The Access Assembly: Learning together, building friendships, and strengthening our leadership capacities

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Founded in 2014, the Access Network brings together nine student-centered, university-based programs that pursue systemic change towards a vision of a more diverse, equitable, inclusive, and accessible STEM community. Leaders at the Network-level and program-level are either current students (undergraduate or graduate) or young faculty and professional scientists, many of whom started out as student leaders in Access programs. Over the last 9 years, Access has brought people together (virtually or in-person) for an annual event called the "Assembly." Student leaders who attend the Assembly appreciate community-building and networking opportunities that help them build capacity for leading local site programming. Many participants report that the Assembly is a special place with a different feel than many other professional spaces. In this paper, we share vignettes from past Assembly events to give you a feel for how this space operates differently. We also report on the results of a post-Assembly evaluation survey which illustrate that participants tend to feel included, make new friends, feel valued, and build confidence as leaders.

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I. INTRODUCTION AND BACKGROUND

Student-led programs STEM academic spaces can support movement towards more equitable and inclusive STEM communities. The Access Network was founded in 2014 to bring together nine student-centered, university-based programs for mutual support and resource sharing as they pursue complementary work [1]. Leaders at the Network- and program-level are either current undergraduate or graduate students or young faculty/professional scientists, many of whom started out as Access student leaders. Since 2016, Access has brought people together for an annual event called the "Assembly." Student leaders who attend the Assembly participate in community building and networking opportunities to build capacity for leading their local programs. In a complementary paper [2], we explore the ways in which the Assembly supports the transfer of ideas and the adaptation of activities across programs. In this paper, we present survey results showing that Assembly attendees feel included, make new friends, feel valued, and build their confidence as leaders. We share vignettes built from observations at the Assembly to illustrate the types of experiences that may contribute to creating a welcoming and safe learning environment.

The Access approach to creating a more inclusive and equitable STEM academic community centers on changing the system, not the students. This approach is informed by an asset-based, rather than a deficit-based, model of Access's student leaders [3]. Rather than looking for gaps to fill, Access's approach frames students' competencies as places from which to build [4]. For example, student leaders ideate, design, and implement many of the sessions at the Assembly. In centering student leadership, agency, and expertise, Access is designing "with" students rather than "for" students.

Students as Partners (SaP) is an area of scholarly work that encompasses many different forms of collaborations between students, faculty, and staff. While examples of partnerships are diverse, they share a commonality offering a version of education counter to the "students as consumers" model by inviting students to co-construct their learning environments [5]. Student leaders who work on planning the Assembly are mentored by more senior members of Access, forming a partnership ala the SaP paradigm. In Assembly planning, Access prioritizes decisions by consensus with transparent roles that enable power sharing among students, faculty, and staff (see Section II). Prior research has discussed the transformative potential of student-faculty partnerships to support critical conversations about equity, diversity, and inclusion [6].

Access is organized around six principles that have been iteratively refined with input from many members of the community. In Access: (1) students are experts in their own lives, (2) we are committed to advancing equity and inclusion, (3) we share power, (4) we share resources, (5) we care for each other, and (6) we individually and collectively aim for improvement [7]. In prior research, we have documented how students' equity ethic [8] is strengthened through altruism and solidarity building within Access [9].

Each of these principles can be found in Access's activities. However, for this paper, we focus on the last two: we care for each other and we individually and collectively aim for improvement. At the Assembly, Access student leaders share the work that they have done in their programs and learn from each other to bring ideas back to their institutions. For this to be successful, it requires participants to feel welcomed, included, valued and respected in an open and inclusive space. Additionally, engaging in equity work requires supporting participants through difficult conversations. For the Assembly, this means that we need structures for learning and reflection that allow us to lean into critique. When tensions do arise, we frame them as places for learning and growth for all parties involved. These conversations become easier the more the participants feel safe with each other. Creating opportunities for collective reflection supports Access in self-critically improving toward its mission.

