Race-evasive ideology in U.S.-based science communication fellowship director discourse

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Abstract

A critical examination of science communication training programs may uncover barriers to cultivating inclusive, equitable, and just science communication spaces. In this study, we analyzed science communication fellowship director's discourse for evidence of race-evasive ideology — language that avoids talk of race and justifies current racial inequity as the outcome of nonracial processes [Bonilla-Silva, 2006]. We found the four frames of race-evasive ideology (minimization, abstract liberalism, cultural racism, and naturalization) pervasive in interviews with science communication fellowship directors. We discuss how these findings might explain why structural racism persists in science communication organizations despite their directors' best intentions.

Keywords Science communication teaching; Social inclusion

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Introduction

Increasingly, scientific leaders are calling upon their colleagues to engage with the public on scientific topics [Leshner, 2015; Thorp, 2020]. And scientists, it seems, are answering these calls to communicate [Besley, 2014; Rainie, Funk & Anderson, 2015; The Royal Society, 2006; Nisbet & Scheufele, 2009]. However, successfully addressing the "wicked problems" [Rittel & Webber, 1973] of science requires considering different forms of knowledge and types of experiences present in society [Wynne, 1992]. Science communication training programs may be one important space for inviting in all of these different voices, as these programs aim to provide scientists with the skills and self-efficacy to communicate about scientific topics [Besley & Tanner, 2011; Newman, 2019]. As such, while these training programs continue to proliferate [Baram-Tsabari & Lewenstein, 2017; Dudo, Besley & Yuan, 2021; Heath et al., 2014; Washburn, Essary, Irlbeck, Gibson & Akers, 2022] we must ask a key question: what efforts are they making to be accessible, equitable, and inclusive?

Past research on science communication training programs suggests these programs do not yet center inclusive approaches [Besley, Dudo & Smith, 2017;

Canfield & Menezes, 2020; Dudo et al., 2021; Yuan et al., 2017]. These programs typically do not have diverse leadership [Dudo et al., 2021], and are not intentional when it comes to recruiting diverse participants [Besley et al., 2017], and engaging with diverse audiences [Dudo et al., 2021]. Limited evaluation practices and infrastructure also constrains the ability of these programs to evolve [Barrel-Ben David & Baram-Tsabari, 2019; Besley, Dudo, Yuan & AbiGhannam, 2016; Smith, 2019].

Science communication fellowship programs may inhabit a unique niche among science communication training programs. These fellowship programs embed scientific experts in powerful organizations (e.g., government, media, festivals, museums) and give scientists supported, real-life experiences communicating scientific research. These programs may differ from other efforts in that they provide some of the most intensive and experiential science communication training to scientists. However, to date, little research has investigated these programs and the role they play in resisting or reproducing structural inequalities found in society at large.

To investigate these potentially unique programs and how they may reproduce — or resist — inequity, we examined science communication fellowship directors' discourse through the rich theoretical lens of race-evasive ideology [Bonilla-Silva, 2006]. Race-evasive ideology, which constitutes a denial of racial differences and an emphasis on sameness, represents a barrier to diversity, equity, and inclusion in science communication spaces. We conducted semi-structured interviews with twenty-five United States-based science communication fellowship directors representing twenty-three distinct programs over a three-month period (May 2019–July 2019). The choice to work with interviewees from the United States was a purposeful one based on the significant cultural differences in science communication practice [Canfield & Menezes, 2020; Bevan & Smith, 2020] as well as the historical and current context of structural racial inequities in the United States [Omi & Winant, 2014]. We begin our analysis with fellowship directors' views on diversity but also expand to questions not directly about diversity to examine the racial ideology of their discourse [Ray, 2019; Bonilla-Silva, 2006; Mueller, 2017]. We conclude the paper with the implications of our findings as well as recommendations for cultivating anti-racist science communication fellowship programs. These recommendations are offered not to punish, shame, or blame but rather as an opportunity for researchers and practitioners to cultivate inclusion, belonging, and justice in the science communication ecosystem.

Literature review

Science communication and racial ideology

Science communication efforts tend to benefit privileged and dominant groups of people (e.g., white, male, heterosexual, non-disabled, affluent) [Canfield & Menezes, 2020; Cobern & Loving, 2001; Dawson, 2014; Medin & Bang, 2014; Smith et al., 2020; Taylor, 2017]. Previous research connects the exclusivity of science communication to several individual-level factors — including ignorance [Dawson, 2014; Feinstein & Meshoulam, 2014], implicit biases [Christidou, 2011; Taylor, 2014], and resistance to change [DiAngelo, 2018; Feinstein & Meshoulam, 2014; Bang, Marin & Medin, 2018; Smith et al., 2020] — and system-level factors — including lack of evaluation [Mack et al., 2012; Barrel-Ben David & Baram-Tsabari,

2019], lack of infrastructure [Berditchevskaia, Regalado & Van Duin, 2017; Falk, Randol & Dierking, 2012; Chilvers, 2013; National Science Foundation, 2018; Mack et al., 2012; Smith, 2019; Taylor, 2014], and lack of diverse leadership [Feinstein & Meshoulam, 2014; Pearson, Ballew, Naiman & Schuldt, 2017; National Science Foundation, 2018; Taylor, 2014; Taylor, 2017; AbiGhannam, 2016; Ecklund, James & Lincoln, 2012].

