



Community for Advancing  
Discovery Research in Education

# Strategies for Fostering Authentic Community Partnerships in STEM Education Research

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# Acknowledgments



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# Introduction

In partnership with the Community for Advancing Discovery Research in Education (CADRE), we recruited five community partners (CPs) from diverse backgrounds in STEM education to participate in a discussion focused on understanding how STEM education researchers can better engage with communities.

The **goal of this project** was to gather expert insight into challenges and opportunities for establishing community partnerships among K–12 STEM education researchers and Black and Brown communities. **We define communities** as the various individuals, groups, businesses, and institutions that are invested in the welfare and vitality of a particular group and its members (adapted from edglossary.org). This definition is based on the idea that communities (and community members) may be bound to a specific geographic location and space, and that communities may represent a group of people with similar ideologies, backgrounds, or experiences.

**Thus, for the sake of this brief, we have operationalized community partnerships** in two dimensions. The first dimension considers community as groups of people organized by demographic identities who share background experiences. Within this brief, this dimension accounts for K–12 STEM education researchers brokering relationships with Black and Brown communities. The second-dimension accounts for communities as represented by institutions (e.g., college or university community, K–12 school districts, K–12 schools, NGOs). This dimension thus considers the brokering of relationships between institutions and organizations, such as universities partnering with K–12 school districts. Among these types of partnerships, we see that there are communities (e.g., racial and ethnic groups) embedded within institutions (e.g., schools).

**CPs** are designated leaders and key stakeholders who hold positions of power in institutions that serve and support specific racial ethnic communities. As a designated leader and key stakeholder, this person or group of people is recognized and respected by the racial ethnic communities served along with the institution they represent and, therefore, have the power to facilitate or constrain access to communities via their institutions.

We name these dimensions (communities, institutions, and CPs) within this brief as necessary and important for understanding the ideas shared by the CPs interviewed. When referencing communities, our CPs reference racial and ethnic groups embedded within institutions. Therefore, all recommendations put forward represent strategies K–12 STEM education researchers should consider when seeking to establish authentic partnerships with communities and their institutional proxies. Formulating a relationship with an institution (e.g., school district) does not guarantee an authentic and equitable

partnership with the communities supported by the school district if one does not consider the demographics of the people served by that institution.

The insights presented in this brief reflect challenges and opportunities for K–12 STEM education researchers—via research institutions and organizations—to develop authentic and equitable partnerships with Black and Brown communities—via schools, school districts, and out-of-school learning spaces. By bringing together designated CPs from university, industry, and NGO spaces that hold administrative, research, and programmatic responsibilities, we gathered insight that we believe is beneficial for K–12 STEM education researchers looking to establish new, authentic, and equitable partnerships. Also, our conversations proffered recommendations for NSF DRK–12 grant reviewers who seek support with assessing the extent to which community partnerships described in grant proposals are meaningful, authentic, and equitable.

As such, this brief is generated for two primary **audiences**: K–12 STEM education researchers located at academic and research-focused institutions seeking to establish new community partnerships and NSF DRK–12 grant reviewers. Key takeaways for both groups are provided throughout the document.

## Considerations

There are a few things readers should consider as they make sense of the information provided: The individuals invited to serve as CADRE CPs, pictured below, offered insight from their experiences working with Black and Brown communities through STEM programming and research endeavors. Holding the positions of director of a STEM education research center (Bryan), CEOs of STEM education organizations (Adams & Prince), a researcher for an educational nonprofit (Henderson), and a director of a STEM broadening participation initiative (Arreola), our CPs have experience building authentic partnerships with Black and Brown communities via their respective organizations as well as building authentic partnerships with Black and Brown communities through other organizations. Maintaining insight from both perspectives affords conceptual and pragmatic expertise specific to this topic.

## Participating Community Partners



**Jacob Adams, MEd**

Founder and Executive Director of STEM to the Future



**Veronica Arreola, MPA**

Director of Hispanic-Serving Institution Initiatives at University of Illinois Chicago



**Derrick M. Bryan, PhD**

Associate Professor of Sociology and Director of HBCU STEM Undergraduate Success Center at Morehouse College



**Dawn X. Henderson, PhD**

Director of Research and Power Building at Village of Wisdom and Co-Director of Collective Health and Education Research Collaborative



**Flavian Prince, EdD**

Founder and CEO of META 24 Workforce High

Given the articulated goals of this project, the focus-group conversation—and subsequently all analyses and recommendations—are geared toward advising and supporting K–12 STEM education researchers. While relationship building is multifaceted, requiring effort by all parties, we solely focus on the efforts that can be put forward by K–12 STEM education researchers.

