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Contexts of Diversity, Equity and Inclusion Grant Initiatives: Moving beyond good intentions.

Prof. Amy Slaton, Drexel University

Amy E. Slaton is a Professor Emerita of History at Drexel University. She writes on issues of identity in STEM education and labor, and is the author of _Race, Rigor and Selectivity in U.S. Engineering: The History of an Occupational Color Line_.

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Abstract:
This paper provides an empirical grounding and historical perspective on the ways in which grant-funded DEI-focused initiatives in the U.S. are shaped by institutional conditions. By interrogating these conditions, we can move towards a more critical understanding of how a project's context including PI motivation, leadership ideology, scaling goals, and administrative backbone may or may not influence potential outcomes. These factors are usually either presented by project leaders in shorthand as "background conditions" for proposed research, barely relevant to the envisioned intervention, or omitted entirely from research design. This deemphasis may have a practical purpose, cordoning off politically sensitive activity amid broader institutional resistance to DEI, but it is an approach that likely impedes change given the endemic character of anti-Blackness, misogyny, and other ideologies still shaping U.S. higher education. To capture the institutional landscape in which DEI initiatives play out, this work examines NSF-funded Alliances (defined as coordinated groups involving multiple 2- and 4-year schools), designed to broaden participation in a technical field. We will explore the motivation for Alliance projects as workforce driven, in lieu of a more expansive approach that includes workforce but also civic engagement and personal agency. We consider how operational, material circumstances in which DEI initiatives play out conform the activities of researchers, at times leading to limited impact for even very ambitious reformist projects.

Introduction:
We begin by situating this paper in the current landscape of equity-focused scholarship, which presents particular risks to members of our research community. Due to the sensitive nature of the current political climate and the potential implications for ongoing and future grant funding, the first author has chosen to withhold their name from this publication. This decision reflects a strategic effort to protect current institutional partnerships and funding relationships while still contributing fully to the research and its dissemination. Rather than being taken only as a loss of professional credit to the first author, it is hoped that this interruption to conventional systems of credit and authorship might also suggest a form of scholarly collectivity, whereby more secure individuals and research programs help provide a platform for the work of the more vulnerable.

The purpose of this paper is to make explicit conditions of grant design and implementation in the STEM ecosystem that have otherwise been hidden or seen as immutable, and thus given little attention by funders and researchers. We hope with this discussion to support a critical historicization of seemingly dramatic developments in the federal funding landscape for so-named DEI (Diversity, Equity and Inclusion) since the re-election of Donald Trump. We seek to grasp continuities across earlier periods of research and pedagogy focused on "inclusive" engineering instruction and the White House's 2025 wholesale elimination of governmental support for such initiatives. Without lending any sort of simple equivalence to reformist projects aimed at increasing Black, Brown, Native American, and women's participation in STEM higher education and the violent racism and misogyny of rightist actions under President Trump, we want to disclose the institutional conditions that have constrained transformative efforts in this sector and allowed the sinews of anti-Black, misogynistic, homophobic, ableist and other subjugating dispositions to subsist in places of Engineering learning and work. This paper is not

designed to comprehensively address funding considerations for example indirect rates, state and private funding and the investment in STEM vs. other disciplines; however, the organizational and cultural conditions outlined here might inform our critical thinking on those matters, as well.

There has been a long history of federally sponsored programs to expand participation in STEM in the United States to those previously excluded from technoscientific educational opportunities. Starting in the 1960s, a combination of perceived national workforce needs in technoscientific fields and a sense that Civil Rights movements would increasingly call for government action on opportunities for minoritized communities led to race- and gender-inclusive programming by the National Science Foundation, the Department of Education and other public agencies. Research funding addressing the optimized teaching of science, how best to encourage Black and Latinx and women's participation in STEM, and related topics grew steadily from the 1970s onward [1], [2]. In the last two decades or so, an investment in programs that support broadening participation with a lens of diversity, equity and inclusion has been prioritized in these and other agencies. The 2024–2026 vision for NSF (produced in 2022) explicitly calls for "A nation that leads the world in science and engineering research and innovation, to the benefit of all, without barriers to participation" [3]. The NSF strategic plan further articulates core values which are then specified within the agency's individual programs: 1) Scientific leadership 2) Diversity and inclusion 3) Integrity and excellence 4) Public service and 5) Innovation and collaboration [3]. A strong connection has been made throughout NSF programming between the economic and geopolitical interests of the nation and widened opportunities across historically marginalized communities. Prior to the start of the current Trump presidency, the NSF had made a clear statement about racial, gender and ethnic inclusion and its benefits both to individuals and to society that then informed the agency's grant funding programs.

