Spreading the Word, Sharing the Work

STEM PUSH shares progress at national convenings

THE FUTURE NEEDS A PUSH

MAY 2023

FEATURED

www.stempushnetwork.org

With a mission to broaden participation in STEM for Black, Latina/o/e and Indigenous students, STEM PUSH hit the road, presenting at two national convenings about our learning and resources to support, scale and sustain the work.

In April, Network and pre-college STEM program (PCSP) leaders joined the Carnegie Foundation Summit on Improvement in Education for their 10th anniversary to share our unique approach of networked PCSPs engaged in improvement science. With more than three years of work dedicated to testing and iterating small changes to PCSPs, STEM PUSH leveraged testimonies of real changes happening for young people in the field, showing the impact of improvement science on broadening participation in STEM.

In May, STEM PUSH Ecosystem and PCSP leaders joined more than 600 internationally located STEM leaders for the STEM Learning Ecosystems Community of Practice (SLECoP) Annual Convening. STEM PUSH used design thinking techniques to demonstrate how Ecosystems could leverage pre-college programs to increase the number of Black, Latina/o/e and Indigenous students admitted to undergraduate STEM programs.

STEM PUSH has adapted tools and routines to better center equity in the work and broaden participation in STEM. These resources, as well as strategies for the best ways to leverage them within communities across the nation, were workshopped and presented to STEM leaders for further adoption and reach.

STEM PUSH NETWORK

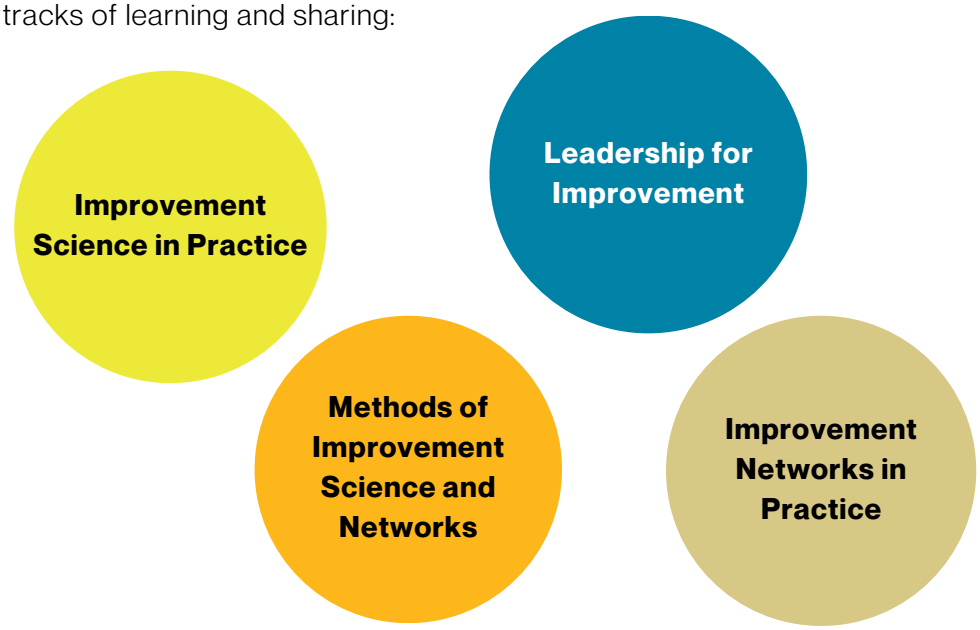
Carnegie Foundation Summit on Improvement in Education

Carnegie Foundation for the Advancement of Teaching

For the last ten years, the Carnegie Summit on Improvement in Education aims to propel and support a future in which equity-focused continuous improvement occurs every day in thousands of educational settings.

The convening gathers movement makers - improvers from around the nation - to share the power of improvement methodology.