The remainder of the brief is broken into sections. The first and second sections highlight the two central themes from the focus group: (1) barriers to fostering authentic partnerships and (2) establishing authentic partnerships. These sections share quotes from the CPs that align with the identified themes and provides research-informed context for the ideas presented. The third section shares recommendations gleaned from this work, including key considerations for scholars and reviewers related to enacting and assessing meaningful, authentic, and equitable community partnerships.

# Barriers to Fostering Authentic Partnerships

The first major theme stemming from this conversation focused on the barriers researchers and practitioners experience when developing partnerships.

## Power

Power was mentioned as a barrier in three specific ways.

- » Funders, academics, and grant makers are often unwilling to relinquish their power to community members (Dawn).
- » Funders, academics, and grant makers may “believe that we can’t be scientists, that we can’t lead research, that what we say is not legitimate, or that what we say has to be further validated and confirmed” (Dawn). There needs to be a larger acceptance of different types of research.
- » Those who are in positions of power should “advocate for more community-driven research agendas” (Dawn), so we can shift the landscape and mindsets (Flavian).

As indicated by the CPs, power functioned as a barrier for authentic partnerships because those who maintained more economic and epistemological power often fail to equitably or justly divest from that power when seeking to establish partnerships with communities. Farrell et al. (2023) highlight that research–practice partnerships are in need for (re)distribution of power and resources (p. 202). These authors highlight the work of scholars, such as Shah (2018), who calls for reform from “dominant notions of individualism, excellence, and standardization to transformative, critical discourses grounded in notions of voice, context, and power” (as cited in Farrell et.al., 2023, p. 204). To foster authentic partnerships, one needs to consider the imbalances in social and institutional power and how they impact relationships, processes, and distribution of resources and labor (Farrell et.al, 2023, p. 204) when partnering with community members.

## Community Engagement and Trust

Many of the CPs did not believe that racial ethnic communities trust the research process. Veronica mentioned this especially being a challenge at universities because “there is still a legacy of some organizations and some higher ed institutions who come in and do work *on* the

community as opposed to *with* the community.” To work to gain trust, we as scholars must do the following:

- » Be transparent. (Veronica)
- » Ensure community members are “playing beautiful parts in the research, and their research status is something that they can then take and do something with” (Jacob); this includes inviting community members to inform or drive the research process and strategic vision. (Veronica)
- » Be responsive to community members and be willing to pivot based on their needs. (Dawn)
- » Commit to working with community members for longer periods of time—multiple years rather than just a year. (Veronica)
- » Deliver on promises—be sure to bring back the tools and resources to the community and make those tools and resources accessible so communities can use them to effect policy change in their neighborhoods and communities. (Derek)
- » Be present with the community: “Go to the cookouts and church,” be where they are and go where they go. (Dawn)

Issues with trust are reflected in the research literature. Denner et al. (2019) note that tensions often arise when outsiders come in with privileged expertise. These tensions include lack of clarity regarding the purpose of the research (Denner et al., 2019), lack of acknowledgment of the harms that social science research has done to some communities (Tuck & Yang, 2014), and a feeling by community members that they’re being evaluated (Denner et al., 2019). The suggestions listed above from the CPs would aid in reducing the tensions community members may feel when engaging in research.

## Funding Limitations

Derek discussed the rigidity and limitations on how funding can be used. Funders, within this conversation, ranged from grant makers to school districts. Flavian added that “there has to be more than just skin in the game; there has to be a commitment to altering the landscape.” Another funding limitation mentioned was the amount of time given to work on a project. Derek mentioned that funders can often take a year or more to get a grant together (conceptualizing the grant, finalizing the description, application process, etc.) but then only give those who receive the grant a year to develop programming, assess the program, and show results.