Several of these grant program initiatives include multi-institutional "Alliances," pursuing change at what is seen to be the "systems level" [4]. By the term "system" we refer to the many relationships involved in academic research including between funders and researchers; between researchers and their sponsoring organizations/employers; and among the many faculty, staff and other participants involved in the labor of research. For example, the global non-profit consulting firm FSG has provided one example of a systems change framework, "The Waters of Systems Change." This model articulates the components found across all systems from structural elements (policies, practice and resource flows), to relational (relationships and connection and power dynamics), to transformative (mental models) in recognition that systems are large, complex, and dynamic [5]. So-named NSF Alliances are meant to produce multi-institution collaborations and coordinated research efforts in order to encourage social- structural change by focusing not just on serving students through a single specialized programmatic intervention such as mentorship or a summer Bridge experience, but instead shifting the way an entire educational system operates. Nevertheless, as we will explain below, grant funding is too limited in time, scope and authority to enact meaningful structural change.

Systems change grants do however create an aspirational opportunity. Rather than scaling up one form of outreach or instructional intervention, a diverse array of administrative, pedagogical and geographic efforts conjoin in Alliance initiatives. An ideological distinction with single-institution DEI programs is suggested. That is: In many DEI projects undertaken within individual schools or enterprises, the portrayal of "minority underrepresentation" (as that term

suggests) in STEM rests on the idea of lingering bias or stereotyping trends enacting exclusions, a causality which ascribes the problem to a regrettable disposition on the part of individuals that then impacts institutional operations. By contrast, there appears in the larger funded programs to be a belief in the sectoral or disciplinary conditions of STEM participation as requiring change. This approach hints at an ambitious attempt to reform stubbornly unjust conditions in STEM higher education by accounting for political and even epistemic impediments to change, as within a particular discipline such as Engineering or Mathematics. Nonetheless, there are considerable features of the "systems" in which STEM education occurs that are not theorized or problematized in either funders' calls for proposals or researchers' responses to those calls from which Alliances emerge. Our concern is to expose the actual conditions in which funding and research of this kind take place, to ask whether and how such ambitions may achieve their stated goals given these conditions.

Centrally, we move with this inquiry beyond the matter of project efficacy to interrogate those goals, asking: What kind or level of change has been imagined, or likely, within customary forms of programming under the banner of STEM DEI? This seems to us a vital inquiry especially in light of sweeping derogation of such programs currently ramping up within the political right and readily followed by many educational institutions and corporations concerned about their standing among Republican leadership. But it is also one that has something to tell us about the roles played by dominant identity within STEM higher education, historically, and the maintenance of majority over-representation in STEM fields thereby. This paper begins to explore the intersection of expectations embodied in large-scale grant funding and the strategies and actual operations of the funded Alliances. The grant ecosystem plays a significant part in establishing the goals and results of societal reform, functioning as major societal arbiters of race relations in the US industrial and technoscience spheres. In the U.S., research grants function within a landscape of material resources, institutional status, disciplinary credibility and the complex reputational pressures of the academy. We consider that these "practical" conditions are in fact expressive of the ideological commitments of both funders and project leaders: perhaps the limits such conditions exert on systemic change are not intended to constrain progressive social reform, but they have nevertheless constituted the limiting conditions encountered by DEI efforts.

For this reason we ask in this paper how objectives of enhanced diversity, equity and inclusion in STEM education settings may have been impeded for some time by the occupational and institutional pressures and potentialities in which funders and researchers function. In what ways do investigators committed to societal improvement contend with conditions of research funding such as competition, sustainability and reputational goals that inhere in research occupations? We do not provide here a body of data on program performance but rather frame the categories with which data might be sought and interpreted, or by which performance has been and might be defined.

The Alliance Model

Over recent decades NSF has made significant investments in creating Alliances to effect change in the STEM education ecosystem, particularly for students from historically marginalized communities in the United States. We see in the design of many Alliance-based grant programs a

distinct awareness on the agency's part that material, reputational and related challenges to broadened participation in STEM may exist. Hence, the Alliance programs stress collaborative and collective impact, not merely supporting a scaling up of best practices in STEM DEI. There are several examples in recent years in which these systemic aims are evident including a few presented below:

