



THE FUTURE NEEDS A PUSH

MARCH 2024

FEATURED

INTERSECTIONALITY:
TELLING THE WHOLE
STORY

ADMISSIONS

RESEARCH UPDATE

ACCREDITATION

EQUITY CLIMATE

Co-Creating the Future: STEM PUSH Convenes

From Ohio to Florida, to California, to Oregon, pre-college STEM programs from around the nation gathered in Pittsburgh for the Spring 2024 STEM PUSH convening. Twice per year, pre-college program leaders gather to share best practices, learn from experts and engage in deep work to broaden participation in STEM.

On the University of Pittsburgh campus, PCSPs learned collaboratively about the importance of partnerships, intersectionality in design, and the emerging research the collective has generated.

Over three and a half days, Network members shared strategies for sustaining equity work in an increasingly challenging political environment. Leaders learned more from admissions professionals about the nuances and changes in standardized testing and beyond, and launched the next iterations of STEM PUSH work for systems change in higher education admissions for greater opportunity for Black, Latina/o/e, and Indigenous students in STEM.

In this newsletter, we recap some of the highlights of the convening and share important updates on what we've accomplished, including the progress of the first cohort in earning accreditation.



Intersectionality: The Importance of Telling the Whole Story

Coined thirty years ago by Kimberlé Crenshaw, **intersectionality** describes the ways in which systems of inequality based on gender, race, ethnicity, sexual orientation, gender identity, disability, class and other forms of discrimination “intersect” to create unique dynamics and effects.

Intersectionality was a central topic of the convening keynote by Amber Wendler, co-editor of *Been Outside: Adventures of Black Women, Nonbinary, and Gender Nonconforming People in Nature*.

By sharing her own experiences as a Black woman interacting with nature, Wendler was able to identify the important opportunities that introduced, and helped her persist in STEM and environmental science. She reflected on these experiences to re-affirm the types of culturally sustaining opportunities that pre-college STEM programs provide. Wendler credited her success to:

- Free or low-cost ways to engage with nature;
- Supportive educators to encourage along the way;
- Paid undergraduate research experiences to continue learning;
- Access to outdoor activities through University clubs;
- Affinity groups that allowed community with other Black scientists; and
- Access to diverse mentorship.



Amber Wendler,¹ Ph.D. Candidate in Biological Sciences; Co-editor of [Been Outside: Adventures of Black Women, Nonbinary, and Gender Nonconforming People in Nature](#)

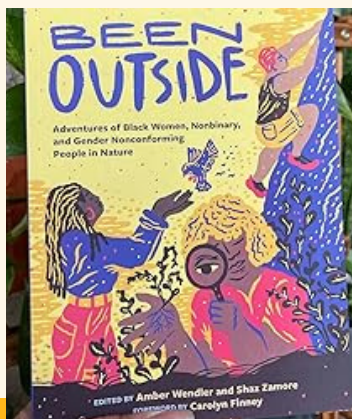


"People have all different kinds of identities and you can't separate them. If you only focus on gender, or only focus on race, you can't tell the whole story."

Inclusive Practices

Wendler offered a number of strategies for pre-college programs to stay aware of intersectional identities and oppressions within the learning experiences they offer. These strategies included:

- Finding content contributors from diverse backgrounds;
- Participating in virtual community building events;
- Maintaining awareness of common challenges like:
 - Imposter syndrome,
 - Being the first,
 - Tokenism,
 - Lack of representation; as well as,
- Sustaining community and mentorship.



[Been Outside: Adventures of Black Women, Nonbinary, and Gender Nonconforming People in Nature](#) was one of the latest books the STEM PUSH Network read together.

See our full reading list [here](#).

Admissions Panel: Advice for Students Looking to Enroll

At the convening, a panel of admissions professionals offered insight and advice to pre-college STEM leaders to support their work and students, in addition to answering questions during small table discussions.

The panelists discussed the re-emergence of standardized testing and the implications for equitable admissions. While acknowledging the complexity of this issue, consensus was that relying solely on test scores fails to capture the full spectrum of a student's capabilities and potential contributions to academic communities.



Justin Mohney, Director of Recruitment for Carnegie Mellon University shares insight as to how pre-college STEM programs can make an impact in showcasing a student's talent through letters of recommendation.

"Pre-college STEM programs should provide tangible evidence about the program and its outcomes."

Mohney and his Carnegie Mellon colleague, Miguel Alvarez, also stressed the importance of building personal connections with admissions offices.

"The U.S. higher education admissions system is varied and changes often. As professionals working in this area, it is our responsibility to inform students on those changes and differences so they can best navigate the system."