The noted responses within the discussion of funding limitations show that there is a call for funders to be more flexible, allow more time, and be committed to altering the landscape. While we (the authors of this brief) acknowledge the funding limitations and challenges associated with partnerships, given that in this brief we focus on things that K–12 STEM education researchers can account for, we share our CPs’ observations but do not unpack them further. Further unpacking of funder–funder relationships is outside of the scope of this brief.

# Establishing Authentic Partnerships

The second major theme stemming from this conversation focused on specific strategies researchers and practitioners could employ when seeking to engage communities.

## Transparency

The participating CPs believed that transparency is critical to establishing authentic partnerships.

- » Derek shared an example of creating and submitting the budget with community members, so they are aware of how money is being spent. “Everyone should know what is going on between all different partners.”
- » Dawn added the importance of “openly acknowledging” harm that could occur through the partnership. Dawn shared, “I think there’s power in naming something and acknowledging that this operates here,” recognizing that attempts to ignore or cover up potential harms to communities via research processes only creates greater divides between communities and researchers. Being transparent about potential harm presents space for communities to make data-informed decisions on how they can choose to engage in the partnerships.

Transparency does not mean developing and perpetuating oppressive practices and then disclosing them. Transparency reflects being honest about one’s intentions, limitations, and possibilities. This includes K–12 STEM education researchers being transparent about how and why the proposed research project was designed as well as being open to revising the research design if the communities that researchers are wanting to partner with do not view the partnership as equitable or just.

## Community-Led Research and Advocacy

Supporting community members in taking the lead on research and advocating for themselves was another way to establish authentic partnerships.

- » Flavian mentioned that there has been “a history of [community members] being silenced, and they don’t feel like they have the permission to speak up for change within their community.” He went on to highlight the importance of bringing those voices back into the fold not only as advocates but as developers.



- » Jacob added that this is particularly important when creating something to support an unmet need in the community. However, when you bring outside people into the community, these partnerships need to “fill the gap.”
- » Jacob also mentioned that “people close to ... the problems are the ones who have to ... solve them. They understand that better than anyone else. So how can we also help kids see that? They are the experts in the community.” Jacob’s comment reminds us that when engaging in research specific to K–12 STEM education, the learners (i.e., students, youth, children) are not only the people impacted by the work but are also the experts of their own lived experiences. Remembering that students are the experts of their experiences helps to ensure authentic, equitable partnerships between researchers and communities.

Support can manifest in myriad ways. We (the authors of this brief) define support as research projects being co-led by representatives of the community of interest in ways that allow the community representatives to hold power in the decision-making process for all project endeavors. This includes having the power to decide the scope, structure, design, and intended outcomes of the project. We also define support as research project budgets reflecting this power, where these representatives have allocated resources that they can control with little supervisory oversight. Budget allocations should be equitable or just, appropriately compensating the CPs for their work and offering them the resources necessary to co-lead the research project. Lastly, we define support from a community-engaged perspective, where researchers, particularly those from academic institutions, serve as supporting mechanisms to community-designed projects. From this last approach, the researcher leverages their institutional resources and social capital to support a project designed and run by community members.

## Continuous Sustained Partnerships and Common Framing

Continuous sustained partnerships and common framing are grouped together because they support one another. Continuous sustained partnerships support developing a common frame and vice versa.

- » An important part of the conversation around continuous sustained partnerships was ensuring that community members have the opportunity to work with the same partners—there needs to be consistency (Derek).
- » Dawn discussed the importance of building a common framework because “you’re asking two people to come together, and they have two different frameworks,” but that doesn’t work in a partnership. “There has to be time invested in creating a common framework that we’re operating from.”