Our examination of science communication fellowship programs focuses on how racial ideology may inhibit anti-racist practices in training programs. Of course, many types of social hierarchies continue to exist, and many of the ideological frameworks we mention here are used to justify other forms of inequity (e.g., gender, class), but we focus our work in this paper on race relations. However, social equity efforts focused on race often benefit other oppressed groups, as power and oppression exist across multiple and overlapping social identities [Crenshaw, 1991; Holvino, 2010; Gready, Boesten, Crawford & Wilding, 2010; Hooks, 2000; Rodino-Colocino, 2014; Okun, 2000].

Race is a social construction [Ray, 2019; Bonilla-Silva, 2006; Omi & Winant, 2014]. A history of white racial dominance created a justification of racial definitions and differentiation based on skin color, national origin, culture, and other factors [Omi & Winant, 2014]. Racism is the racial ideology that serves to justify racial hierarchy and inequality [Bonilla-Silva, 2006]. As Ta-Neheisi Coates writes in *Between the World and Me,* "race is the child of racism, not the father" [2015].

Although race is a social construction, it is a social construction with real consequences. Overt racial discrimination is now — for the most part — socially contemptible and illegal; nevertheless, racism lingers in more subtle and complex ways [Bonilla-Silva, 2006; Omi & Winant, 2014]. Structural racism shows up in racial patterns of residential segregation [Massey & Denton, 1993], school tracking [Irizarry, 2015; Lewis & Diamond, 2015], and incarceration rates [Alexander, 2020] — all of which affect the life chances of BIPOC Americans [Goering, 2007; Oliver, Shapiro & Shapiro, 2006; Shapiro, 2004].

Likewise, the field of academic science's racialized structures and systems routinely disadvantage BIPOC students [McGee, 2016; McGee & Robinson, 2019; Harper, 2012]. BIPOC students are underrepresented compared to the overall population, and this underrepresentation worsens at the graduate level and upward [National Center for Science and Engineering Statistics, 2020]. At the individual level, BIPOC students report microaggressions, toxic environments, and feeling excluded [Cvencek, Nasir, O'Connor, Wischnia & Meltzoff, 2014; Perna, Gasman, Gary, Lundy-Wagner & Drezner, 2010; McGee & Bentley, 2017; Ong, Wright, Espinosa & Orfield, 2011; Tate & Linn, 2005].

Race-evasive ideology explains contemporary racial inequality as the outcome of nonracial dynamics [Bonilla-Silva, 2006]. This framework is also known as "colorblind" ideology, but we use the term "race-evasive" ideology here to avoid ableist language. Race-evasive discourse is characterized by the covert nature of racial discourse, claiming that an absence of accounting for race will bring about racial equality [Bonilla-Silva, 2006]. In reality, however, rejecting racial categorizations (e.g., record keeping, affirmative action) allows race-evasive ideology to hide structural racism and inequity [Bonilla-Silva, 2006]. Some recent

evidence suggests that science and science communication communities commonly employ race-evasive ideologies to justify current racial inequities in their fields [Benjamin, 2016; Daniels, 2015; Canfield & Menezes, 2020].

Critical Race Theory challenges the dominant narrative of race-evasive ideology [Delgado & Stefancic, 2017; Dixson & Rousseau Anderson, 2017; Ladson-Billings & Tate, 1995; Lynn & Dixson, 2021]. Critical Race Theory discourse is characterized by transparent, race-conscious talk about disparities and differences. Critical Race Theory also connects disparities to historical and contemporary structural racism, rather than to other sources (e.g., socioeconomic status) [Delgado & Stefancic, 2017; Dixson & Rousseau Anderson, 2017; Ladson-Billings & Tate, 1995; Lynn & Dixson, 2021].

In this study, we categorize science communication fellowship directors' discourse as either race-evasive or explicitly mentioning race (i.e., using Critical Race Theory). If science communication fellowship directors employ race-evasive ideology in their discourse, we expect they will avoid talking about race and attribute any lack of diversity in their programs to other sources. Conversely, if directors are employing Critical Race Theory, we expect their discourse will acknowledge the historical and contemporary context of inequity and will engage in reflection on their own practices and role in reproducing or resisting inequities.

> RQ1: How do fellowship directors describe the current state of racial diversity in the makeup of fellows, fellowship staff, and audiences?

Racial evasive ideology

Examining science communication fellowship directors' discourse for evidence of race-evasive ideology may illuminate why structural racism persists in these organizations despite our best intentions [Bonilla-Silva, 2006; Ray, 2019]. Previous research suggests that science communication researchers and practitioners commonly participate in race-evasive maneuvers that obscure the role of racial inequality in science discourse [Bonilla-Silva, 2020; Duster, 2015; Gould, 1996; Graves Jr., 2003; Roberts, 2011; Washington, 2006; Yudell, 2014]. During the current Covid-19 pandemic, race-evasive science communication tactics have predominated, limiting our understanding of how structural racism exacerbates the pandemic's effects [Bonilla-Silva, 2020]. For example, Surgeon General Adams' and Dr. Anthony Fauci's comments about higher COVID-19 mortality in BIPOC communities naturalized these deaths as the result of cultural differences in health preconditions rather than examining the ways in which the pandemic exposed the preconditions of racialized structural inequity [Steven, 2020; Zeeshan, 2020].

The frames of race-evasive ideology are interpretive filters that justify phenomena that could otherwise be understood as structural racism. This insulation from the reality of structural racism allows us to continue with "business as usual." For race-evasive ideology, Bonilla-Silva [2006] has described four frames: (1) minimization, (2) abstract liberalism, (3) cultural racism, and (4) naturalization. If present, we expect these frames to be found in overlapping ways in fellowship directors' rationalizations of the racial structure of their programs.

