disparities as natural or biologically-caused, known as "essentialist" conceptions, lead children and adults to view social disparities as "right" rather than "wrong" (Hussak & Cimpian, 2015), to allocate material resources in ways that uphold rather than rectify material inequalities (Rizzo, et al., 2018), to endorse social hierarchies (Hussak & Cimpian, 2018; Mandalaywala, et al., 2018), to oppose policies supporting marginalized racial groups (e.g., affirmative action policies, see Yalcinkaya et al., 2017) and gender groups (e.g., maternity leave policies, see Skewes, et al., 2018; Wilton et al., 2019), to hold broadly prejudiced attitudes toward marginalized groups (see Rhodes & Mandalaywala, 2017 for a review), and to maintain existing achievement gaps (see Goudeau & Cimpian, 2021 for a review).

Given its pernicious consequences, researchers have long been interested in how essentialist thinking can be reduced. Some research finds that informal experiences can shape the degree to which people hold essentialist conceptions. For example, subtle linguistic differences in how groups are described (Rhodes, Leslie, & Tworek, 2012; Rhodes et al., 2018), cultural differences in the salience of different social groups (Diesendruck et al., 2013; Mahalingam, 2007), and local exposure to diversity (Deeb et al., 2011; Pauker, Xu, Williams, & Biddle, 2016; Smyth et al., 2017; Xu, Li, & Coley, 2021) can all play a role in either exacerbating or ameliorating essentialist beliefs. However, surprisingly little research has examined whether formal educational experiences – directly teaching people about the nature and origins of social disparities – can reduce essentialist conceptions.

In the present study, we examine whether formal education in the social sciences (e.g. sociology, history, anthropology) can reduce essentialist conceptions of social disparities. The mechanism through which we expect education to achieve this impact sheds important light on the nature of essentialist conceptions themselves: Some accounts view essentialism as, at its core, an explanatory intuition – a view that disparities are explained by *intrinsic* causes like groups' intrinsic nature, innate biology, or inborn predisposition (Cimpian & Salomon, 2014). If essentialist conceptions are centrally about intrinsic explanations for social disparities, then providing people with alternative explanations for social disparities should reduce essentialist conceptions. We expect that teaching people that disparities are actually explained by *extrinsic* causes – like groups' circumstances, access to opportunities, or treatment by others – can displace people's intuitive essentialist assumptions. Several recent lab-based studies have found support for this possibility by experimentally manipulating the availability of

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extrinsic explanations (e.g., Dunlea & Heiphetz, 2022; Goudeau & Croizet, 2017; Hussak & Cimpian, 2015; Peretz-Lange, Perry, & Muentener, 2021; Peretz-Lange & Muentener, 2021; Vasilyeva, Gopnik, & Lombrozo, 2018). However, little is known about the real-world experiences that might promote structural explanations, and in turn, reduce essentialist explanations.

Coursework in the social sciences often focuses on teaching people explicitly about the structural factors that account for social disparities. Sociology focuses on "the structure of groups, organizations, and societies and how people interact within these contexts" (American Sociological Association, 2022). History and Anthropology respectively focus on how historical events and cultural contexts shape human behavior, and thus also may be strong candidates for promoting structural reasoning. Indeed, surveys of social science professors themselves reveal that they are more likely to support structural interventions to remedy social disparities compared to a laissez-faire approach, regardless of their political orientation (Klein & Stern, 2005). Thus, we believe that social science courses, particularly those at the college level, are well-suited to promoting a structural view of disparities, potentially fostering deep conceptual change in people's explanatory frameworks. The present study is the first empirical investigation, to our knowledge, of how formal education about social disparities impacts structural and essentialist reasoning.