Miguel Alvarez, Director of Access and Opportunity, Carnegie Mellon



"Consistency and insight into how students are challenging themselves is important. It shows us a student's ability to succeed."

Mary Sasso, Executive Director, SUNY GENESEO



Kellie Kame, Associate Vice Provost for Enrollment, University of Pittsburgh said that she has been able to recruit phenomenal students by paying attention to PCSP experience. She shared examples of putting students aside at first glance, but taking a second look after being told that a particular student had participated in a rigorous pre-college STEM program..

"Admissions professionals often don't know about the programs and need to be informed in a meaningful way."

Kame stressed the importance of helping students communicate the depth of their experiences in programs to help admissions officers quickly understand.



What the Research Says

STEM PUSH is fundamentally a research project and our research goal is to objectively and broadly demonstrate the value of pre-college STEM programs on matriculation and persistence in STEM in higher education.

Our preliminary research shows that students who participate in STEM PUSH pre-college STEM programs enroll and persist in STEM at significantly higher rates than those who do not. Across programs with enough data – Black, Latina/o/e, and Indigenous participants of PCSPs were

50% more likely than their matched applicants to persist through more than one year in STEM at colleges and universities.

And, **80%** of Black, Latina/o/e, and Indigenous students of STEM PUSH PCSPs with National Student Clearinghouse (NSC) records enrolled and persisted in STEM through a minimum of one year of college.



Lead by Arizona MESA, pre-college STEM programs checked and learned to eliminate bias with a LEGO activity. Participants experienced bias with LEGOs and were given an opportunity to respond to it through a productive discussion. Bias can be a difficult subject to address and this activity provided an idea for staff training.

A favorite energizer in between sessions, STEM PUSH leaders cheer each other on in a *Rock, Paper, Scissors (rochambeau)* competition.



Accreditation

Six STEM PUSH PCSPs, the original accreditation pilot cohort, are poised to earn the credential from Middle States Association Commissions on Elementary and Secondary Schools (MSA-CES) for the programs' ability to broaden participation in STEM. The six programs that made up the first cohort worked through a rigorous continuous improvement process that included a self-study documenting improvements, evidence, and future goals, in preparation for site visits with MSA. Site visits have concluded and all six programs are recommended for accreditation; they include:

University of Pittsburgh



Gene Team at University of Pittsburgh



Arthur Ashe Institute for Urban Health's Health Science Academy



New York Hall of Science Science Career Ladder



Joaquin Bustoz Math-Science Honors Program at Arizona State University



California State University East Bay MESA



Peggy Notebaert Nature Museum Teenagers Exploring and Explaining Nature and Science (TEENS)

“People know we’re a good program, they know we’re a solid program, but to have an external body look at us and say ‘Yes--you are really preparing students for college and beyond’...it just gives us more legitimacy, and it elevates our program so much.”

Janiene Langford, Director of California State University East Bay MESA believes the accreditation will validate and make more visible the important work her team is doing to prepare students.



“This is a huge moment to recognize the tremendous thought and effort of our pre-college STEM program staff... Accreditation recognizes the continuous improvement of each program, as they consistently provide outstanding academic and social STEM experiences for their high school students.”

-Disan Davis, Research Associate, STEM PUSH Network

A second cohort of STEM PUSH PCSPs is now engaged in the accreditation process. That cohort is learning from the data STEM PUSH collected about the process, during the initial pilot, and a third cohort will likely launch later this year.



“They (students) might be more encouraged to apply to dream schools, and counter possible discouragement if they don’t test well. They will know that they have opportunity to move forward.”

Cynthia Romero, Program Manager for Joaquin Bustoz Math-Science Honors Program at Arizona State University, said accreditation will serve students by helping them see the value, and take advantage of PCSP opportunities as part of their admissions journeys.