Minimization of racism

The race-evasive ideology frame of *minimization* argues that discrimination is no longer a central factor in BIPOC's lives [Bonilla-Silva, 2006]. This frame is used to argue that racism and discrimination are "better than it was in the past" and blame BIPOC for being oversensitive or for "playing the race card" when they bring up instances of racial discrimination [Bonilla-Silva, 2006; Hagerman, 2020]. If present, this interpretative frame might materialize in arguments that class or gender plays more of a role than race in the diversity struggles of science communication programs [Bonilla-Silva, 2006].

> RQ2: To what extent and in what ways do science communication fellowship directors employ the minimization frame of race-evasive ideology in their discourse?

Abstract liberalism

The race-evasive frame of *abstract liberalism* employs the ideas of political and economic liberalism to explain away racial observations, allowing the speaker to appear both rational and moral while they argue against any practical action to address structural racial inequity [Bonilla-Silva, 2006]. Abstract liberalism is often the most prevalent frame found in discourse and is central to race-evasive ideology.

Appeals to meritocracy may appear progressive but, in reality, ignore historical and ongoing discrimination and protect white privilege [Bonilla-Silva, 2006]. Using abstract liberalism, white individuals frame recruitment and hiring decisions as market choices where the best person gets the position, appealing to abstract notions of equal opportunity that frame everyone as an individual with a choice of whether to participate [Bonilla-Silva, 2006]. This emphasis on the individual and on meritocracy allows them to argue against policies that might seem like preferential treatment of any group (e.g., affirmative action). The myth that everyone makes their own choices ignores the fact that many social groups in the United States lack the power to do so, and insisting on individual treatment only serves to benefit the dominant group [Ingram, 2000; Bonilla-Silva, 2006]. Discourse framed in abstract liberalism obscures the historical and ongoing structural barriers that BIPOC face in STEM spaces [Basile & Lopez, 2015; Castilla & Benard, 2010; López, 2003; Martin, 2009] including the fact that most jobs (about 80%) are acquired through informal — often white and homogeneous — networks [Bonilla-Silva & Lewis, 1996; Cox, Navarro-Rivera & Jones, 2016; Hagerman, 2020], and the continued group-based advantages that white people continue to enjoy [Irizarry, 2015; Hagerman, 2020; Lewis & Diamond, 2015; Harris, 1993; Ingram, 2000].

Even when people talk more transparently about race, they may also employ abstract liberalism in the "happy talk" of diversity — when they talk about diversity uncoupled from power and inequity [Andersen, 1999; Bell & Hartmann, 2007]. This "happy talk" allows people to performatively celebrate diversity without requiring them to acknowledge their complicity in structural racism or to enact concrete measures to address inequities [Andersen, 2001; Bell & Hartmann, 2007]. Scholars suspect that societal norms may be shifting in ways that expect white people to be at least a little aware about white privilege and racism, and we

may begin to see new forms of "pro-diversity" discourse that remain only shallowly race-conscious [Bell & Hartmann, 2007; Berrey, 2015; Burke, 2012]. If the frame of abstract liberalism is present in fellowship directors' discourse, it may appear as this "happy talk" about diversity.

> RQ3: To what extent and in what ways do science communication fellowship directors employ the abstract liberalism frame of race-evasive ideology in their discourse?

Cultural racism

Bonilla-Silva [2001, 2006] describes *cultural racism* as a race-evasive frame that uses arguments of fixed cultural differences to explain racial disparities in our society. White people use this frame to justify the lower representation of BIPOC in STEM as a lack of interest in education — due to essential cultural differences — rather than the product of entrenched structural inequities [Bonilla-Silva, 2006; Lewis, 1998]. STEM spaces are commonly characterized by their "survival-of-the-fittest" approach, which attributes failure to individual student characteristics rather than context [Cobb & Russell, 2014; Gasman et al., 2009]. When underrepresented students are blamed for their own underrepresentation in STEM, both educators and BIPOC students themselves assume they are culturally unable to tackle the intellectual rigor of the STEM field [**Gutierrezetal2012**; Carlone & Johnson, 2007; Brown et al., 2015; Martin, 2013; McGee, 2016]. If science communication fellowship directors' discourse contains this frame, it might appear as arguments that cultural differences are to blame for low participant diversity (rather than structural inequity).

> RQ4: To what extent and in what ways do science communication fellowship directors employ the cultural racism frame of race-evasive ideology in their discourse?

Naturalization

The *naturalization* frame of race-evasive ideology explains away racial inequities as natural phenomena [Bonilla-Silva, 2006; Hagerman, 2020; Lewis, 2004]. For example, white people often justify racial segregation as natural, arguing that people tend to gravitate towards people like themselves [Bonilla-Silva, 2006; Lewis, 2004]. Naturalization rationalizes racist social processes (e.g., segregation, preference for white friends) as "just the way things are" [Bonilla-Silva, 2006]. If science communication fellowship directors' discourse utilizes this frame, it might manifest as interpreting low racial diversity of their programs as natural (rather than the outcome of historical and ongoing processes of redlining and tracking) [Bonilla-Silva, 2001; Rothstein, 2017].

> RQ5: To what extent and in what ways do science communication fellowship directors employ the naturalization frame of race-evasive ideology in their discourse?

Materials and methods

Sampling

We compiled a list of science communication fellowship programs in the United States, starting with an initial list provided by The Rita Allen Foundation and supplementing it with targeted Internet searching. After collecting a list of eighty science communication fellowship programs, we concluded the search process because we were satisfied that our list represented the community of continually-operating science communication fellowship programs.