We chose to focus on reasoning about racial disparities in particular, as we expected that social science courses in our United States setting would likely engage with issues of race. We took advantage of the fact that both institutions where data collection took place require their students to take coursework in the social sciences, regardless of students' preexisting interest in these disciplines. This enabled us to use a quasi-experimental design and to shed tentative light on the causal impacts of such coursework. As an additional step to account for students' preexisting interests in the social sciences, we collected data on students' intended majors so that we could control for this variable in our analyses.

We had two research questions: (RQ1) Does social science coursework impact people's essentialist and structural explanations for racial disparities? We expected that such coursework would lead to reductions in endorsement of essentialist explanations and increases in endorsement of structural explanations. (RQ2) Does social science coursework impact social essentialism more generally, beyond the explanatory component of essentialism? We predicted that any such impacts would be in the direction of reduced social essentialism.

Method

Participants

Participants were college undergraduates (n = 246). Prior to data analysis, we decided to stop data collection at the end of the academic year, rather than based on an a priori target sample size. Participants were recruited from a private, predominantly-White institution (n = 163) and a public, Hispanic-serving institution (n = 83) in the northeastern United States. In both settings, participants were recruited through Introductory Psychology courses (where participation in research is a course requirement) and through History and Sociology courses (where they received extra credit for participating).

Participants were diverse in gender (68% female, 27% male, 3% nonbinary), race (52% White, 18% Asian, 12% Multiracial including mostly Afro-Latinx and White-Latinx students, 9% Black, 6% Latinx, 1% Middle Eastern, 2% did not report), and socioeconomic status (operationalized as education of primary caregiver, ranging from 13% who never attended college to 7% who had a PhD or equivalent).

Participants were asked to indicate the courses they had completed in Sociology, History, Anthropology, Asian Studies, and Africana Studies / Global Black Studies. Participants were dichotomized into those who had never completed such a course (70%) and those who had completed at least one (but often several) such courses (30%). Participants were also split into those who intended to major in one such discipline (16%) and those who did not (84%), as a way to disentangle effects of preexisting interests from effects of coursework itself.

Materials and Procedure

Participants completed a digital survey. First, they were trained to provide detailed, mechanistic explanations (training adapted from Rozenblit & Keil, 2002). Next, they were presented with four racial disparities (see Table 1) and asked to freely explain them. Note that participants received one of two versions of the survey: The "positive" version presented four disparities for which an essentialist explanation would be positive (e.g., "because Black people are gifted") and a structural explanation would acknowledge structural advantages (e.g., "because Black people receive superior treatment") with respect to the target group. The "negative" version presented four disparities for which an essentialist explanation would be negative (e.g., "because Black people are biologically deficient") and a structural explanation would acknowledge structural disadvantages (e.g., "because Black people receive inferior treatment") with respect to the target group. These two versions allowed us to hold this positive/negative valence constant within-subjects in case it affected responses.

After reflecting on the causal origins of each disparity, participants were asked to rate the percentage of this disparity that is "driven by the kind of people they are (e.g., their inborn characteristics, abilities, or something else about them)" and "driven by the kind of circumstances they're in (e.g., their experiences, resources, or something that happened historically)." (Language adapted from Hussak & Cimpian, 2015). Participants used a 0-100 slider to provide each explanation rating and were explicitly instructed that ratings need not sum to 100.

Participants then completed a Social Essentialism Scale (Bastian & Haslam, 2006) measuring broader essentialist views of social categories. This scale included three subscales capturing three dimensions of essentialist thinking, biological basis (e.g., "there are different types of people and with enough scientific knowledge these different 'types' can be traced back to genetic causes," or the reverse-coded "a person's attributes are something that can't be attributed to their biology"), discreteness (e.g., "everyone is either a certain type of person or they are not" or the reverse-coded "people can have many attributes and are never completely defined by any particular one"), and informativeness (e.g., "there are different 'types' of people and it is possible to know what 'type' someone is relatively quickly" or the reverse-coded "although a person may have some basic identifiable traits, it is never easy to make accurate judgments about how they will behave in different situations).