Featuring more than 100 sessions, the Summit focused on the following tracks of learning and sharing:



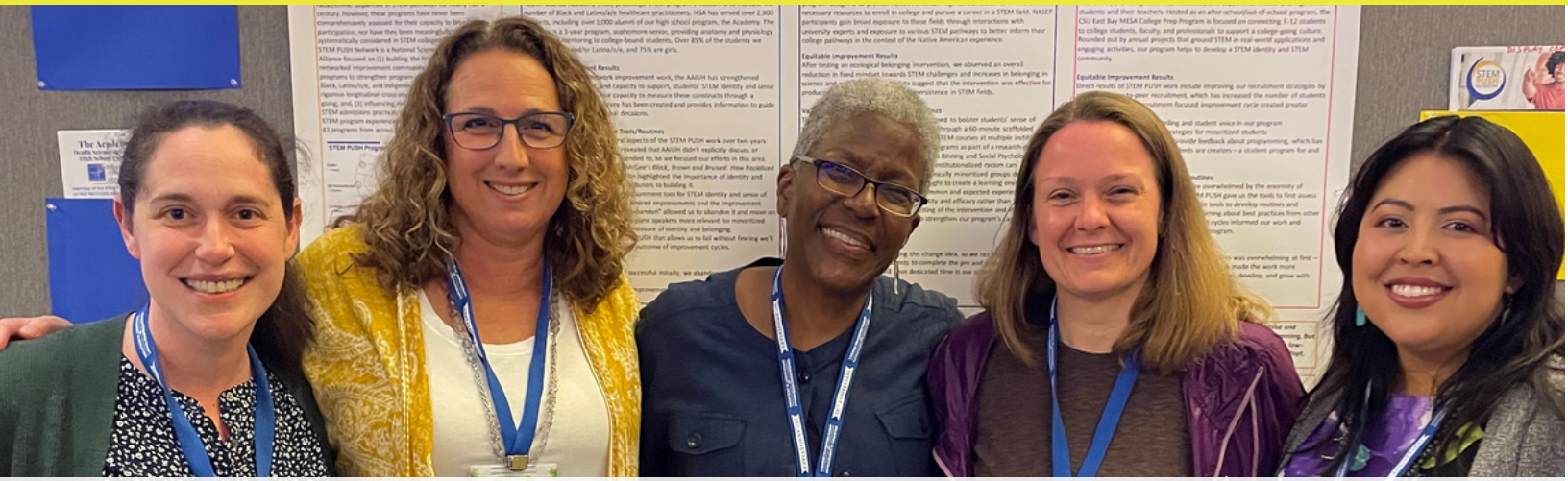
At the Summit, STEM PUSH Network leaders, including pre-college STEM program leaders joined national leaders of improvement science and networked improvement communities.

What is Improvement Science?

Improvement Science is the application of small, measurable, and individualized changes to address a specific problem in education and work to uncover the root cause of the issue.

STEM PUSH uses a collective impact approach - our Networked Improvement Community (NIC)- to test changes using the methods of improvement science.

In the NIC, pre-college STEM programs strengthen their capacity to support Black, Latina/o/e and Indigenous students on a pathway to STEM undergraduate study.