From this list, we selected fifty programs to contact for phone interviews, purposively sampling from our initial list for a range of fellowship sizes, lengths, and domains (e.g., policy-, museum, festival-, media-based). In an email to the fellowship program, we described the project and invited them to participate in an interview. We sent up to 2 follow-up emails to those that did not respond. Of the fifty we contacted, thirty-one responded, and of the thirty-one respondents, directors from twenty-three programs were available to be interviewed.

We spoke with twenty-five people involved in twenty-three science communication fellowship programs. This final sample size was determined inductively based on a careful, collective judgement from the authors that no new information was emerging from the interviews (i.e., data saturation was reached) [Guest, MacQueen & Namey, 2011; Miles & Huberman, 1994; Morse, 1995].

Prior to the phone interview, we obtained demographic information and informed consent (per our IRB approval) through a Qualtrics pre-survey e-mailed to all interviewees. All twenty-five directors provided demographic information and informed consent.

Interview protocol and procedure

We conducted interviews over the phone, as the science communication fellowship directors were located around the United States. The first author conducted 17 interviews, the second author conducted 6 interviews, and the third author conducted 2 interviews. All interviews were recorded, transcribed immediately, and shared with the other interviewers. The average interview took 54 minutes to complete, with the range spanning from 32 minutes to 97 minutes. All interviews were conducted between May 23, 2019, and July 31, 2019. We used a semi-structured interview protocol, adapted from previous studies of science communication trainers [Besley et al., 2016; Dudo et al., 2021]. All study protocols and procedures were approved by the Institutional Review Board at our institution. Ethical standards, including informed consent, confidentiality, and ability to withdraw at any point, were followed.

Analyses

We examined science communication fellowship directors' interviews for the extent to which they contained race-evasive or racially-transparent discourse using NVivo software [Bonilla-Silva, 2006; Delgado & Stefancic, 2017]. When we found discourse that included explicit mentions of racial diversity, we examined this discourse for whether it connected race to power and inequity (i.e., examining it for

the "happy talk" of diversity) [Bell & Hartmann, 2007]. We iteratively developed a coding schema based on Bonilla-Silva's [2006] frames of race-evasive ideology: (1) minimization, (2) abstract liberalism, (3) cultural racism, and (4) naturalization. Analysis began with questions that focused on fellowship directors' views on diversity but also expanded to include comments made in response to questions that were not directly about diversity.

Results

Fellowship participant racial diversity (RQ1)

Most science communication fellowship directors reported low racial diversity among fellowship participants. As one interviewee described, "We have a more uniform population of fellows than I personally would like. They tend to be either grad students or postdocs. They tend to come from academia" (Interview 13).

Most directors reported that they were not intentional about the racial diversity of their participants. Rather, they conceptualized their programs as race-neutral and meritocratic, utilizing the abstract liberalism frame of race-evasive ideology [Bonilla-Silva, 2006]. One participant's remarks exemplify the majority of responses we received about this lack of intentionality:

> "It's not a specific question we're calling out in the application process to know about different diverse backgrounds of the applicants. It's really just picked based on the quality of their applications and their work and things like that. [. . .] It hasn't necessarily been intentional." (Interview 25)

Fellowship directors often attributed this low racial diversity on the homogeneity of STEM, employing frames of naturalization in their justifications (e.g., "that's just the way it is") [Bonilla-Silva, 2006]. Directors also attributed the overrepresentation of white- and female-identifying participants to higher intrinsic motivation and interest of white and female participants, failing to consider how engagement and teaching are often gendered and considered "less than" research [Thiry, Laursen & Liston, 2007]:

> "Demographically, they're mostly late twenties, early thirties. [. . .] They're mostly white. Mostly white ladies. Mostly women. [. . .] I can't quite figure out — [another policy fellowship] seems to be skewing female as well. The policy realm in general tends to skew that way a little bit." (Interview 23)

Fellowship director racial diversity (RQ1 cont.)

Science communication fellowship directors skewed white and female-identifying. Specifically, 84% identified as female, 16% identified as male, and 0% identified as nonbinary, trans, or third gender. Of the female-identifying directors, 18 identified as white/not Latinx, 2 identified as white/Latinx, 1 identified as Black/African-American, and 1 identified as American Indian/Alaska Native. Of the male-identifying directors, all identified as white and not of Latinx origin. Together, these results suggest few BIPOC are in positions of power in science communication fellowship programs.

Despite the homogeneity of their leadership, science communication fellowship directors were not introspective about their primarily white management. Instead, they often attributed low diversity on funding and staff size constraints (most fellowship staff consisted of one or two people). One director explained their low organizational racial diversity saying, "One of our goals is to be more diverse. It's hard to do that on an employee level when you've only got two of us. There's myself and our executive director. There's only so much room there" (Interview 11).

Most science communication fellowship directors described their hiring practices as *ad hoc* and as occurring through established networks. They commonly mentioned evaluating new hires on characteristics like being detail-oriented, organized, and able to juggle multiple roles — not racial diversity. Overall, the fellowship directors we interviewed were not intentional about hiring for racial diversity and were often recruited from their own networks.

Audience racial diversity RQ1 cont.

While most of the policy- and media-based science communication fellowship program directors' discourse did not mention diversity without prompting, museum-based fellowship directors discussed diversity unprompted in terms of audience diversity. Most often, museum-based directors conceptualized audience diversity and inclusion through the lens of gender. A few directors acknowledged they wanted to be more racially inclusive, but the concrete steps they had taken toward gender inclusion were often better articulated than those taken towards racial inclusion. Solutions offered for racial exclusion of museum audiences were often abstract or limited to implicit bias training, which does not address system-level racism.