Finally, participants provided information about their background and their college coursework, including selecting the particular courses they had completed from their college's course offerings.

Table 1: US racial disparities presented to participants.

Survey: Positive Version	Survey: Negative Version
Only 13.4% of the US is Black, but 70% of NFL players are Black.	32% of Americans report being physically inactive, but this rate is 41% among Black Americans.
Only 5.6% of the US is Asian, but 42% of MIT's most recent incoming class was Asian American.	Goldman Sachs has reported that 27% of its workforce is Asian American, but only 11% of its senior managers, and none of its executive officers, were.
44% of American bachelors' degrees are in science or engineering. However, among American Indians and Alaska Natives who have bachelors degrees, 78.9% of these degrees are in science and engineering.	8% of non-Hispanic White Americans have been diagnosed with diabetes, versus 23.5% of Native Americans.
76% of the US is White, but White people commit only 45% of violent crimes.	In the US, 50% of teens under the age of 18 are White. However, 65% of teens who died by suicide were White.

Results

RQ1: Does social science coursework impact explanations for social disparities?

To address this question, we first computed each participant's average rating of essentialist explanations (0-100) and average rating of structural explanations (0-100). We then conducted two linear regression models to respectively investigate whether (a) essentialist explanation ratings and (b) structural explanation ratings were predicted by coursework (have / have not completed social science coursework), intended major (do / do not intend to major in the social sciences), survey version (positive / negative), race (White / of color / did not report), gender (male / female / nonbinary / did not report), and socioeconomic status (1-8). Results are shown in Figure 1.

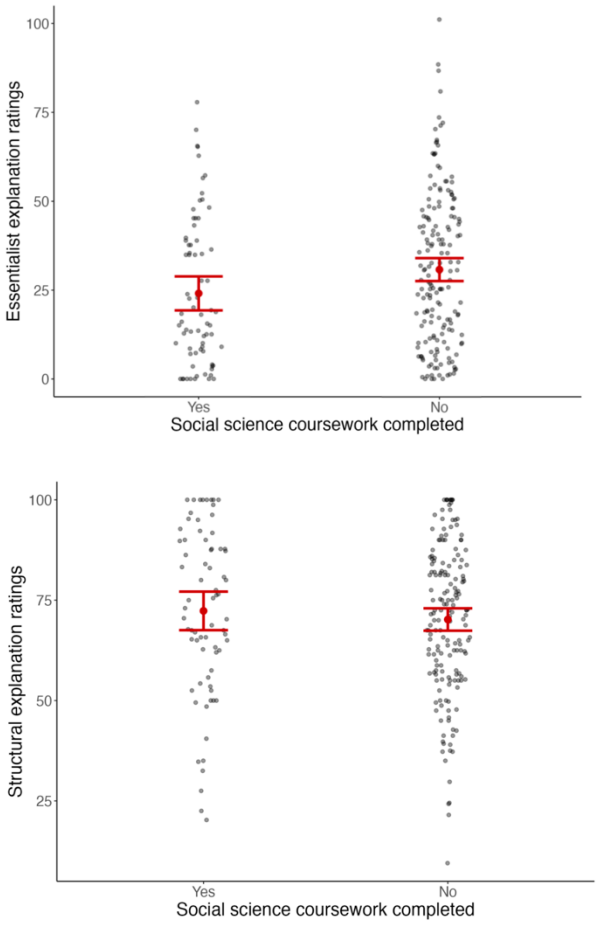

Figure 1: Impacts of social science coursework on essentialist explanation ratings (top panel) and structural explanation ratings (bottom panel). Error bars represent +/- 1 SE. Points are jittered by .1 along the x axis to prevent overlap.

Essentialist Explanation Ratings The model was significant overall, $F(9,246) = 2.91$, $p = .003$. Participants who had completed social science coursework provided significantly

lower essentialist explanation ratings compared to other participants, $b = 6.76$, $SE = 3.19$, $p = .035$, $\eta^2p = .02$, holding other variables constant. No other variables accounted for significant variance in ratings.