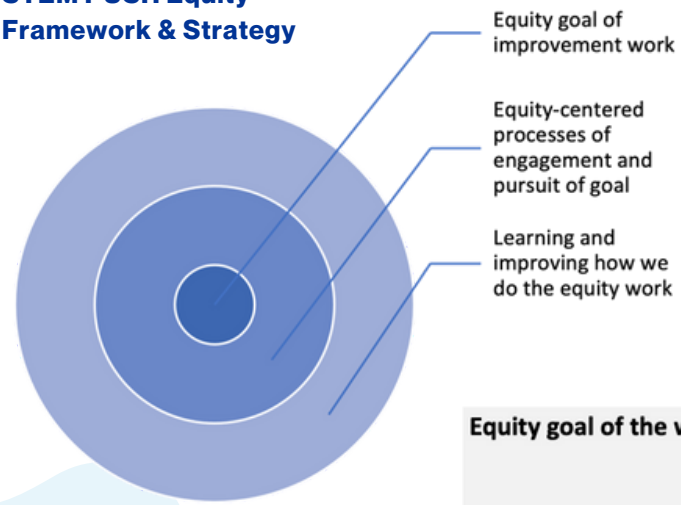


Featured: Talia Stol, Research Associate, University of Pittsburgh and STEM PUSH Network Senior Personnel; Jennifer Iriti, Research Scientist, University of Pittsburgh and STEM PUSH Network Co-PI; Mary Valmont, Arthur Ashe Institute for Urban Health – Health Sciences Academy; Janiene Langford, Mathematics Engineering Science Achievement (MESA) at California State University East Bay; and Carol Seanez, University of Arizona's Native American Science & Engineering Program (NASEP)

STEM PUSH leaders shared our equity framework, our NIC's intentional tools, routines and values; as well PCSP successes and challenges as we strengthen equity within programs and make progress toward the collective goal. to re-imagine the relationship between out-of-school-time programs and the college admissions process to better serve racially minoritized high school students. At the convening STEM PUSH presented on the following:

Poster Presentation - Leveraging Improvement Science for Racial Equity in STEM: Stories from the STEM PUSH Network

STEM PUSH Equity Framework & Strategy



After a collaborative root cause analysis process, **STEM PUSH identified high leverage drivers to strengthen PCSP's capacity to effectively broaden participation.** We focus on four primary drivers: (1) Recruitment, (2) STEM identity and sense of belonging, (3) Growing STEM competencies that matter, and (4) College-going supports.

Equity goal of the work	✓ Aim, drivers, change ideas substantively center equity (E.g., recruitment of more/different Black, Latina/o/e, and/or Indigenous students) ✓ Variation in program needs; approaches grounded in program data and context ✓ Professional development for Hub and NIC members around equity in STEM
Equity-centered processes of engagement and pursuit of goal	✓ Tools (like PDSA) customized to identify equity hypotheses and results for each test ✓ Interrogating white dominant culture embedded in tools and routines of improvement science ✓ Facilitation of improvement groups to further center student voice ✓ Interrogating practical measures for culturally sustaining approaches and equity
Learning and improving how we do the equity work	✓ Gathering network health data about extent to which culture in the NIC centers equity ✓ Gathering data about barriers to participation in the NIC ✓ Reflective analysis of member experiences

STEM PUSH presses on the drivers identified by our root cause analysis through improvement cycles, professional development, and other collective impact efforts.

Learn More: www.stempushnetwork.org/learning-engine/

STEM LEARNING ECOSYSTEMS COMMUNITY OF PRACTICE CONVENING

Each year, the SLECoP convenes STEM leaders, from around the nation and from all sectors, to learn from field experts, share best practices and network.

With a shared understanding that building a diverse workforce is critical, STEM PUSH led a two-part workshop to help Ecosystems recognize the critical role out-of-school time, pre-college STEM programs can play in broadening participation in post-secondary STEM and eventually our nation's workforce.

Nearly 50 STEM leaders, representing more than 25 national locations - from Alabama to Utah to Tennessee to Michigan - gathered for the STEM PUSH design session to learn more about STEM PUSH - a national NSF Alliance of pre-college STEM programs aligned by a set of equity-focused, evidence-based quality standards, using improvement science tools to strategically make improvements that will further each program's ability to broaden participation in STEM.

With STEM Ecosystems, STEM PUSH explored and co-designed strategies to best leverage PCSP-admissions partnerships to expand options for Black, Latina/o/e and Indigenous students.Specifically, the co-design workshop helped Ecosystems to:

- Learn best practices to engage pre-college programs;
- Identify higher-education partners; and
- Process map to building and sustaining regional PCSP-admissions partnerships.

Ecosystem leaders heard that *"colleges and universities want your students,"* and by identifying, building and strengthening connections within their regions, the STEM PUSH network can be a powerful tool for connecting them to higher education—especially in light of the recent changes in the admissions landscape.