Race-evasive ideology pervasive (RQ2)

Science communication fellowship directors rarely mentioned the word "race" in their interviews. Of the twenty-five interviewees, only four mentioned the world "race" (or "racial") in their entire interview. One interviewee mentioned "race" twice, while the other three only mentioned "race" once. Yet, thirteen of the twenty-five interviews mentioned the word "diversity" (or "diverse"). Together, these results indicate that the majority of communication fellowship directors employed language consistent with race-evasive ideology [Bonilla-Silva, 2006].

When asked about differences and diversity among their fellows, directors often referred to diversity of scientific discipline — not racial diversity. One director's explanation of the recruitment process is representative of the majority of responses: "I pretty much base acceptance off of them answering questions and looking for a diversified group as far as what their subject matter is" (Interview 22). Although directors often used phrases like "all of the dimensions of diversity," they most often meant subject-matter diversity among their fellows. Commonly, but less often, they referred to diversity in terms of fellow experience level. A few directors spoke about diversity of culture and identity, but they did so vaguely and never connected this to issues of power and equity.

Minimization frame: "gender/class trumps race" (RQ2)

Many science communication fellowship directors insisted that gender remains the primary challenge for belonging in STEM academic spaces (while not mentioning race). Directors brought up class and socioeconomic background less often than gender (but more often than race) as a source of differences among their fellows, conflating economic and racial diversity but only mentioning economic. One participant claimed, "The only differences I see from my end is some of our fellows that come from more underrepresented backgrounds, and not just underrepresented — I would say fellows that come from more financially insecure backgrounds" (Interview 1).

When speaking about race, science communication fellowship directors commonly used coded language. For example, one said, "I've had some people that have come from some really interesting backgrounds, a lot of first-generation science people" (Interview 22). Coded terms that were frequently used included: "first generation", "underrepresented backgrounds", "low income", and "demographic details."

Science communication fellowship directors also exhibited increased rhetorical incoherence (e.g., grammatical mistakes, lengthy pauses, repetition) after being asked about racial diversity in their programs [Bonilla-Silva, 2006]. Most commonly, rhetorical incoherence manifested as a long pause after they were asked the questions about diversity, equity, and inclusion — a pause that did not often occur for other topics.

While directors had ready answers for other questions, they seemed more guarded and asked for more clarification after questions about diversity and difference. After asking if they would like their staff to be more diverse and what barriers to diversity they perceive, one paused for a while before saying, "We should answer this question carefully and thoughtfully" (Interview 19).

Fellowship directors also "detoured" (i.e., changed the subject) when asked about racial diversity. For example, one evaded a question about diversity by talking about how scientists themselves are harmed by stereotypes (e.g., nerdy, wear lab coats) rather than answering.

Abstract liberalism: "equal opportunity" (RQ3)

The most commonly employed frame of race-evasive ideology by science communication fellowship directors was abstract liberalism, often combined with the other frames. This frame manifested most often in how directors described their application process as meritocratic [Bonilla-Silva, 2006]. Directors seemed eager to appear race-neutral and unbiased when it came to applications:

> "I have never asked any leading questions on their application to get information about ethnicity or if they're a foreign student or anything like that. In an ideal situation, it'd be great to have fifty percent male, fifty percent female, or something along those lines. Honestly, I very rarely even look at the names, or I glance at them to see if I know the person already. Otherwise, I pretty much base acceptance off of them answering questions and looking for a diversified group as far as what their subject matter is." (Interview 22)

The majority of fellowship directors did not intentionally seek racial diversity in their fellowship cohorts. Yet, they often pursued other dimensions of diversity among their participants (e.g., discipline, experience level, gender). This suggests that the absence of intentionality around racial diversity indicates race-evasive ideology, not benign neglect.

Abstract liberalism: "happy talk" of diversity (RQ3 cont.)

A few science communication fellowship directors mentioned racial diversity unprompted. However, they all seemed to conceptualize diversity in shallow ways — often in terms of equity of access (e.g., broadening participation) rather than equity of outcomes (e.g., inclusion and empowerment). Bell and Hartmann [2007] describe this discourse as the "happy talk" of diversity: abstract, universal descriptions of diversity that detach diversity from social inequity [Bell & Hartmann, 2007]. These few spoke of diversity in terms of culture and identity disconnected from issues of structural racism, power, or inequity [Andersen, 1999]. While these directors named diversity as a core value, they often did not connect this value to concrete actions beyond broadening participation. For example, one mentioned diversity, but their tactics focused thinly on representation:

> "Each year we try to have a very diverse cohort, diverse in terms of race, income, scientific background, sexual orientation. We want them to all feel like they're one cohort. We don't want any one person to feel othered or outside. It helps when you have diversity of all kinds." (Interview 1)

Science communication fellowship directors' discourse suggests that their organization's core values — at least around diversity, equity, and inclusion — may be decoupled from practice [Ray, 2019]. Although these (few) fellowship directors claimed diversity as a core organizational value, they did not allude to these diversity values when answering other questions (e.g., what had changed over time for their programs, what they would do with less constraints, or what promising practices they would share with other organizations). They also did not report concrete actions they took to enact these core diversity values, which suggests that diversity is valued only in the abstract (i.e., abstract liberalism). For example, one (Interview 19) mentioned how their recent awareness of the environmental justice movement motivated them to value racial diversity in their programming but lamented that they were at a loss for how to implement this. This discourse may represent what Mueller [2017] describes as "mystifying practical solutions" — a strategy of white epistemological ignorance when confronted with racial awareness.