Leading STEM PUSH

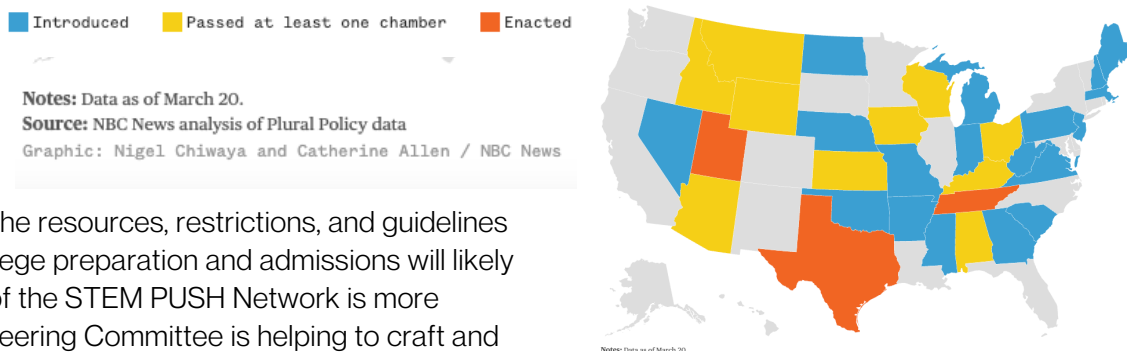
STEM PUSH's greatest asset continues to be PCSP partners—the dedicated educators doing the work on the ground. Introduced in Spring 2023, the Steering Committee has helped provide thought leadership toward strategy and implementation of STEM PUSH's work.

The Steering Committee welcomed pre-college STEM program leaders to the Spring 2024 convening, and with the support of STEM PUSH Partners for Networked Improvement, guided the Network through a number of discussions.

One conversation centered on the current landscape surrounding college preparation and admissions following the Supreme Court ruling that struck down race conscious admissions practices in higher education last year. That ruling sparked a wave of restrictions at state and local levels. With some 30 states introducing, enacting, or passing anti-DEI legislation, the work of equity-focused PCPS is more important than ever—and more challenging. The Steering Committee called out these hurdles, and led PCSP partners in discussion of the complications, and some opportunities ahead.

Which states have introduced anti-DEI bills?

More than 30 states have introduced bills banning or limiting DEI initiatives during their current legislative session.



As the conversation—and the resources, restrictions, and guidelines—surrounding equity in college preparation and admissions will likely continue to shift, the work of the STEM PUSH Network is more important than ever. The Steering Committee is helping to craft and guide the network agenda to sustain and further our mission of providing access, opportunity, and the tools for success in STEM for Black, Latina/o/e and Indigenous students.

The Steering Committee presented resources to the Network, one of which included strategies to connect with alumni through social media platforms like LinkedIn. Based on a survey launched in September 2023, the Steering Committee examined the different methods and information PCSPs tracked from their alumni, and determined LinkedIn to be an ideal place to concentrate outreach and stewardship. Steering Committee leaders created a suite of resources for the Network, including a guide to help students draft resumes, an online presence or portfolio and best practices to build and maintain a connection with students on LinkedIn beyond their time in the program.

Practical Measurement

With the support of STEM PUSH expert consultant on equitable measurement, Carlos Sandoval, PhD, roundtables gathered to prepare for Spring learning cycles about practical measurement. Practical measurement measures the education and development of children and adults with a focus on the needs of practitioners working within major constraints of time, resources, and other challenging contexts (e.g., low income communities, etc.).

Leaders talked-through example scenarios to understand that practical measurement will have a direct focus on practice, an actionable approach to change PCSP leader methods and questions asked in evaluations, as well as overall adjustments to their programs that can make a big impact on student and staff learning.

“Success would be if we are able to continue being a resource in some way, that they feel connected to our institution and attend reunions.”

-STEM PUSH Network survey response, September 2023 Survey





Now in its fifth year of operation, the STEM PUSH Network is changing the conversation around college admissions and access for Black, Latina/o/e, and Indigenous students in STEM.

To date, our research shows that leveraging the invaluable community-based knowledge, experience, and community that PCSPs provide can help students develop STEM competencies that matter. Our progress on accreditation for PCSPs will help to ensure that these competencies matter as much as the culturally biased standardized tests that many institutions are retuning to in admissions practices.

The conversation around equity in college admissions continues to change, but the commitment, talent, and dedication of our pre-college STEM program partners is a constant. The STEM PUSH Network is firmly committed to making sure that our equity-centered, culturally-responsive, pedagogies for developing STEM competencies that matter for Black, Latina/o/e, and Indigenous students are visible and valued in the admissions process.

Every day, our PCSPs are doing the challenging, evidence and science informed work of preparing students for success in STEM, and we are seeing the results of this work in our preliminary research findings and in the external validation of this work through accreditation.

To learn more about STEM PUSH, and to take advantage of our tested resources visit <https://stempushnetwork.org/>



This NSF INCLUDES Alliance is funded by NSF Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES), a comprehensive national initiative to enhance U.S. leadership in discoveries and innovations by focusing on diversity, inclusion and broadening participation in STEM at scale. It is also co-funded by the NSF Innovative Technology Experiences for Students and Teachers (ITEST) program and the Advancing Informal STEM Learning Program (AISL).