- **LSAMP (1991)**: The Louis Stokes Alliances for Minority Participation enacted an important new form of inter-institutional cooperation in efforts to correct the overrepresentation of white students in U.S. STEM degree programs. Bringing the resources of large public and private universities to partnerships with smaller, less-resourced colleges (including Historically Black Colleges and Universities), the LSAMPs disrupted long standing systems of prestige and opportunity that prevented the contributions of small, historically underfunded, or minority-serving serving research units from engaging in funded DEI research. LSAMP activities involve student- and researcher-centered initiatives, engaging faculty, staff and administration across participating schools.
- **Research Practice Partnerships (2017):** As an example of such a funded partnership, the computer science–centered networks created through the CS for All program are designed to support collaboration between researchers and practitioners. Both parties work together to identify and solve problems of practice by actively engaging in research, ensuring that the findings are relevant and directly applicable to real-world situations, which ultimately leads to improved outcomes in the field of practice. These partnerships disrupt the traditional power dynamics by placing equal value on the experience of practitioners and researchers. Though not defined as an Alliance, these partnerships reflect many characteristics of an Alliance as they are multi-organizational collaborations.
- **INCLUDES Alliances (2018**): INCLUDES, or Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science, was established to increase participation in STEM fields by underrepresented groups to reflect the nation's population. INCLUDES Alliances are large, multifaceted networks that establish partnerships and conduct research to advance STEM participation goals. According to NSF guidelines, INCLUDES Alliances are required to:
    - Develop a shared vision and strategy for broadening STEM participation
    - Establish multi-sector partnerships
    - Contribute research to the knowledge base on broadening STEM participation
    - Establish a support organization that provides a framework for communication, data management, and more.

  Here the funder makes clear that heterogeneous operational arenas require addressing if collaborations are to be successfully undertaken.

These Alliances have all had the goal of broadening participation in STEM and they have evolved from focusing purely on numerical objectives regarding enrollment or graduation rates to offering guidance on how organizations can work together to make the most significant changes in the STEM education ecosystem. Given the broad investment and lengthy evolution of funded Alliances, we now seek to surface the prevailing conditions of DEI research in STEM that nonetheless have not, as far as we know, been systematically subject to recognition either in NSF program design or funded research projects.

The Conditions of Alliance Work

The authors of this paper have together had several decades worth of experience working in and observing these Alliances as organizations, and the operations of specific grant-funded activities. The first author is a program evaluator and researcher and the second author is a historian of STEM education. We've observed that these multi-organizational change efforts vary in how well they're making inroads into systems change, although almost all start with earnest intentions from both the funder and awardee sides of the grant. This variance has led us to inquire: "What is envisioned *as changeable* by sponsors and funded programs, and how do material, institutional and interpersonal conditions obstruct or support those visions? And, how do the nature of and conditions of a grant-based approach to change influence these conditions?" This inquiry is novel as we seek to understand the role played by structural and personal experiential conditions and influences to be found within Alliance-based work. We consider the ideological dispositions of pro-DEI stakeholders to be forthright, but organizational and labor conditions in which DEI activity occurs necessarily shape action. The scale and scope of what is seen as efficacious research or administration by the NSF may seem secondary to the stated political aims of Alliance funders and participants, but these also require interrogation if prevailing DEI (and anti-DEI) dispositions among institutional actors are to be fully understood. Particularities of what count in funded projects as reasonable levels of action and evidence of program success, for all those involved in or responsible for a funded Alliance, reveal features of that ideology.

The typical grant award process in multi-institutional research funding situations, such as the Alliances represent, includes the publication of a request for proposals from a federal funder, such as the National Science Foundation. These requests articulate the purpose of the funding opportunity and expectations for an awardee. Within the NSF ecosystem, most grants are awarded to Principal Investigators (PIs) from Institutions of Higher Education (IHEs). The NSF is designed to support the research enterprise in the United States and grants focused on broadening participation have been for about thirty years an ongoing but small part of the agency's overall budget — which is annually appropriated by Congress. Thus, Alliance grants are awarded and overseen through a system that isn't designed for education and workforce development as the primary objective, but rather for the production of scientific research results deemed to be of importance to the larger polity (nation, region or state).

Similarly, institutions of higher education in the U.S. have historically not been designed for the enactment of radical social interventions. They are large, hierarchical organizations that in many cases answer to boards of directors or congressional authorities for whom dramatic shifts in patterns of political relations may be problematic. To sustain their own standing with patrons, university leaders may feel a need to disincentivize political expression on campus or even faculty research focused on socially redistributive outcomes [6]. Even prior to the severely rightist interventions following Trump's first election there were many impediments to federal agencies seeking to support such research work. Hence, the authentic pursuit of reparative change in which opportunity structures are reimagined (say, foregrounding the effects of white supremacy or misogyny in U.S. technoscientific sectors) may face obstruction.