From this perspective, we surmise that authentic partnerships are continuously sustained and grown. While formulating new partnerships helps expand access, obtaining new partnerships for each new project prevents opportunities to establish and demonstrate trustworthiness. A sustained partnership provides opportunities for researchers and communities to coalesce on a shared common goal, which is reflected in the idea of having a common frame when seeking

to collaborate on a project. Having a common framework established through continuously sustained engagement ensures that the researchers and communities are collaborating in solidarity. To develop a common framework, aside from building and sustaining relationships, the authors recommend:

- » **Commit to engaged listening and regular check-ins:** As mentioned, often researchers position themselves as the experts, but community members are the experts of their experiences and their communities. Being committed to engaged listening and having regular check-ins will help build and sustain relationships, leading to the creation of research projects that support community initiatives.
- » **Disclose all intentions:** Be sure to discuss at the beginning of the partnership the intended purpose of the research, who will receive credit for which parts, and individuals' responsibilities. This provides an opportunity for all parties to negotiate with each other if there are reservations and to brainstorm additional ways the community can benefit from the research.
- » **Discuss positionality:** Discussing positionality is particularly important for the researcher. How are you showing up to this work? Acknowledge the ways your various identities play a role in how you understand and engage with communities and in the research process.
- » **Co-theorize problems and potential solutions:** As part of the regular check-ins, provide updates to one another, and when challenges arise, co-theorize the reason these challenges may be happening and potential solutions on how to move forward.

# Implications for Building and Ensuring Authentic Partnerships

Given the information provided in this brief, in conjunction with existing research literature, we offer the following recommendations for building and ensuring authentic partnerships. These recommendations serve both as strategies for DRK-12 researchers seeking to establish authentic partnerships and as considerations for DRK-12 grant reviewers when looking to determine if the partnerships are authentic.

## Implication #1: Attend to Power Structures in Decision-Making and Resource Allocation

- » Authentic partnerships are reflected among the leadership team, where CPs have power to co-determine the problem of interests, study design, and intended outcomes.
- » Authentic partnerships are reflected in the budget, where CPs are appropriately compensated for their time and have the ability to manage resources specific to the project with little supervisory oversight (i.e., they can decide how to use the resources with respect to the project through shared goal-making and not through having to get approval from someone with more power). A way to operationalize this is by making CPs subawardees with an operational budget, enabling them to maintain the power and discretion to shift resources as needed. As subawardees with a budget, the CPs have control over their own resources and do not have to continuously pander to senior leaders while also navigating external institutional structures that can impact when they access and how they spend their monies.

Being cognizant of CP representation among the leadership space and who has the power, authority, and resources to determine decisions and outcomes helps to ensure equitable representation among authority. It also provides the mechanism for checks and balances—where scholars can be true collaborators by amending research goals and outcomes in ways that reflect CP priorities as opposed to their being attentive only to their own positionality in trying to drive partnerships for research's sake.

**Scholar Considerations:** As you work to establish partnerships, consider the following questions when attempting to attend to power in decision-making and mapping out plans for collaboration:

- » Who is making the final decision on this matter? Who *should* be making that decision?
- » Who benefits the most and in what capacity?

- » To what extent do the answers for 1 and 2 reflect the goals, needs, and aspirations of CPs and, subsequently, the racially and ethnically diverse communities?

**Reviewer Considerations:** Reviewers assessing research grants should consider the following questions when determining how power is attended to in authentic partnerships:

- » What positions do the CPs hold among the leadership team and what is the extent to which they are listed as PIs/co-PIs as opposed to senior personnel, external consultants, or participants?
- » How is the budget developed to ensure that CPs have equitable resources within their direct control (e.g., via subawards where CPs are managing all activity resources)?

## Implication #2: Demonstrate Trustworthiness and Establish Trust Through Partnership Formation

- » Authentic partnerships are ones where the researcher divests from power and hierarchies by going to and spending time with communities and leveraging the researcher's resources and capital to support communities' self-determined desires.
- » Authentic partnerships are ones that demonstrate a shared history of collaboration, demonstrating the intention for continuous collaboration and providing a structure for implementation. For new partnerships, the intention and structures for continuous collaboration are key, including insight into how communities will be empowered through the partnership and how communities will maintain and grow their resources.

Building trust is imperative for building and establishing authentic partnerships. Trust allows for sustainable and productive relationships where all members have the goal of engaging in meaningful conversations to be transparent about goals, resources, process, and outcomes.

**Scholar Considerations:** Scholars working to build trust with communities should consider the following questions when working to build and establish trust:

- » Where are meetings and events being held? How or in what ways are you accommodating communities by meeting them where they are?
- » Are you having consistent transparent conversations? Are you being transparent with the CPs about funding (e.g., what are prospective staff salaries, how much money is available for resources), roles (e.g., who is doing what), and goals?
- » Do you listen and value the voices and lived experiences of the community members? In what ways do you use that information to make meaningful changes to the goals and initiatives?
- » In what ways do you show up within communities? Are you only there as a researcher or outsider, or do you show up as an intentional co-conspirator for community endeavors?