Cultural racism: "not a diversity program" (RQ4)

Cultural racism manifested more subtly than the other frames of race-evasive ideology in the interviews with science communication fellowship directors, likely because their discourse contained few explicit mentions of race. As we discussed above in the section about abstract liberalism, describing science communication fellowship programs as race-neutral meritocracies blames BIPOC for their own exclusion, implying that group-level deficits of interest and motivation — not

structural inequity — explain the overrepresentation of white- and female-identifying fellows [Bonilla-Silva, 2006].

Cultural racism frames also emerged by comparison when participants applauded the initiative and motivation of international students, implying US-born BIPOC's lack of participation in their programs is due to choice. Although these appear to be simple compliments, they exist amid a history of cultural racism in the United States that blames U.S.-born BIPOC for their own exclusion by comparing them to international groups [Steinberg, 2001; Treitler, 2020].

When asked about their program, one interviewee responded, "[T]raditional definitions of diversity, while we deeply appreciate them and they're always part of our selection process, it's not something that's explicit. It's not an explicit goal of ours to be a diversity program" (Interview 19). Not placing diversity as a focus of the program naturalizes the low diversity of the program (mostly white women) and obscures mechanisms that have systemically prevented the full participation of BIPOC in programming. Arguments about how a focus on increasing diversity leads to lowering standards are rooted in cultural racism [Bonilla-Silva, 2006; Shaw, 2009]. While this comment does not explicitly state this, it implies that focusing on diversity would come at a cost.

Naturalization: blaming STEM for low racial diversity (RQ5)

Science communication fellowship directors' discourse failed to acknowledge historical and ongoing structural racism, rationalizing low racial diversity with the naturalization frame of race-evasive ideology [Bonilla-Silva, 2006]. Participants primarily engaged this frame by blaming their fellowship's lack of racial diversity on the lack of racial diversity in STEM (e.g., "just the way it is"):

> "For us, we struggle with it [diversity] with our program. Really, it's a problem in our applicant pool. [...] I think the problem lies in the fact that the people interested in our program are coming out of the sciences. There's a diversity problem in the sciences themselves. If we could fix that, we could fix our portion of the problem. [laughs]" (Interview 23)

Fellowship directors often conceptualized the racial diversity of their participants as what "happened to be there." For example, one remarked, "We're no different from anybody else. If a really good scientist who happens to be a person of color shows up, they're like a national treasure." (Interview 19)

Discussion

Current state of racial diversity

Science communication fellowship directors describe the racial diversity of both their participants and staff as fairly homogenous; both skewed white- and female-identifying. Previous research on the science communication ecosystem also found low racial diversity in program participants [Dudo et al., 2021] and in leadership [AbiGhannam, 2016; Canfield & Menezes, 2020; Dudo et al., 2021; Ecklund et al., 2012].

Despite calls for increased racial diversity in United States organizations, racial change at the top of hierarchies has been minimal [Embrick, 2011; Sakamoto, Goyette & Kim, 2009]. Low racial diversity in science communication fellowship leadership conforms to theories of racialized organizations [Collins, 1997; Branch & Wooten, 2012; Ray, 2019] and likely contributes to the reproduction of racial inequities [Combahee River Collective, 1977; Hooks, 1981; Ray, 2019; Sanchez-Hucles & Davis, 2010].

Most interviewees blamed low staff diversity on limited funding and staff size (most fellowship programs consisted of one or two people). These justifications may serve to legitimize the unequal distribution of resources [Ray, 2019] and opportunity hoarding [Lewis & Diamond, 2015].

These programs rarely prioritized diversity in recruiting participants or staff which matches findings from previous interview work on science communication trainers [Besley et al., 2017; Dudo et al., 2021]. The "organic" hiring practices described by science communication fellowships fail to acknowledge the historically racialized context of science communication and likely obscure how these hiring practices protect science communication fellowship programs as white organizations [Ray, 2019].

Policy- and media-based science communication fellowship programs did not prioritize training scientists to engage with diverse audiences, which echoes findings from previous work on training programs [Dudo et al., 2021]. Museum-based science communication fellowship programs, on the other hand, did prioritize training their participants to communicate with diverse audiences but primarily in terms of gender.

Minimization

Interviews contained few mentions of race (4 interviews) compared to mentions of diversity (13 interviews). Participants often implied that gender or class played a prominent role in exclusion, while neglecting to mention race. With these "gender/class trumps race" arguments, directors ignored structural racism [Mills, 2014; Mueller, 2017].

This reasoning frames non-participation by BIPOC as a "choice" and employs the race-evasive frame of "minimization" [Bonilla-Silva, 2006]. As Feagin [2013] and Mills [2014] have argued, minimization protects white psychic ignorance, ensures white virtue, and diminishes empathy for BIPOC (i.e., "social alexithymia"), a distancing tactic that legitimizes and obstructs critique of current structures of racial inequity.

Coded language about race may allow directors to talk about race in covert ways — to notice the racial locations of others without appearing racist [Bonilla-Silva, 2006; Feagin, 2006; Morrison, 1992]. This language is not neutral because coded language downplays historical and ongoing systemic racism and casts BIPOC in deficit frames [Bonilla-Silva, 2006; Cammarota, 2011]. It also reinforces the status quo and insulates white privilege from criticism, allowing white people to be critical of racism in the abstract but to individually choose to segregate and consolidate their privilege [DiAngelo, 2018; Lewis & Diamond, 2015].