Below we begin to articulate the interconnected and interdependent contextual factors that influence the ways in which STEM DEI Alliances function and how these factors intersect with

the institutional and funding barriers. We suggest, in so doing, a particular analytic approach to the matter of actors' intentions in settings where unjust conditions persist: how we might come to know those intentions, and how they shape the operations of organizations and of relations among institutions. Individuals' values regarding racial or gender justice in higher education are of course central to our exploration, but we provincialize here the long dependence of STEM DEI research on dispelling what is seen as bias in favor of generous, objective sensibilities among educators and other arbiters of student experience (sometimes cast as a "post-racial" goal but more often, simply assumed to represent a clear step on the pathway to equity and inclusion). The centrality of such curative priorities in agendas of social action, stressing some correction of personal disposition, hides and thus preserves structural arrangements that prevent liberatory changes such as reparative racial, gender, class projects. As la paperson [6] has made clear, in the modern EuroAmerican university, flows of influence, prestige, occupational security, and institutional resources can be seen to materialize values; thus a landscape of priorities and felt practicalities that are antithetical to reform (in other words, antithetical to justice) comes into view. Our goal is to begin to make explicit these conditions in support of meaningful change, and we do so below by moving among sites and registers of Alliance activity to identify spaces generally unconsidered in critical overviews of STEM DEI research and practice.

Creating value as an Alliance

One of the most fundamental practical or material considerations of a successful Alliance, with its distributed, multi-institutional membership, is that of securing active, committed participation. This factor perhaps undergirds others listed below. In most Alliances we have observed that membership has minimal monetary benefit, if any. This puts the burden on the Alliance to offer enough value in other forms for people to commit time and other resources to participation. It is typical for an Alliance project to originate by way of the pre-established professional networks of the leadership team. People are often willing to participate or learn more about the Alliance as an act of good faith and professional courtesy. Given these rather "top-down" conditions for Alliance formation, it is evident that the most senior figures in Alliances have the option of either presuming the project's value for members, or co-creating this value with their members cognizant of stakeholders' particular organizational locations and resources. Co-creation requires releasing power and control as directors of an Alliance and embracing the role of a facilitator. Listening to the community and organizing cohesive support creates value for members. In an effective Alliance, we've seen the project's value proposition align deeply with the work being done by members, making the member's work easier or more efficacious. Those Alliances that struggle often presume or impose value without material benefit to the member, and understandably participation eventually dwindles.

Some proposed projects are conceptualized in response to funders' request for proposals and leverage the institutional infrastructure that allows for a compelling set of partners to respond within the time and format set forth by the funders' request. Often, this means that institutions with a robust grants office and a strong set of partners are able to effectively respond mechanistically and theoretically but may not have yet tested the assumptions put forth in the project plan. In other cases, existing partnership and implementation efforts are positioned to leverage such a request for proposals to further expand current work. It is also likely that many projects bridge these two approaches, perhaps starting out as opportunistic, ultimately becoming

more organic, but overall many uncertainties with the provision and security of research labor pertain.

In the spring of 2025 we've seen DEI-focused Alliances navigate the new, explicit federal prohibitions on DEI activity in two ways. The first offers members a shared space to navigate the financial and legal barriers to doing equity focused work. For example, the community collectively makes decisions about the language they will use and the bounds of the work to ensure all members can safely participate, while still staying true to the goals and objectives of the Alliance. In another case, we've witnessed an Alliance turn away from DEI work in favor of workforce development broadly defined. This decision was made by the project leadership, not the membership, and it remains to be seen what incentive, if any, members will have to sustain participation under this new focal area.

Systemic change on soft money

We turn next to a set of conditions associated with the nature of academic research as paid labor with which grant-funded systems change initiatives must contend. Compared to educational research or interventions undertaken from within budgeted institutional units, grant-funded work is arguably subject to a greater contingency than labor accounted for in ongoing university or organizational budgeting; those working on a project who are paid by on so-named soft-money must meanwhile expend their labor on securing future resources and rely on others in the same position. Further impacts are imposed by institutional resource levels, broadly. The partners that join an Alliance do so in great faith that each member will independently secure the funding necessary for sustaining the organization or role which is required for full participation and thus meeting the mutual objectives.