Structural Explanation Ratings The model was not significant overall, $p = .59$. However, post-hoc analyses revealed that the model did account for significant variance on the negative version of the survey in particular. Participants who had completed social science coursework rated structural explanations higher than other participants did, $b = 8.22$, $SE = 4.09$, $p = .047$, $\eta^2p = .01$, holding other variables constant. No other variables accounted for significant variance in ratings.

RQ2: Does social science coursework impact explanations social essentialism more broadly?

First, we investigated how explanation ratings of racial disparities were related to social essentialism more broadly, as assessed by the Social Essentialism Scale. Correlations revealed that essentialist explanation ratings were positively correlated with broader social essentialism (Pearson's $r = .16$, $p = .014$). Structural explanation ratings were not significantly correlated with broader social essentialism as assessed by the scale ($p = .24$)

Next, we investigated whether the impacts of coursework on explanations (revealed above) would extend to impacting social essentialism more broadly. We conducted a linear regression model to investigate whether scores on the Social Essentialism Scale were predicted by coursework (have / have not completed social science coursework), intended major (do / do not intend to major in the social sciences), race (White / of color / did not report), gender (male / female / nonbinary / did not report), and socioeconomic status (1-8). Given that the scale includes three conceptually independent subscales, measuring beliefs about (a) the biological basis, (b) the discreteness, and (c) the informativeness of social categories, we also conducted linear regression models on each of these three subscales to investigate which dimensions of social essentialism were impacted by coursework.

Results revealed that only the model of the Discreteness subscale was significant overall, $F(8,236) = 4.21$, $p < .001$. In contrast to our prediction, completing social science coursework was associated with *increased* endorsement of category discreteness, $b = .24$, $SE = .09$, $p = .007$, $\eta^2p = .03$, as shown in Figure 2.

Thus, although social science coursework predicted reduced essentialist explanations for racial disparities, and essentialist explanations for racial disparities predicted social essentialism overall, social science coursework did not predict reduced essentialist conceptions more broadly. In fact, such coursework predicted *increased* endorsement of certain dimensions of essentialist beliefs. Students who had taken social science coursework viewed social categories as more distinct from one another compared to other students.

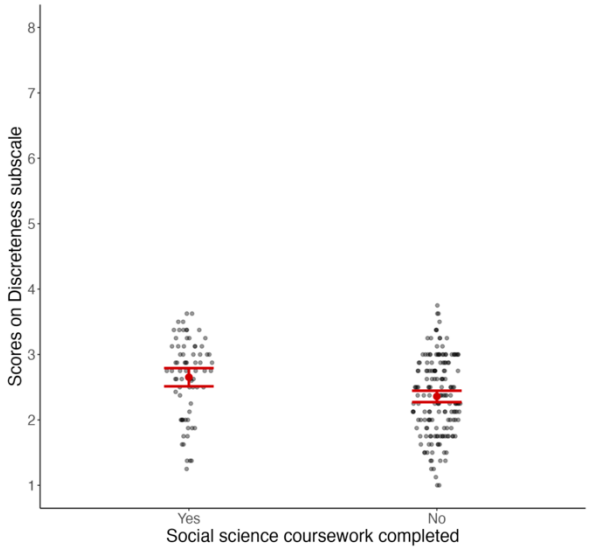

Figure 2: Impacts of social science coursework on scores of the Discreteness subscale of the Social Essentialism Scale. Error bars represent +/- 1 SE. Points are jittered by .1 along the x axis to prevent overlap.