In this paper, we seek to evaluate the impacts of the Access Assembly on attendees. We begin by asking the following two questions: (1) To what extent are Assembly attendees feeling included, making new friends, feeling valued and building confidence as leaders? (2) What structures may be enabling these outcomes/impacts? In this paper, we document positive outcomes from the Assembly attendees (e.g. feeling included, making new friends, feeling valued and building confidence as a leader) and then posit structures at the Assembly that may contribute to those outcomes. Consistent with other vignette-based work in physics education research [10], we illustrate these structures through storytelling, hoping to expand readers' touchstones for what it can look like to share power with students and follow their lead.

II. STUDY CONTEXT

The Access Network connects university-based student-led programs (also known as "sites") in an effort to share resources and mutually support each other's work. While each site functions differently, they all share a common goal of improving equity and inclusion in STEM through student-driven initiatives and empowerment. Access is organized into various teams dedicated to particular functions of the organization. The Core Organizer (CO) team ensures the funding, long-term planning, and mentorship of students within the Network. The Assembly Fellow (AF) team plans and runs the annual Assemblies. The Network Fellow (NF) team supports the year-round functioning of the Network and individual sites by bringing student leaders together to work on projects and share resources.

The many roles in Access are open to undergraduate and graduate students. However, students in CO roles tend to be more senior graduate students who have been involved in Access for a few years. While each of the positions described above has a specific set of associated responsibilities, individuals at the Assembly are invited to participate as equal members, and Access acknowledges the various ways in which

socially-constructed identities impact the ways in which an individual shows up in our community spaces. We use the term "positionality" [11] to refer to the perspective that a person brings to a space that is shaped by their lived experiences and various social identities (e.g., gender, sexuality, race, ability or disability, and institutional role). Access intentionally creates a space that is counter to those typical in STEM that may marginalize particular positionalities and exclude individuals who hold particular identities.

Access has 10 years of experience organizing and running the Assembly. At the Assembly, attendees eat meals together, share in collective brainstorming about their sites and Access as a whole, and participate in sessions designed and run by student leaders of the AF team. These sessions are the core substance of the Assembly. They function as mini-workshops where Access members holding various positions (from undergraduate to faculty member) can learn about a particular topic or skill. For example, a session on "Communication and Collaboration" put attendees in small groups. One participant from each group went into a separate room and was given a small LEGO structure. This participant then had to clearly communicate to the rest of their team how to build a copy of the LEGO structure without the team seeing the original. Other sessions might be focused on expanding our understanding of an aspect of inclusion (e.g. "What is Ableism?", "Cultural Appreciation vs. Cultural Appropriation") or on learning strategies for running effective programs (e.g., near-peer mentoring). These sessions all serve to expand the capacities of Access's student leaders and, by extension, the Network itself. The Assembly is often contrasted with other professional STEM spaces: instead of being hierarchical and gatekeeping, Access operates in a more horizontal and inclusive manner.

III. METHODS

As of May 2025, we have successfully held 7 in-person Assemblies and 2 virtual Assemblies. At the end of each Assembly, we give a post-Assembly survey (PAS) to assess attendees' experiences and evaluate the impacts of the Assembly and the Network. The PAS design has evolved over time, although we have kept some blocks of survey questions stable. For our first three Assemblies, the surveys were designed and administered by an external evaluator. Since then, our internal evaluation team has adapted and continued to administer this survey. For each administration, we have had between 24 and 38 responses, typically just over half of attendees at that year's Assembly. The PAS has been one of the Network's primary evaluation tools, so it probes for many distinct facets of attendees' experiences with the Network: (a) attendees' experiences at the Assembly, (b) the impacts of their participation in the Assembly, (c) their experiences at their local sites, (d) their experiences with the Network more broadly, and (e) their demographics.