Given the nature of academic employment, teams that are addressing systemic change through grant funded work are also inherently unstable. In the case of STEM education research, the PI is often a tenured faculty member, as reward and recognition policies may disincentivize earlier-career faculty in STEM disciplines from pursuing grant funding that is outside the realm of core scientific research. Additionally, those who operate on soft money, in consistently having to seek multiple streams of revenue, may understandably prioritize other projects than those of importance to a particular tenured PI. Multiple grants may be leveraged to catalyze systemic change but can also spread the commitments of the team too thin. Coordinated, distributed, large-scale transformation such as those that systems change DEI projects imply are impeded in these and other ways. We note this as a case of putatively progressive ideologies that nonetheless operate in service to institutional conditions that are averse to change. Rather than a contradiction, we believe this to reflect the limits of racial reform vision among authoritative figures, as occupational and organizations' operational demands constrain reform efforts.

Motivation

Accounting for another element of the broad landscape of federally funded STEM DEI research, we attend to the role given to national workforce needs in research funding programs. The NSF pairs its uplift of scientific research with what is indisputably an economic ideology: the reliance of U.S. capitalism on wage labor pools that conjoins the interests of employers and their workers.

In other words, the NSF like other agencies (the Department of Labor, the Department of Education) has stressed the provision of sufficient amounts of appropriately skilled workers where and when needed by capital, to assure a ready supply of labor and some ceiling on wage levels that sufficiency provides. The agency's strategic plan states that "NSF promotes the progress of science by investing in research to expand knowledge in science, engineering and education. NSF also invests in actions that increase the capacity of the U.S. to conduct and exploit such research" [3]. The motivation of research leadership teams for building or expanding a STEM DEI-related Alliance almost always has an explicit national or regional workforce component, indicating a close relationship between STEM educational, economic and equity-centered policy realms.

Workforce development itself, however, can be conceptualized in multiple ways (evidenced not least by the White House's drastic contraction of federal educational and DEI activity in 2025 while promising high levels of industrial job creation). Even where we detect clearly stated objectives based on widened technoscientific employment, the root causes of majority over-representation in STEM may be readily obscured. For example, an Alliance that has a goal of increasing the number of STEM degree holders to build the technoscientific workforce assumes that STEM is a good and stable profession that will offer more and more people of previously marginalized identification some economic benefit. An Alliance that seeks to broaden participation in support of workforce development and also to boost civic engagement and personal agency may center the experience of the individual aspirant moving steadily through the educational pathway, and stress how this pathway can inspire and motivate. This second perspective hypothesizes that as more people of different heritages and life experiences enter the profession there will be an opportunity to change the culture and STEM's instructional content as well, inherently making it more appealing to more "diverse" individuals. We note that in the eyes of critical analysts this vision of unimpeded progress in spaces of STEM learning and work is a somewhat selective outlook which among other things elides significant features of capitalist employment to the detriment of lower paid, less secure labor echelons [2, pp. 7–9].

A further set of concrete, social relations constrains the possibility of re-imagining STEM learning and employment to assume less hierarchical formats. Many of the more influential (highly placed or more senior) individuals involved in these types of Alliances are deeply committed to expanding access to and participation in STEM fields in the terms those changes are normally envisioned. Alliances are in large part directed by a collection of well-connected and experienced individuals. More disruptive conceptualizations of equity that involve, say, racial reparation or economic redistribution, are likely to remain either secondary or illegible as these established actors maintain the institutional cultures and relationships that have led to their personal occupational security. The top-down flow of resources, authority and job security endemic to university operations likely discourages any other approach as does the ability of a review panel to assess grant applications that deviate too far from norms and priorities established by the funder. (The question of how agencies' review criteria and reviewers' own positionality conjoin to preserve (or alter) patterns of proposal success suggests important areas for further research on the broader cultures of STEM and higher education, we note.)

As this paper and much other work within ASEE's LEES, ECSJ and other divisions attest, alternative aims for STEM DEI projects are in fact articulated by stakeholders—notably by

students, less senior staff, and community members, all of whom may certainly be found among Alliance actors. We have observed that Alliances that rely on implicit commitments to reform and the experience of senior stakeholders, but fail to make the project's overriding motivation explicit, run the risk of their participants taking different approaches towards different goals, potentially stalling progress or even creating distrust among the team. For example, the word "equity" is often assumed to have a shared definition but implementation may look different across partners — some may be working towards increasing parity in participation based on enrollment (localized in recruitment and admissions), others may be working towards individual agency and belongingness (culture and climate) — both approaches concern equity, but conceptualize it differently. But quite significantly, the proactive suspension of STEM-DEI related research projects within multiple U.S. universities in early February 2025, prior to those universities being legally required to comply with new Executive Orders, suggests that anxiety (reputational or fiscal) of this sort circulates in the spaces we describe, discouraging novel formulations for DEI goals [7]. Again, what we might identify as actors' "values" and their approach to "practical" concerns are only arbitrarily distinguished from one another, analytically.

