

# Supporting After-School STEM Educators

ideas **42**



Helping Expanded Schools boost educator engagement with professional-development resources

**Expanded Schools' STEM Educators Academy (SEA) is a program in New York City designed to support educators' sense of belonging in STEM, and their ability to deliver inclusive and interactive STEM lessons for publicly funded after-school programs. SEA offers tailored guidance, on-site visits, and live and recorded trainings but too few educators use these resources. ideas42's NYC Behavioral Design Center partnered with SEA to improve how educators engage with Expanded School's professional development offerings. We redesigned their email communications and a two-page training menu, and provided the SEA team with additional strategies to support participating sites and improve future communications.**

## Background

A career in science, technology, engineering, and math (STEM) can give students access to jobs with higher earnings and lower unemployment. Yet women and members of historically marginalized groups are less likely to pursue or persist in STEM careers.<sup>1</sup> This is not a surprise, given that Black, Latino and Latina, and female-identifying students are often excluded and ostracized from STEM programs.<sup>2,3,4</sup> Quality after-school programming can increase students' interest in and connection to STEM,<sup>5</sup> which in turn can increase the likelihood these students will pursue STEM careers.<sup>6</sup>

Expanded Schools is a non-profit dedicated to ensuring that all young people in New York City have access to enriching after-school programs that affirm their identities and teach them valuable skills. Its STEM programs, including the STEM Educators Academy (SEA), are especially designed to ensure that educators provide inclusive and interactive STEM learning experiences to students from historically marginalized communities. SEA supports these educators by providing professional development, lesson plans, and customized coaching sessions. Through these offerings, SEA aims to increase educators' confidence delivering STEM programming, their feelings of belonging in the field, and their ability to deliver inclusive, high-quality STEM learning experiences for students.

To participate in the program, school sites must apply as a team comprising after-school educators, a site director who oversees the team and is the main point of contact with SEA, and a school-day science teacher who collaborates with after-school educators.

### Highlights

- ▶ While trainings can deliver valuable information and help STEM educators become more effective, many after-school educators don't engage fully with the resources available to them.
- ▶ Behaviorally informed emails and resources can increase participation by making trainings salient and by inspiring action.
- ▶ By completing these trainings, more educators will be better equipped to deliver on SEA's mission of providing affirming, inclusive, and interactive STEM lessons to underserved students.

Since shifting to remote activities during the pandemic, SEA has seen their educators engage less. In particular, SEA staff have found that educators are not completing required trainings, which are now primarily available as online recordings. The ideas42's NYC Behavioral Design Center partnered with SEA to understand the barriers limiting educators from engaging with these trainings and to design solutions that would overcome those barriers.

## Understanding how educators learn about trainings

To understand educators' experience with SEA trainings, we sought to interview educators and site directors. However, we were only able to speak to one educator. This is symptomatic of a reality SEA faces: because educators are part-time employees who are often in school themselves, they are busy and difficult to contact. To reduce the burden on educators, some site directors have even asked SEA to limit direct interactions with educators.

We gleaned the following insights from our conversations:

- ▶ **It's likely educators do not know they are required to complete trainings for SEA.** When site directors described the program and educators' role in the program to us, they did not mention the trainings. Even those who knew about the trainings did not always realize it was a requirement. Since educators primarily learn about SEA from site directors, it's unlikely educators would know training are a requirement of the program unless directors inform them.
- ▶ **Educators' schedules are busy but predictable.** Because most educators are getting postsecondary degrees while working, their workloads fluctuate based on their school calendars. For example, most educators have more free time during college winter break and during the last few weeks of public school because most colleges end earlier. Educators also tend to be freer on days when after-school programming is cancelled, such as right before Thanksgiving and other holidays. Some site directors take advantage of these windows and ask educators to complete professional development trainings then.
- ▶ **Site directors view supporting educators' professional development as part of their role.** When site directors receive emails from SEA or other programs about professional development for STEM educators, they read through the descriptions to identify those that would be most beneficial for their educators. Some site directors will sign up their educators for trainings that they think would be a good fit, while others wait to discuss options with their educators.
- ▶ **Some site directors implement additional accountability mechanisms to encourage educators to complete trainings.** Recognizing that educators are busy, some site directors find ways to help them prioritize professional development. For example, one site director asked educators to share learnings from a completed training at an upcoming team meeting. Another site director scheduled follow-up sessions to roleplay the lesson introduced in a training. This roleplay activity helps the team feel prepared to run the lesson, and ensures that educators watch the training since doing so is necessary to participate.

## Redesigning SEA's communications to encourage educators to complete trainings

Based on these insights, we developed and user-tested new communications that streamline information about the trainings and underscore that trainings are required.

Recognizing site directors' influence over educators' priorities, we developed email templates SEA can send to site directors, including an email introducing the training requirement. We also created similar email templates SEA can send to educators directly and a two-page training menu that can be attached to emails and distributed during meetings. The menu describes the required trainings, how long each one takes to complete, and how to access them. These communications were designed to:

- ▶ **Keep the trainings top of mind** through timely reminders about upcoming trainings and previously offered ones that individual educators have not yet completed.
- ▶ **Foster accountability** and create **a sense of urgency** by setting deadlines for completing materials and making them salient.
- ▶ **Highlight the value** of completing trainings by relating them to educators' professional interests and development.