**Reviewer Considerations:** Reviewers assessing research grants should consider the following questions when working to determine whether or in what ways trust will be prioritized or built:

- » Is it clear that community members contributed to the creation of project goals, budget, resources, and outcomes?
- » Does the grantee articulate how trust was established within the partnership and the various strategies put forward to demonstrate trustworthiness when building the partnership?
- » Does the grantee account for their positionality in the trust-building process? Does this accountability process reflect reciprocity between communities and the researcher?
- » In sections of the grants that discuss prior work or related work, does the grantee demonstrate that their project outcomes reflected community priorities? Do they outline how community voices were reflected in the previous project design and implementation? Do they outline how the community was included in the final decisions of former or prior work?

### **Implication #3: Commit to Continuous Sustained Partnerships**

- » Authentic partnerships are long-term; there needs to be a commitment to working with CPs for longer than one year or grant cycle. Being in a continuous partnership supports building trust, transparency, and advocacy.
- » Authentic partnerships are needed and bring an added value. It is important to consider whether the community needs what you are offering. This is especially important for people who are outside of the community hoping to come in to do research.

Creating and sustaining relationships ensures layers of support for communities in ways that allow them to continuously flourish. Sustaining healthy, equitable relationships also demonstrates researchers' deep commitments to those communities in addition to ensuring that community perspectives, needs, aspirations, and desires are meaningfully accounted for across projects. Sustained, healthy, equitable relationships are a great hallmark for authentic and equitable community partnerships.

**Scholar Considerations:** Scholars working to create sustained relationships with communities should consider the following questions:

- » How can you continue to support this community with resources over time?
- » In what ways do you support the community beyond the initiatives or projects you are part of?
- » How can you maintain a level of effective, transparent, and empathetic communication that allows for healthy dialogue, healthy collaboration, and shared decision-making to continuously be at the forefront of the relationship?

**Reviewer Considerations:** Reviewers assessing research grants who are working to determine whether or in what ways sustainable relationships have been created or prioritized should consider the following questions:

- » How many times has the grantee worked with the CP, for how long, and in what capacity?
- » Does the grantee appear to prioritize working with the community in multiple capacities?
- » Are there intentional plans in place to support a sustained relationship that is not funding or financially contingent?

## Implication #4: Create a Common Framing

As mentioned above, follow steps to create a common framing with CPs.

- » Commit to engaged listening and regular check-ins
- » Disclose all intentions
- » Discuss positionality
- » Co-theorize problems and potential solutions

Creating a common framework that is established through continuously sustained engagement ensures that the researchers and communities are truly collaborating in solidarity. A common framework provides the conceptual and pragmatic boundaries for the relationship, ensuring that as decisions are being made, the collectively established priorities and processes for meeting them ground every decision and interaction.

**Scholar Considerations:** Scholars working to create a common framework with communities should consider the following questions:

- » Have you engaged in conversations around collaborative vision setting, negotiables and non-negotiables for team interactions and dynamics, and individual and collective values and beliefs related to the explored topic and project?
- » What pre-planning activities have you engaged in with CPs to establish a foundation and norms for collaboration and team building prior to the planning for the project?
- » Have you been transparent about your intentions and/or the end goal for the project?
  - Is the community getting as much or more from the project than you? How was or will it be determined?
- » How have you and community members organized the project so there are opportunities for regular check-ins?

**Reviewer Considerations:** Reviewers assessing common frameworks in research grants should consider the following questions:

- » Are positionalities brought forward?
- » Are grantees transparent about their intentions and what they are looking to get out of the project and what the community is receiving as a result? Is there a focus on community priorities and how the grantee can support them?
- » Are grantees transparent about what the community prioritizes and about any shared vision, values, beliefs, and commitments between community priorities and researcher priorities?
- » Is there an actual framework in place that guides team dynamics, decision-making, and resource allocation, and to what extent does that framework appear to reflect the shared values and beliefs of the community and researchers?

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