Leadership

For the purposes of this paper we encourage readers to appreciate that "leadership" itself is a relational condition that supersedes any individual. Although individuals can help steer a project, particularly when choosing between a facilitator or director style of leadership, individuals are inescapably nested in a complex ecosystem of rules, regulations and other normative expectations set forth by the institution. In an Alliance, the force of these expectations is compounded as the leadership team must work across multiple systems simultaneously, including institutional context(s); with the funding agency; and the current sociocultural norms of the discipline that are fueled by the K–12, higher ed and workforce environments. In effective Alliances, the leadership is distributed across a range of institutions and/or institution types, allowing people to take on different roles and responsibilities. For example, an institution that has a nimble and well-supported grants office may be in the best position to hold the grant and ensure that sub-awards and consulting agreements are efficiently managed. An institution that operates with an established commitment to DEI might be in a better position to provide named leadership than one operating with significant restrictions. Non-profit groups can also be assets to an Alliance if there is an advocacy component to the work that may be prohibited at an academic institution. For example, one Alliance we observed stored all Zoom recordings with a partner institution in a state with more favorable DEI laws, for fear of being shut down for focusing on diversity efforts and in order to protect members (DEI content could be "discovered" through AI searches of stored files). This did, however, mean the lead institution had to release ownership of the work product. We reiterate that distributions of project resources and divisions of administrative labor in no sense take shape apart from ideological conditions, despite the characterization of Alliance operations in most formal discussions as remote from political values such as understandings of anti-Blackness, misogyny or related forms of subjugation that produce so-named minority under-representation.

Our emphasis on material aspects of DEI work (as expressive of ideological commitments) again calls our attention to how risk and benefit are experienced by funded actors. There is a risk to an Alliance or project focused on broadening participation being located under the auspices of a

university office that has a DEI-specific mission. A Dean or Provost from a DEI office may on the surface come with significant authority and expertise but in some cases this can lead to siloing the work outside of the mainstream STEM environment. It is possible that this siloing has the perverse effect of allowing an institution or Alliance member to showcase their commitment to DEI but inhibits systems change work from occurring. We have seen this challenge manifest in multiple ways. For example, in an Alliance where the PI is located in a state with strong anti-DEI policies the PI must work around the margins of equity or rights logics and make inroads by appealing to a workforce argument. In another case the institution that hosts the Alliance has minimal participation in the strategic direction and operations of the Alliance itself despite providing significant people and financial resources, thus avoiding any meaningful systems change on their own campus.

Finally, in any team of leaders there will be power imbalances that need to be articulated and addressed if systemic forces are even to be acknowledged. Leaders committed to DEI efforts are not immune from professional and personal preferences that may influence how well the leadership team itself operates. For example, to secure a grant a PI is named who has experience and reputation that will likely appeal to a review committee. This person may or may not be closely involved with the daily operations of a project but remains the person ultimately responsible in accounting for the project's progress to the host institution(s) and to the NSF.

Risk tolerance and ambiguity

To operate in a responsive rather than directive manner requires an openness to unanticipated outcomes. There is an inherent tension in a grant funded project which has committed to achieving goals and objectives as part of the award process with the funding agency. Ultimately, the PI and institution receiving the grant have the responsibility for fulfilling the grant requirements which are typically articulated as part of the proposal. Though the outcomes are often well articulated, the path towards achieving outcomes can vary widely in how specific they are. Many projects will create an overarching logic model or theory of change but the ecosystem in which a large grant operates is complex, often making it impossible to fully understand or articulate the ways in which project resource allocation, activity, and outputs will predict or align with the outcomes.

We have observed a difference among Alliances that embrace the prospect of unpredictable outcomes and those that fear unanticipated outcomes. In the former, the project leaders may position themselves as facilitators rather than managers of the Alliance community. In this instance, the activities are structured with clear goals and objectives that align with the grant but there is room for the participating members to influence the path taken to meet those goals and objectives. For example, after a working meeting or event the leadership may say, "I never could have predicted we'd end up *here* and it's so much better than we could have done on our own." Most importantly, the leadership would structure the next event to build upon the one prior, allowing for momentum to be driven by the members of the Alliance. This approach can also deepen the understanding of the outcomes achieved including the qualities that are deemed most important. Collectively, this approach can have a magnifying effect on the desired outcomes.