For this study, we draw on evaluation data to describe important outcomes and impacts for Assembly attendees. This includes PAS responses from the two most recent in-person Assemblies: 2023 (N=35) and 2024 (N=27). Because there are many people who have attended multiple Assemblies, responses are not independent from one year to the next; therefore, we chose NOT to combine data sets from across multiple Assemblies. Additionally, we also draw data from the 2021 virtual Assembly, where we piloted a session-specific exit ticket survey (ETS). The ETS offered just-in-time feedback tied to specific sessions by asking respondents to (1) share aspects of the session that they found productive, valuable, or enjoyable; (2) share aspects of the session that did not work well for them; and (3) list questions that the session raised for them. These ETS responses offered concrete evidence of students' experiences in specific sessions, which we used to build our illustrative vignettes. Finally, we also analyzed artifacts from the planning and implementation of the relevant Assemblies (e.g., session descriptions, session handouts, observational notes from session attendees). Based on this data, we constructed vignettes to illustrate the structures at the Assembly that may contribute to these participant outcomes. The vignettes included here have been member-checked for validity with our CO team.

Study Limitations: Due to our modest response rate on the PAS, there is a risk that our sample of respondents does not reflect the experiences of the entire population of attendees. It is possible that folks with a less positive experience at the Assembly were less likely to respond to the PAS. In constructing our vignettes, we drew from multiple data sources and tested the authenticity of these accounts through member checking. However, individuals may experience these sessions in varied ways and these accounts may not capture all attendees experiences.

IV. RESULTS

Responses to relevant PAS questions from 2024 are shown in Figure 1. We see respondents' overwhelming agreement that they largely experience the Assembly as an inclusive space, that contributes to their confidence as a leader and expands their network of friends and collaborators. These results are representative of outcomes from recent in-person Assemblies. Next, we share vignettes to illustrate Assembly sessions and structures that may contribute to these outcomes.

Vignette 1: Vocabulary activity. Since 2018, we have a tradition of beginning our annual Assembly with a vocabulary game. In advance of the Assembly, the Assembly planning team edits and publishes an Access Assembly Social Justice Glossary which includes 13-15 pages of terms and definitions (originally adapted from [12, 13]). These words (e.g. systems of oppression, diaspora, or tone policing) can be taboo to talk about in STEM spaces that tend to be depoliticized [14, 15] and their use can often feel uncomfortable or unfamiliar. The vocabulary activity invites attendees to engage in sensemaking about the meaning of these words

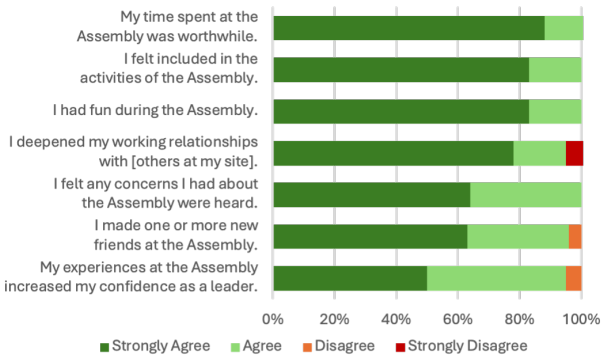

FIG. 1. Respondents' Likert-scale agreement with statements about the 2024 Assembly as an inclusive space, and contributing to building confidence as a leader and relationships (N=27).

in a playful way. In one implementation, a participant got a random sticker with a vocab word placed on their back and other members of their small group would try to describe the meaning of the word in sufficient detail for them to guess their word (consulting the online glossary as needed). In another implementation (inspired by the game "Heads Up"), we had a stack of cards with vocab words on them. One guesser would draw a card and place it on their forehead, so they can't read the word but their teammates can. The rest of the teammates try to describe the meaning of the word in sufficient detail for them to guess their word (consulting the glossary as needed). Whenever folks want to give up or "pass" on figuring out their word, they can. Then, the group can debrief the word and their understanding of what the word means.