Discussion

The present study investigated how social science coursework impacts conceptions of US racial disparities. We reasoned that social science coursework might be well-suited to reducing essentialist conceptions of race by highlighting the extrinsic causes that might explain racial disparities (e.g., historical events, social institutions, cultural environments), thereby displacing people's intuitive view that intrinsic causes explain these disparities. Moreover, we reasoned that if broader essentialist conceptions of social categories emerge from this explanatory component of essentialism, then reducing essentialist explanations for racial disparities should also mitigate essentialist views of social categories more broadly, including other dimensions of essentialist thinking. Results suggest that (RQ1) social science coursework predicted reduced essentialist explanations for racial disparities, as we expected, but (RQ2) did not predict reduced essentialist conceptions of social categories more broadly. In fact, in contrary to our predictions, social science coursework predicted *increased* endorsement of certain dimensions of essentialist thinking, leading students to conceive of social categories as *more* distinct from one another. Together, these results suggest that the impacts of social science education on social essentialism may be quite nuanced. We discuss each of these results, along with limitations of the current study, below.

Impacts of social science education on explanations for racial disparities

First, results revealed that higher education in the social sciences may reduce essentialist explanations for social disparities. This result echoes many lab-based findings that

highlighting extrinsic causes of social disparities reduces essentialist explanations for them (Dunlea & Heiphetz, 2022; Goudeau & Croizet, 2017; Hussak & Cimpian, 2015; Peretz-Lange, Perry, & Muentener, 2021; Peretz-Lange & Muentener, 2021; Vasilyeva, Gopnik, & Lombrozo, 2018). Discussions of these studies often note that the durability of these effects beyond the immediate future of the manipulation is unknown, and have called for these findings to be extended into real-world educational settings. To our knowledge, this study represents the first evidence that real-world educational experiences may also impact essentialist explanations for disparities.

We predicted that social science education would not only reduce essentialist explanatory reasoning, but would also enhance structural explanatory reasoning. However, impacts on structural explanation ratings were limited to the "negative" version of the survey. In other words, although students who had taken such coursework were more likely to agree that structural *disadvantages* accounted for groups' positions in society, they were not more likely to agree that structural *advantages* accounted for groups' positions. This may reflect coursework's focus on disadvantage and the way that structural explanations are typically invoked in these settings. However, we did not make any a priori hypotheses about differences in explanations based on the valence of the presented disparities, so we only offer a cautious interpretation of this result.

Impacts of social science education on social essentialism more broadly

Results also revealed that essentialist explanation ratings correlated with scores on the Social Essentialism Scale. This correlation validated our interpretation of these ratings as indicating social essentialism. However, in contrast to our predictions, social science coursework was not associated with reduced scores on the Social Essentialism Scale. In fact, analyses of specific subscales revealed that social science coursework was associated with *increased* endorsement that social categories are discrete – that social category membership is all-or-nothing and that people are meaningfully defined by their social category membership. This may reflect the group-based rather than individual-based level of analysis that these disciplines employ. We discuss these results in more depth below.

Implications for social essentialism research

We find that, while social science coursework may shift students from essentialist to structural explanatory frameworks, it may simultaneously preserve (or even, as our results suggest, reinforce) a view of social categories as homogenous and discrete. This aligns with recent arguments that views social categories as homogenous and discrete may not be "signatures" of essentialist thinking, but could also reflect structural thinking (Vasilyeva & Ayala-Lopez, 2019; Vasilyeva & Lombrozo, 2020).

Our results align with recent theories that essentialism may not be a single unified construct, as it was once discussed. Social science education appears to reduce essentialist explanations, but enhance conceptions of category discreteness, suggesting that these two dimensions of essentialism may be somewhat independent. This aligns with recent discussions which aim to delineate these dimensions (e.g., Noyes & Keil, 2020; Rhodes & Mandalaywala, 2017). Our findings support future work that honors the multidimensional nature of essentialism as a construct.