Directors' rhetorical incoherence and detouring may represent symptoms of white fragility and discomfort with racial topics. Research on white fragility suggests that even minimal amounts of racial stress may trigger a suite of defensive moves in white people (e.g., argumentation, silence, leaving) [DiAngelo, 2018]. The United States social context often insulates white people from race-based stress. To develop anti-racist science communication organizations, we suggest white fellowship directors cultivate their racial stamina and ability to sit with racial discomfort [DiAngelo, 2018].

Abstract liberalism

The abstract liberalism frame manifested primarily in "equal opportunity" arguments. Science communication fellowship directors often framed their programs as race-neutral meritocracies. Because resources continue to be inequitably distributed among racial lines, scholars propose that whiteness serves as a form of property in systems that pretend to be fair and rational [Harris, 1993; Pager & Karafin, 2009; Ray, 2019].

A few of the science communication fellowship directors' interviews contained more racially-transparent language. However, these participants conceptualized diversity in shallow ways, namely in terms of culture/identity rather than power/inequity (i.e., the "happy talk" of diversity) [Bell & Hartmann, 2007]. Although "happy talk" of diversity appears, on the surface, progressive, it continues to reproduce structural racism and center whiteness that BIPOC are invited to assimilate into [Andersen, 2001; Bell & Hartmann, 2007; Doane, 1997; Lewis, 2004; McLaren, 1997]. "Happy talk" of diversity potentially tokenizes BIPOC scientists [Berrey, 2021]. The selective incorporation of BIPOC as organizationally useful (e.g., "moral credential") [Bendick & Nunes, 2012] results in checkbox diversity as opposed to meaningful, intersectional diversity [Crenshaw, 2017; Delgado & Stefancic, 2017].

Conceptualizing diversity as broadening participation regards BIPOC fellows' culture and experiences as commodities (i.e., "white debt" or "epidermal capital") [Hughey, 2010]. For example, when science communication fellowship directors spoke about international fellows, they described how these fellows culturally "enriched" their programs. Framing diversity as a cultural commodity inhibits deeper levels of inclusion and empowerment of participants. Rather, we urge science communication fellowship directors to engage in critical reflection on the ways their programs might challenge and transform social inequities and work towards more just power relations.

Exemplar frameworks such as YESTEM's *Equity Compass* provide guiding questions that support programs consider the multiple dimensions of equity in practice [YESTEM Project UK Team, 2020]. Its emphasis on equity (challenging and transforming social inequalities toward more just social relations) rather than equality (treating everyone the same) represents a move away from race-evasive ideology.

Cultural racism

Science communication fellowship directors rarely directly employed cultural racism frames in their discourse. However, this frame manifested indirectly, either by implication or by comparison. Ascribing the low racial diversity of their participants to group-level motivation and interest also blames BIPOC (rather than structural racism) for their exclusion [Bonilla-Silva, 2006; Powell, 2012]. Complimenting the ambition of international students (while neglecting to speak about U.S.-born BIPOC) represents a historically-used strategy of cultural racism that implies the success of international groups proves that U.S.-born BIPOC are not sufficiently ambitious or motivated [Steinberg, 2001; Treitler, 2020].

One fellowship director utilized cultural racism more directly when they implied that they would need to lower the standards of their program to become a "diversity program." This suggests that this director perceives white organizations as normative and neutral [Alba & Nee, 2003]. In the United States, white people remain racially segregated for most of their lives and are socialized not to feel loss over the absence of BIPOC [Hagerman, 2020; DiAngelo, 2018]. Whether in the construction of a "good neighborhood" or "good school," white people learn to view segregation as a gain (e.g., opportunity hoarding) rather than a loss [Doane & Bonilla-Silva, 2003; Hagerman, 2020; Lewis & Diamond, 2015].

Naturalization

Naturalization manifested when directors blamed the low racial diversity of their programs on the low racial diversity of STEM. Granted, STEM is especially exclusionary, even when compared to other academic disciplines [Lewis & Diamond, 2015; Tyson, 2011; Riegle-Crumb, King & Irizarry, 2019]. But by resigning themselves to low racial diversity as the "way things are," fellowship directors avoided introspection about how their own programs may be reproducing this exclusion.

Race-evasive ideology is pervasive

Science communication fellowship directors commonly employed discourse framed in race-evasive ideology [Bonilla-Silva, 2006]. A few were more transparent when talking about race, but they often used frames of "happy diversity" that failed to connect race to equity or power [Bell & Hartmann, 2007]. None of the science communication fellowship directors utilized Critical Race Theory frameworks in their discourse (i.e. explicitly mentioning racial difference in connection to power and inequity) [Delgado & Stefancic, 2017].

The prevalence of race-evasive ideology may serve to justify and obscure current racial inequities in these science communication fellowship programs, allowing directors to avoid deeper introspection about their programs' complicity [Bonilla-Silva, 2006; Lewis, 2004; Feagin, Hernan & Batur, 2000]. This is disappointing but unsurprising, as race-evasive ideology is the predominant ideology in the United States [Bonilla-Silva, 2006; Bonilla-Silva, 2020].

Limitations and future directions

To explore the landscape of science communication fellowship programs, these interviews with a sample of directors represent a necessary first step. We do not claim that these findings generalize to all science communication fellowship programs or to programs beyond the United States. Rather, we hope these particular examples might raise awareness of the prevalence and consequences of race-evasive ideology in science communication fellowship programs. We invite future studies examining how race-evasive ideology manifests in these organizations and interventions to develop more anti-racist training programs.