This activity is designed for attendees to expand their awareness of words and their meanings in small group discussion formats, while also getting to know each other. This activity builds our community's capacity and comfort for engaging in future conversations and with greater shared understanding of the meaning of words. Our glossary is also treated as a "living" document, so community members can add comments to it in places where the definitions seem inadequate or have evolved over time, and at times suggest new words be added (e.g. subtleties around definitions of bisexual, and distinctions between First Nations people and Native Americans). One anonymous participant left this comment on the session-specific exit ticket survey: "This was fun, engaging, and a great way to learn and clarify definitions for terms that can be hard to talk about, especially if you feel bashful about not knowing something." In this quotation we see evidence of a participant enjoying this activity, seeing it as contributing to their learning, and reducing some emotional barriers to engagement. One might imagine participants being better able to make use of those terms in subsequent sessions.

Vignette 2: Deliberate structures for feedback and conflict management. Since 2017, we have developed structured opportunities for Assembly participants to voice feedback in an open-community forum at the end of every day of the Assembly. This forum is described in the schedule, as "Check-in: How is the Assembly going?" We have noticed that this session prevents conflicts and critiques from festering; in some ways it serves as a "release valve" for feedback to be voiced and heard as a continuous practice. There are designated facilitators (typically 2 to 3 people across roles and positionalities) who guide this discussion and help the community to decide if there are adjustments that can be made in the coming days of the Assembly or if our organization should record and consider this feedback for future Assemblies. For example, some participants have requested that attendees remember to introduce themselves and share their pronouns prior to posing a question or making a comment in a large group setting. As another example, we have had people ask that we develop better ways of communicating to attendees about minor changes to the schedule. These sessions are typically facilitated by our "ombuds" team.

It is regular practice to have an ombuds team. The ombuds team is made up of a range of folks with different positionalities: some are student leaders (typically a subset of our AFs) and some are COs. We note that the membership and positionalities of the ombuds team has expanded over the years, as we realized we needed additional support in navigating challenges/conflicts. These folks have either a special sticker or a different color background on their name tag to indicate to attendees that they are available as an ombuds. Any attendee can ask an ombuds team member to process things that weren't sitting well with them or process conflicts that may have arisen during Assembly activities/sessions or adjacent interpersonal interactions. These structures are designed to anticipate that some degree of conflict is inevitable and to put processes in place to manage and seek resolution of conflict. In some years, these ombuds team members have been formally prepared for this role through a short online workshop led by external experts. In other years, we have drawn from these resources to internally prepare our ombuds team members to serve in this role. These preparatory training sessions typically involve defining the role, describing strategies, and then practicing how to respond around concrete scenarios. With permission from the concerned attendee, an ombuds may bring another ombuds team member with particular expertise into the dialogue. Together this small group would listen, offer information, and help people examine options for resolving their concerns. At times, this ombuds subteam might facilitate various dispute resolution processes. With permission from the concerned attendee, an ombuds member might bring up a concern for community consideration at our closing feedback sessions at the end of the day.

Examples of the broad stroke concerns that have been brought to the Assembly Ombuds Team in the past include (a) concerns about cultural appropriation, (b) unwanted sexual attention, and (c) tensions between the experiences of students on international student Visas and second-generation immigrant experiences in the US. We think that it is important to emphasize that even though Assembly attendees largely experience this conference space to be inclusive, that does NOT mean that it is a space without conflict or disagreement.

Vignette 3: Panel discussion with first-generation students. In the 2019 Assembly program this session was described as, "A panel of individuals who understand the experiences of being a first generation student. This session will allow attendees to learn about and relate to the reality of being a first generation college student. They will receive advice/resources to help cope with being a first generation student or to help advocate for these students." The session was designed and developed by Mackenzie Carlson, an AF and undergraduate student at the time who identifies as a first generation college student. The AF Team posted a call to attendees ahead of the Assembly asking if anyone would be willing to talk about their experiences on the panel as a first generation college student. Multiple Access members volunteered to share, resulting in six panelists: two non-student members (one staff person still in higher education and one early career scholar working outside of higher education), two graduate students, and two undergraduate students who were serving as AFs at the time including Carlson. The session opened with panelist introductions including a prompt to briefly share their academic journeys. In the second half, Q&A between the audience and panelists ensued with prompts such as: (a) how do you feel about the term first generation? (b) What could people have done that would have supported/helped you? (c) What do you wish your mentors knew?