Conversely, in an Alliance where the leadership is rigid about the outcomes, there may be less room for exploration. Metrics of research productivity are firmly and narrowly defined in order to determine stakeholder efficacy. In these cases, the logic model or theory of change is unlikely to be collectively interrogated, and outcomes remain static. In many large Alliances this may look like a goal of "increase the number of X persons who have access to/achieve Y" or "broaden participation in the workforce." The logic model has a clearly articulated outcome which is often too ambitious or broad to define clear activities and outputs that might influence the outcome. This can create significant anxiety on the part of the leadership and also members who need more clarity or near-turn objectives to stay committed to the work. We also recognize that projects may shift over time. For example, a project can move from a broadly interventionist approach to one supporting systems change across local (member) settings. Alternatively, an Alliance can also evolve from being exploratory to becoming more service-oriented as it matures. In these cases, it may risk becoming further siloed as services are compartmentalized and early experimental approaches become solidified.

Accountability

As suggested, openness to risk influences how a project addresses accountability. Accountability involves both personal and collective responsibility for a project. Federal grant funding is rarely unrestricted in how it is used, meaning that there are always terms and conditions to which an awardee is accountable. Proposal solicitations often dictate the desired outcomes for the program, and individual projects define their outcomes as part of their proposal response. But here we come to a rarely acknowledged intersection between institutional and ideological precepts in which the research takes shape; "diversity," "equity" and "inclusion" are never singular concepts and their materializations are nearly infinite in form. Even where racial or gender equity is reduced to such unexamined factors as "number of students of X marginalized community admitted to or graduated from Y degree program," there will be tremendous and consequential variations among student experiences. Such multiplicity is suppressed in many institutional STEM DEI research settings. Within a project, how outcomes are defined is greatly influenced by several factors including who the people are that prepare the proposal for submission. In an ideal situation, a broad group of project members would collectively determine how success will be defined and measured as part of the proposal process and revisit upon award, but often the time constraints leave this up to a subset of the project team or an external evaluator. Between protocols of funding institutions (who, again, are themselves accountable to bureaucratic and congressional authorities) and the hierarchical flows of risk and reward in research institutions, multiplicity and indeterminacy may find little purchase.

We want to signal here as well some epistemic conditions amid which STEM DEI progress is formulated, turning briefly to the category of what counts as information in this area of research. We see this as a central matter for critical work on STEM DEI research [8], [9]. How projects define their goals and success metrics influences how a project uses data during implementation. Progress towards a purely numerical objective (e.g. "more" students, or more of a "type" of student earning a degree) can easily be measured but cannot give information on *why* the Alliance is making or not making progress towards that goal. A more nuanced and collectively defined definition of success and associated metrics can allow a project to disentangle *how* progress is being made including the contributions of partnership members, and the braiding of

multiple streams of effort and resources. When metrics are designed and honored for continuous improvement, they are useful for surfacing how well a project is making progress and can identify when the need to course correct arises. In a highly directive Alliance, it is more likely that the metrics are wholly numerical and thus static, so that a project may get "stuck" if it cannot figure out how to strategically course correct. It also risks inducing member isolation if partners are no longer experiencing or understanding the value of the collective work.

Understandings of risk are inescapably paired with reward: Alliances that share the burden of risk can be more open to authentically sharing credit. In these cases, Alliances take care to understand how their collaboration allows them to make progress in ways that cannot happen independent of the partnership. When the Alliance's success is set up primarily to redound to the credit of one person or even one institution, projects may keep their evaluation and progress results internal, or be selective about what gets shared with the wider community. One example is seen in practices around authorship on papers or use of logos on work product emerging from collaborative efforts. Determining the guidelines for these practices ahead of time to engage all stakeholders establishes trust and also offsets forms of control by project leaders (based on authentic concerns about credibility as they may be) that may deny credit where it is due.

Few would deny that existing hierarchies of authority and security conduce to the advantage of those higher up in institutional structures, but the ways in which these advantages manifest are oddly understudied. In thinking about assessment rubrics, it is important to consider without hesitation the risk of failure, to allow for incisive understandings of who is benefiting from current distributions of risk and reward. We suggest that a collective approach to project risk and reward embodies greater possibilities for equity than the customary emphasis on individual career trajectories and reputations: again, the labor conditions of research are always meaningful but not least when equity and justice in knowledge work is the subject of the research. Who on the project team would be most impacted if failure was to be ascribed to this project, and how might this distribution of possible impacts influence how data is used and shared? In instances where there is significant fear of judgement, which may have material consequences for an individual or institution, there may be a lower willingness to take risk. Conversely, opportunities provided by funding may also inspire an idealistic response that may ignore or minimize the realities of implementation. In these cases, a project may submit a proposal that over-promises what's possible, creating precarity for the enterprise from its inception should it be funded (this is perhaps especially true for "systems" change–focused projects). But also of concern are projects where credit and status accrue only to those in a position to distribute those rewards while risk accrues only to those in subordinate roles.