Our data are limited to the perspectives and demographics of science communication fellowship directors. We hope to conduct future studies that examine the experiences of science communication fellows and their audiences.

American organizations are deeply shaped by racial inequality [Ray, 2019]. Future work might examine how science communication fellowships produce and disseminate resources — both material and psychological — along racial lines, contributing to our understanding of how racial inequity persists without malicious intent [Ray, 2019].

We conducted these interviews in 2019 — before the Black Lives Matter uprisings of 2020. Follow up interviews might reveal if more awareness and introspection of race-evasive ideology exists now in these programs.

Implications and recommendations

We offer these critiques not to shame and blame these fellowship directors in particular. Their discourse represents a useful entry point for addressing broader structural issues. Additionally, science communication fellowship directors hold positions of power in their organizations and can transform science communication through accountability and repairing harm. As Adrienne Maree Brown writes in *We Will Not Cancel Us: And Other Dreams of Transformative Justice* [2021, p. 25], “Critiques are part of how we sharpen each other.”

We offer interpretations and recommendations through the lens of transformative justice — an abolitionist framework for responding to harm in ways that aim to interrupt the cycle of harm [Brown, 2021; Dixon & Piepzna-Samarasinha, 2020; Kaba, 2021]. Rather than encouraging punitive measures (e.g., shaming, blaming, canceling), we wish this research to be a touchstone to name harm, take accountability, and prevent future harm. This involves asking ourselves the following questions:

- *What forms of science communication infrastructure can we create to support more antiracist programming?*
- *What skills do we need to be able to prevent, respond to, heal from, and take accountability for harmful behaviors (e.g., race-evasive ideology)?*
- *What do both people harmed by and people who have harmed in this situation need?*

For instance, looking for discriminatory intent is not enough. Race-evasive ideology resists a conceptualization of racism as individual meanness toward another person [Allport, Clark & Pettigrew, 1954], as race-evasive ideology provides a specific set of justifications that continue to uphold society's racialized social system [Bonilla-Silva, 2006]. In this way, directors with "prodiversity" views may be unintentionally reproducing white supremacy by viewing their work with a race-evasive lens [Burke, 2012; DiTomaso, 2013]. We must consider a difficult question: Why does the intent of our action matter if our actual actions have the impact of furthering marginalization or oppression of those around us?

Perry's [2011] concept of "post-intentionality" is a helpful concept to move our thinking beyond looking for bad actors and discriminatory actions. Instead, "post-intentionality" reminds us how race-evasive ideology keeps us in ignorance about structural racism in the science communication landscape. Continuing with business-as-usual means continuing to engage in actions that promote white in-group favoritism [DiTomaso, 2013; Ray, 2019]. We unintentionally reproduce white supremacy when we do not connect the racial disparities we observe to the historical and current impact of structural racism [Trepagnier, 2017]. As Angela Y. Davis said, "In a racist society, it is not enough to be non-racist, we must be anti-racist."

As a start, we should stop conceptualizing racial inequality and discrimination as rare events done by bad actors. Instead, we must understand how structural racism operates even without malevolent intent [Bonilla-Silva, 2006]. This involves expanding our focus from individual-level discriminatory actions (e.g. implicit bias training) to the systemic level. This could involve examining current and historical resource inequalities between racial groups within an organization and actively interrupting racial hierarchy moving forward. Transformative justice frameworks invite us to take this awareness and accountability and turn it into behavioral change.

Education and awareness are often touted as antidotes to race-evasive ideology, especially through institutionalized diversity training programs [Gaertner & Dovidio, 2005; Hurtado, 2005]. While this is a first step, increased awareness is not a useful theory of change because racism operates at individual, organizational, and structural levels. Past research also points to several defense mechanisms, including "epistemological ignorance" and "white fragility" that stymie anti-racist work [Mueller, 2017; Mills, 2014; DiAngelo, 2018].

We, as social scientists, are also implicated in this. Research is not enough to interrupt race-evasive ideology, just as awareness is not enough. We hope the conversation will not stop here.

Transformative justice reminds us that we have a collective responsibility to change the culture of science communication. Specifically, this means moving beyond looking for intent and interpersonal prejudice to a more contextual understanding of structural racism. No one is born with race-evasive ideology, but we learn it through our socialization. A collective response that looks to punish a few "bad apples" feeds into the normative, punitive, and violent response our society often takes. This does not excuse or ignore harmful behavior. Rather, transformative justice invites us into accountability, and we analyze the context in which the harm

occurred. In lieu of offering a checklist for cultivating an anti-racist organization, we point to key traits of inclusive science communication — intentionality, reciprocity, and reflexivity — as guidelines for taking stock of our training programs [Canfield & Menezes, 2020].

Conclusion

Evidence of race-evasive ideology pervades the discourse of science communication fellowship directors. A few spoke more transparently about race, but they conceptualized it in terms of culture and identity (rather than inequity and power) — the "happy talk" of diversity. None of the interviews contained evidence directors employed Critical Race Theory.

Both discourse embedded in race-evasive ideology and the "happy talk" of diversity obscure structural racism in subtle and insidious ways. Our language and ideologies have implications for who is included in the circle of human concern in science communication training programs [Powell, 2012], and these findings reveal why some interventions (e.g., implicit bias training) have proven insufficient. Science communication fellowship directors are in positions of power and able to transform their organizations to be anti-racist. As Maya Angelou said, "I did then what I knew how to do. Now that I know better, I do better."

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