We are able to give a detailed account of this session from recorded notes. Panelists discussed interrupting cycles of poverty for themselves and their community through higher education. They remarked on seeing college as a path toward a better life. They also touched on tensions emerging with family members as they left home and were positioned as more successful (due in part to elitist narratives around those with college degrees). Specifically, they mentioned being perceived as condescending when talking about their work, eliciting insecurities in loved ones and resulting in conflicts. The lack of people in their nuclear family that could advise them on college navigation was emphasized. Panelists felt this acutely when applying to college, applying for financial aid, understanding the workload expectations in college, and trying to secure internship/research opportunities. One panelist touched on having to navigate family expectations of carrying on the family business. To some, members of their extended family were critical resources while navigating college, such as convincing other family members that it was okay to move away from home when securing internships. Some panelists also spoke about challenges associated with transferring from a community college into a 4-year university. Other discussion points included challenges associated with being far away from home and family.

In addition, panelists reported difficulties within their new institutions. They brought up that it can often feel taboo to talk about money among peers or with faculty/staff. Panelists wished for more support through: (a) encountering more people that look like them in college, (b) opportunities to meet/talk with other Latinas in STEM, (c) more explanations around applying for and receiving financial aid and completing FAFSA, (d) guidance on how to build a personal budget, and (e) finding more people invested in their college success and mentorship. We were pleased to witness the vulnerability the panelists displayed and the curiosity of the audience during this session, as it is a primary goal of Access to cultivate a space for attendees and session leaders to feel comfortable in sessions with sensitive subject matter such as this panel.

V. CONCLUSIONS

The annual Access Assembly provides a unique space for personal and professional learning for the student-leaders, faculty, and staff from the nine Access sites. The planning and enactment of the Assembly embodies Access's commitment toward meaningful student-faculty partnerships; students create the content of the event to best serve the organization, their sites, and their individual learning. Attendees describe it as a special place that operates differently from typical higher education spaces. Using vignettes and survey data, this paper illustrates how the Assembly fostered a sense of inclusion and friendship through collective learning.

Access nurtures deeper and more reciprocal connections among students, staff, and faculty. Students largely decide Assembly topics, structures, and activities, which differs from typical conferences where senior members decide. As a result, faculty orient toward students as people to learn from and with, disrupting traditional student-faculty hierarchies. Challenging these power dynamics also allows Access to foster connection among its members at a more human level. We recognize individuals as "whole people" and our space is infused with care and vulnerability.

By connecting with one another at a deeper level, we are able to dig into complicated, sensitive topics about equity and inclusion together. Such topics are often thorny, particularly when they occur across a range of social identities and roles. We use well thought out activities, which are designed and developed by students, and bolstered by the collective knowledge of our community. This enables us to have the vulnerability needed to learn across identities and roles, and benefit from the diverse perspectives of our members. Through these activities, we deepen connections and friendships, as people find points of connection across experiences, and are able to appreciate the nuance of differences.

As we discuss difficult topics, we recognize the importance of anticipating and leaning toward conflict. We recognize that conflict is not something that should be avoided. Rather, turning toward conflict can be an important source of learning—both for individuals and our organizations. Through critical reflection, we have iteratively improved Access's structures for feedback and conflict resolution. For example, the Ombuds team has evolved in composition over time, and has accumulated years of shared knowledge. Sites have also evolved their organizational structures as described in a complementary paper [2].

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