Discussion

This brief paper cannot probe the many, variegated conditions that surround Alliance efforts. Even much smaller-scale research activity involves complex networks of stakeholders, material resources and challenges, and other relationally determined conditions. We acknowledge that leading a large Alliance dedicated to making system change is a deeply challenging task. Funding is limited; people are juggling multiple priorities. Direct and pervasive threats to employment, funding and reputation are now rapidly expanding for all those involved in publicly funded equity research. It is relatively easy for us as authors of this paper to reflect on what we

observe; vitally, due to our particular employment situations we don't have the accountability of actually leading these Alliances; a task which requires managing finances, people, institutional priorities and red tape. We also sit in this observational position recognizing that this critique we put forth risks being performative itself if we cannot convincingly tie it to meaningful practice.

As a foundation for further, empirical work in this area, with this reflection we call on the community to push or contort the margins of legitimate practice, even if we can't completely change the shape of the system. Assuming the best intentions of people and institutions involved in these grant initiatives, we encourage teams to be clear about the motivation of the work and discuss the values that guide the work as it proceeds. This includes both the leadership and support team members as well as the members of the Alliance while also acknowledging institutional constraints. Similarly, being clear about the outcomes and how the Alliance will deal with the inevitable roadblocks may prevent a project from getting "stuck" or prevent a team from devolving, which may appear as decreased trust or shifting focus to more productive endeavors.

If, as seems possible, the NSF soon drastically contracts or suspends its support of DEI-related research collaborations, we hope that the schools involved may grasp the vital role in reform that Alliance projects have played and that private sources might help sustain these efforts to move towards structural reform. The value of collective action is indisputable, and our aim here has been to bring into view the complex institutional and cultural conditions in which equity-driven labor and planning necessarily play out in U.S. higher education. Denaturalizing these conditions, steeped as they are in seriousness of purpose and generosity (not to mention administrative infrastructure), is difficult, itself threatening a disturbance to the smooth running of these well-intentioned settings. In what we might see as a kind of mutually assured conservatism, U.S. institutions of higher education must constantly check their status in comparative systems of ranking and reputation, which dissuades not only innovation but also deep reflection the values from which academic decisions derive, as M. Gessen [10] has made clear.

The constraining effects on researcher imagination are real, and thus, we suggest, help conserve regrettable social patterns DEI work aspires to change. We do not ask whether this conservative effect is intentional or not; that would merely return us to the old question of how to locate bias or bigotry in individuals and leave structural matters outside our scrutiny. As a thought experiment, we are instead asking the community to consider what the language in a STEM education research grant proposal might include *if the above conditions were acknowledged and expectations for different conduct and research outcomes were encouraged*. That is: What would the language of calls for proposals sound like if NSF, knowing its power as arbiter of what is seen as needed social transformation, acknowledged the above conditions, and set up expectations for novel research conduct and outcomes? Below we present some ideas for new proposal guidelines that would alter the current research funding ecosystem. They are ambitious, and quite possibly fantastic as we write in early 2025; but we hope, also inspiring:

Call for Proposals: Broadening Participation through Systemic Change (Division of Go Big or Go Home)
The funders seek proposals focused on increasing diversity, equity and inclusion in STEM:

- PIs should make explicit their deepest fears and greatest hopes, including regarding their own reputations and status, should the project fail and/or succeed.
- Proposals should explicitly incorporate the needs and concerns of those who customarily have little to no possibility of shaping the projects' design, including allowing for the possibility of displacing original project goals and methods as the project goes along. In other words: Failure is an option, if properly honestly brought about.
- PIs are encouraged to imagine change that is not measurable in any known way.
- To help prevent the invocation of hollow ideological positioning, PIs will proceed from the presumption that they have nothing to lose (including funding, position and reputation, member support etc.)
- Proposal budgets should articulate how the indirect rate will directly support this project.
- Accountability for the project will include:
    - Reports on affective experiences of PIs, participants and community. What does it feel like to work on this project? Is power acting as a silencer?
    - Members of the alliance can describe unique and mutually reinforcing activities. Where do members align in their goals? Where do they diverge?
- Sustainability will be evidenced by persuasive findings that can be used to support the larger community, and enlist authorities (higher education administrators, funders, congressional reps, etc.) in anti-racist, anti-misogynist, and as appropriate, anti-capitalist activities.

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