THE FUTURE NEEDS A PUSH

SEPTEMBER 2022

FEATURED

LEARNING ENGINE

RACISM IN STEM: IMPROVEMENT CYCLE

PUSH-ING TOWARD A MORE EQUITABLE FUTURE

What We Are Learning

A deeper look into our learning engine

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In STEM PUSH, the networked improvement community, or NIC, is our learning engine.

Precollege STEM programs try out small changes to their programming and gather data about whether these changes are leading to improvements in how well they serve Black, Latinx, and/or Indigenous students.

Over time, the "tests of change" that individual programs conduct help us learn collectively what works for which students, under what conditions.

In STEM PUSH, we have three improvement cycles each year. Programs participate in at least two of the three improvement cycles and share their learning in between cycles so that programs can build on what their colleagues have learned from prior testing.

STEM PUSH tests changes related to more effective recruitment of minoritized students, nurturing STEM identity and sense of belonging, developing skills that matter for the practice of STEM, using equitable approaches to documenting students' strengths and competencies, and strengthening college-going pathway supports.

In this issue, we will share the learnings of from one of the three change ideas explored during our Winter 2022 (January - April 2022) improvement cycle. To date, 11 programs have completed this improvement cycle.

CHANGE IDEA TESTED:
RACISM IN STEM DISCUSSION ROUTINE

THE ISSUE WE ARE ATTEMPTING TO ADDRESS

In order to change and disrupt systems, one must first "see" the system and one's location within it, and then be able to openly discuss how systems operate to benefit some at the expense of others.

Many program staff do not have opportunities to engage explicitly with their STEM identity and positionality.

This change focused on helping precollege STEM program staff think about how racism shows up in STEM spaces and how they, personally, are positioned in these spaces.

THE DISCUSSION ROUTINE

Pre-college STEM program staff, and in some cases students, completed a reflection on positionality activity, listened to a podcast focused on a Black scientist's experiences with racism in STEM, and engaged in a group discussion on podcast themes. Programs adapted the routine to best fit their context and needs, for instance engaging in pre-work, listening to the podcast in segments, or engaging additional resources.

By reflecting on how their positionality, connected to race and ethnicity, influences their experiences in science, we expect that precollege STEM program staff will have an increased awareness of the subjectivity of STEM, and how that is linked to racism and systemic oppression.

What is positionality?

Positionality is the social and political context that creates your identity in terms of race, class, gender, sexuality, and ability status. Positionality also describes how your identity influences, and potentially biases, your understanding of and outlook on the world.

Subsequently discussing the themes of a compelling, thematically rich podcast through the lens of race and power helps increase participants' capacity to engage with, and support, students around issues of race and racism in STEM disciplines and that they may encounter.

MORE ABOUT THE PODCAST

Participants listened to a podcast episode entitled "The Liberation of RNA," an activity inspired by the work of Network partners Dr. Odaelys Walwyn-Pollard and Dr. Disan Davis of RockEDU's JUMPSTART and Summer Science Research Programs.

Originally told for The Story Collider and featured as a podcast episode for Radiolab, Yale University Assistant Professor Brandon Obgunu shared his experience as a young Black man pursuing a career in science through the lens of a violent, dehumanizing encounter with police during his senior year of college.

The podcast offers a catalyst for understanding how the science presented in textbooks is complicated by, and must be reconciled with, its historical and cultural context.

Read more about learning from the discussion here.

THE IMPROVEMENT CYCLE

The programs testing the idea met four times to share their plans, update one another on progress, study the practical data they collected, and reflected on what was learned.

The routine used in this improvement cycle leverages the strategies of reflection and discussion into a structure for engaging in and facilitating conversations about race and racism in STEM that can be used to explore multiple texts and themes.
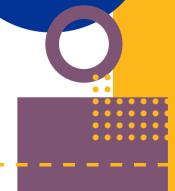
REPORTED OUTCOMES OF THIS IMPROVEMENT CYCLE

Increased staff awareness of racist systems in STEM and their position within systems.

Staff made connections between systems and their work with students.

Staff felt more prepared to talk about race and racism in STEM.

CONNECTING TO OUR THEORY OF IMPROVEMENT

Increasing staff understanding of their positionality and of racism embedded within STEM fields will increase their ability to provide culturally sustaining instruction within programs, thereby strengthening STEM identity and sense of belonging in ways that honor the lived experiences of minoritized students.

The Cooper Union STEM Outreach Program' school year and summer programs develop and strengthen K- 16 student's interest in engineering through design, collaborative, and technical skills and leadership opportunities.

THE COOPER UNION

We participated in the racism in STEM learning cycle. We worked to develop that protocol and then executed it with my teaching assistants during their summer STEM training.

The work with STEM PUSH has really led us to think more about what our relationships are - how STEM Outreach connects with high school students and their families, how my staff prepares to mentor students and how we communicate their successes in our pre-college programs to the admissions office because we are embedded in an undergraduate institution.

- Elizabeth Waters, Director of STEM Outreach, The Cooper Union
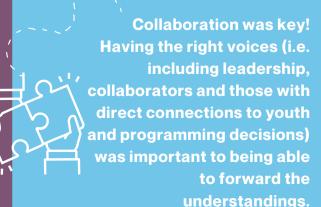
WHAT WE LEARNED

There was general awareness of racism/racist behaviors among staff, but many participants had not thought about or engaged in deep conversations about racism as a systemic feature of STEM disciplines and professional pathways.

Self-reflection and guided discussion about racism in STEM offered the chance to "slow down" and connect these ideas to practice + action. Participants were especially grateful for this pace and connection.
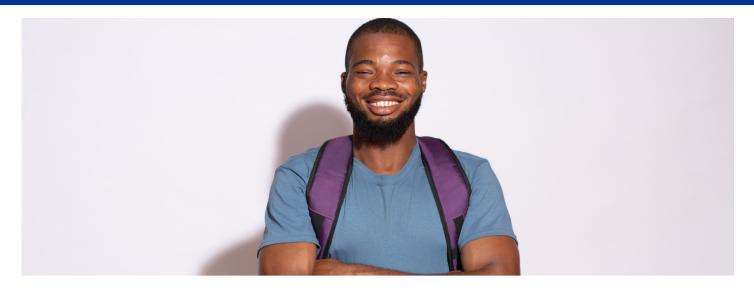
The routine was received positively across participants, but experience + takeaways varied by (racial, ethnic, gender) identities and professional roles. For instance, in one program participation made mentors, who were women of color, feel more comfortable talking about these issues and validated many of the experiences they've had in STEM.

Collaboration was key! Having the right voices (i.e. including leadership, collaborators and those with direct connections to youth and programming decisions) was important to being able to forward the understandings.

A PUSH TOWARDS RACIAL EQUITY

We are building the first national network of PCSPs that are focused on equity and are working together to accelerate change.

By 2026, the STEM PUSH networked improvement community (NIC) aims to increase the capacity of 40 PCSPs to support Black, LatinX and Indigenous students on a pathway to STEM undergraduate study.

In order to accomplish this, pre-college STEM programs in the NIC will focus on the following primary drivers:

- Recruit more Black, LatinX and Indigenous students.
- Nurture STEM identity and sense of belonging in ways that honor the experiences of minoritized students.
- Develop student competencies that matter for the practice of STEM.
- Use equitable approaches to document students' strengths and competencies.
- Strengthen college-going pathways supports.

These primary drivers are STEM PUSH Network's initial "best bets" about what to target given root causes of the problem we identified when the Network first launched. Improvement cycles explore and test change ideas directly related to these primary drivers.

The time is right for systemic change. Visit www.stempushnetwork.org for more information and resources.

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