These results also raise questions about whether viewing social categories as discrete is problematic in the context of structuralist explanatory frameworks, as they are in the context of essentialist frameworks. It is possible that viewing groups as homogenous and sharply-bounded is socially problematic, whether essences or structures are viewed as accounting for these properties. Alternatively, it is possible that viewing groups as discrete is not so problematic in the context of structural thinking. For example, understanding that all Black Americans experience racism or that all White Americans receive social advantages cast these groups as homogenous, but homogenous in their shared lived experiences, which may have more positive downstream consequences than traditional essentialist views of category discreteness. Prior research has found that scores on the Discreteness subscale are positively associated with stereotype evaluation and endorsement (Bastian & Haslam, 2006), but has not investigated whether these associations persist regardless of the causal-explanatory framework used.

In other words, viewing category membership as meaningful and category members as homogenous in a structural context may no longer associated with pernicious downstream consequences. Future work should investigate these questions.

Implications for social science educators

What should social science educators conclude from these results? First and foremost, we believe educators should take heart that their classrooms appear to facilitate changes in students' causal-explanatory frameworks. Structural explanations are notoriously counterintuitive (Elenbaas, Rizzo, & Killen, 2020; Vasilyeva, Gopnik, & Lombrozo, 2018) and are associated with a host of positive social consequences (Peretz-Lange, Perry, & Muentener, 2021; Yang, Naas, & Dunham, 2021), so it is encouraging that social science education may be a vehicle for promoting this kind of reasoning.

Second, given that social science education may enhance conceptions of social categories' discreteness, educators may want to consider using teaching strategies that can help students avoid drawing these conclusions. For example, by highlighting variability within categories (Emmons & Kelemen, 2015; Menendez et al., 2020) and using specific rather than generic language (Rhodes, Leslie, & Tworek, 2012; Rhodes et al., 2018), educators may be able to help students avoid conceiving of category members as homogenous.

Limitations

It is important to note that our design was not experimental; participants were not randomly assigned to enroll in social science courses. As a result, we take caution in drawing strong causal conclusions about how such coursework impacts social essentialism. Nevertheless, we wish to highlight two aspects of our design that we feel support causal conclusions: First, students at both institutions are required to take social science coursework as part of their General Education distribution requirements. Thus, whether a student has or has not (yet) taken such coursework does not reflect their preexisting interests or worldviews, creating a quasi-experimental design. Second, we collected information on students' intended majors as a proxy for their interests and worldviews, allowing us to ensure that coursework itself accounted for the observed effects. Our sample included many students who intended to major in the social sciences but who had not yet completed any social science coursework, as well as students who had taken many social science courses but did not intend to major in these disciplines, allowing us to disentangle course experiences from interests. Our results revealed that coursework, but not intended major, predicted essentialist explanations and endorsement of discreteness. Thus, we believe these results reflect impacts of coursework on essentialist beliefs, though our design does not allow us to draw iron-clad conclusions in this regard. We plan to use experimental methodologies to confirm causal directionality in our future work.

Another limitation of the present study was that we considered social science coursework as a whole, without investigating differences within such coursework. Classroom experiences vary by discipline, level, institution, instructor, pedagogical approach, and many other factors, and we expect these differences to produce differences in the effects found in this study. We hope to investigate this in our future research.

Conclusions

People's explanations for social disparities have far-reaching consequences on prejudiced attitudes, political behaviors, and worldviews. Although research has examined many subtle cues and linguistic inputs that shape these explanations, surprisingly little research has examined whether formal educational experiences – directly teaching people about the nature and origins of social disparities – can reduce essentialist conceptions. The present study provides the first evidence that social science coursework reduces endorsement of essentialist explanations for racial disparities. However, we do not find that such coursework reduces social essentialism more broadly; in fact, we find that it enhances certain dimensions of essentialist thinking. Thus, the impacts of education on social essentialism may be quite nuanced. These results raise questions about how explanatory reasoning relates to other dimensions of social essentialism, and about the consequences of shifting people from essentialist to structural explanatory reasoning. We hope that future research continues to investigate these topics.

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