"The SLECoP allows us to think about our community more strategically, to navigate partnerships to enable leaders to collaborate to create bigger impacts for youth. We joined STEM PUSH to broaden access to college beyond grades. I didn't have any direct connections to programs, but our board member did. We leveraged partnerships to find the right programs in our community."

Jeremy Babendure, Arizona SciTech Ecosystem shared their Ecosystem's process of finding pre-college STEM partners in their region.

STEM PUSH steering committee member Gaby Carbonell of Ft. Lauderdale's Museum of Discovery and Science shared how their program is benefiting from the resources of STEM PUSH, including data collection from the national clearinghouse, evidence-based resources, and clear communications and follow-up.

She explained that the data "helps admissions officers truly understand why kids in our program are well prepared and STEM PUSH has broadened our reach in admissions." Their program has seen "astronomical" improvements with less than a year of involvement with the project, and participation has helped secure funders to sustain the work.

STEM PUSH "provides tools for success."

- Gaby Carbonell, Ft. Lauderdale's Museum of Discovery and Science, Everglades EcoExplorers

-LaTrenda Leonard Sherill, Pittsburgh's Ecosystem - Remake Learning

LaTrenda Leonard Sherill of Pittsburgh's Remake Learning, explained their Ecosystem's process of looking at programs and matching them to STEM PUSH's criteria for PCSPs.

Because this criteria includes a specific and clear commitment to equity and opportunity she said STEM PUSH provides a way to engage "the systems change work we should be doing in Ecosystems." Remake Learning decided to amplify its outreach by hiring a director of relationships to reach students where they are.

Natasha Smith-Walker, Chicago STEM Pathways Cooperative

Natasha Smith-Walker of the Chicago STEM Pathways Cooperative concluded the workshop by sharing their Ecosystem's strategy to map partners and assets in the Chicago STEM Ecosystem. Attendees broke out to begin identifying stakeholders, resources, and opportunities that would be valuable in their region.

Key takeaways from the design session include:

PCSPs can provide students skills they may not have gotten in their traditional schooling and PCSP experiences can center students in their identities.

Identifying programs in Ecosystems as PCSPs that align with STEM PUSH's criteria can elevate programs for possible funders and sustain the work.

Ecosystems leads can use the SLECoP to better connect PCSPs to stakeholders in community --they can be a conduit and support between multiple partners with a shared goal of equity for Black, Latina/o/e and Indigenous students in STEM.

You can find the resources shared with convening attendees here: https://linktr.ee/stempush

With a group of diverse, powerful partners, STEM PUSH is establishing the first national network of pre-college STEM programs to create systemic change in the post-secondary admissions process for Black, Latina/o/e and Indigenous students pursuing STEM. We've learned that the network can be a powerful driver for equitable education, and we are committed to sharing resources to reach more communities, to break down barriers and transform STEM through inclusivity and innovation.

STEM PUSH aims to reinvent the relationship between PCSPs and higher education by demonstrating how impactful experiences in PCSPs prepare students for STEM learning and persistence in careers.

With a few years of learning under our belt and our continued use of improvement science to test small changes on the ground with PCSPs and students, STEM PUSH shares tools more broadly - in person and online - with other STEM leaders so they may implement important changes in their own work. We hope that others using STEM PUSH resources will share their findings, especially in public forums like social media. Let's scale and sustain this work together.

You can access resources at **www.stempushnetwork.org** and through our social media channels listed below. You can also access some of the tools shared at the convenings we recently attended by visiting **https://linktr.ee/stempush** - Join us!

The STEM PUSH Network is funded by The National Science Foundation's (NSF) Eddie Bernice Johnson INCLUDES Initiative, a comprehensive national effort to enhance U.S. leadership in discoveries and innovations by focusing on diversity, inclusion and broadening participation in STEM at scale. STEM PUSH is also co-funded by the NSF Innovative Technology Experiences for Students and Teachers (ITEST) program and the Advancing Informal STEM Learning (AISL) program.