## Additional recommendations

In addition to creating these resources, we also shared strategies SEA can use to encourage educators to complete their trainings.

### Strategies for future communications

Since our team only created a few template messages, our first set of recommendations offered tailored strategies SEA can use in future communications about trainings. For example, we suggested removing hassles by providing direct links to online trainings whenever possible. We also suggested sharing testimonials from SEA alumni and senior educators about the value of the trainings and how they have used the learnings in their own work.<sup>7</sup>

## Strategies to communicate clear expectations

Our second set of recommendations was designed to ensure that all site directors and educators know that SEA trainings are required. We suggested small changes, such as stating that trainings are required in all existing onboarding documents, as well as larger changes like reframing the general program description and materials to highlight trainings as a key component. A potential reframing could outline three central components of the SEA program, highlighting the centrality of trainings:

1. **Learning** (by completing trainings)
2. **Teaching** (putting the learnings from trainings into practice)
3. **Collaborating** (working with and learning from peers)

## Strategies to support site directors

Our third set of recommendations focused on supporting site directors. Because site directors play a pivotal role in sharing information about and encouraging educators to complete trainings, it is important that they have easy-to-implement resources and strategies. This can be done by:

- ▶ **Providing advice on how to deploy template emails**, such as recommending they send emails to educators during slow periods in educators' schedules and suggesting ways to tailor messages to educators.
- ▶ **Providing site directors with resources** that help them keep track of their educators' progress and support them. Such tools include checklists that outline next steps, planning prompts to help educators plan their training calendars, and talking points that highlight the benefits of the required sessions.
- ▶ **Advising site directors on strategies to increase training completion**, such as carving out time for educators to complete trainings as a group, creating a buddy system for watching trainings, and celebrating educators' progress.
- ▶ **Checking in with site directors** to make sure they've both followed up with educators who have not yet fulfilled training requirements and discussed the educators' plans for doing so. During these check-ins, the SEA team can also offer additional support to site directors, such as how to connect each training to the interests or concerns of particular educators.

## Next steps

Following our work together, the SEA team has implemented many behaviorally informed strategies. One of the first changes they made was to their site director training, encouraging site directors to use the strategies we recommended, like carving out time for educators to complete trainings together, asking educators to share key takeaways from the trainings at team meetings, and hosting sessions to roleplay the teachings from the trainings. They have also created a resource that tracks educators' progress

completing SEA trainings, and made changes to their own communications with sites, such as specifying deadlines in their emails and making it easier for sites to include the SEA team in their work. For example, the SEA team offered to attend one site's STEM Fair, which gave them the opportunity to connect with site directors, educators, and their students. They expect that such connections will encourage further engagement with SEA trainings and other resources.

Behavioral insights and practical strategies can help community organizations like Expanded Schools enhance productive engagement with their programs and increase opportunities for the young people they serve. The Behavioral Design Center supported Expanded Schools' STEM Educators Academy in deploying these strategies to help more after-school educators provide high-quality STEM lessons to marginalized students. Ultimately, we hope this encourages more students who want to do so to pursue STEM careers that can improve their outcomes, the quality of innovation in STEM,<sup>8</sup> and STEM's potential to provide equal opportunity to everyone.<sup>9</sup>

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## Endnotes

- <sup>1</sup> Habig, Bobby, Preeti Gupta, Brian Levine, and Jennifer Adams. 2020. "An Informal Science Education Program's Impact on STEM Major and STEM Career Outcomes." *Research in Science Education* 50 (3): 1051–74.
- <sup>2</sup> Patrick, Kayla, Jonathan Davis, and Allison Rose Socol, Ph.D. 2022. "Why Are Black and Latino Students Shut Out of AP STEM Courses?" <https://edtrust.org/resource/why-are-black-and-latino-students-shut-out-of-ap-stem-courses/> (accessed December 21, 2022).
- <sup>3</sup> Ong, Maria, Janet M. Smith, and Lily T. Ko. 2017. "Counterspaces for Women of Color in STEM Higher Education: Marginal and Central Spaces for Persistence and Success." *Journal of Research in Science Teaching* 55 (2): 206–45.
- <sup>4</sup> Stephenson, Tanya, Marilyn Fleer, and Glykeria Fragkiadaki. 2022. "Increasing Girls' STEM Engagement in Early Childhood: Conditions Created by the Conceptual PlayWorld Model." *Research in Science Education* 52: 1243-1260.
- <sup>5</sup> Ong, Maria, Janet M. Smith, and Lily T. Ko. 2017. "Counterspaces for Women of Color in STEM Higher Education: Marginal and Central Spaces for Persistence and Success." *Journal of Research in Science Teaching* 55 (2): 206–45.
- <sup>6</sup> Singer, Alison, Georgina Montgomery, and Shannon Schmoll. 2020. "How to Foster the Formation of STEM Identity: Studying Diversity in an Authentic Learning Environment." *International Journal of STEM Education* 7 (57).
- <sup>7</sup> If you're interested in learning about other communications best practices, visit the [Behavioral Evidence Hub Communications Checklist](#).
- <sup>8</sup> Jr, Kenneth Gibbs. 2014. "Diversity in STEM: What It Is and Why It Matters." <https://blogs.scientificamerican.com/voices/diversity-in-stem-what-it-is-and-why-it-matters/> (accessed December 21, 2022).
- <sup>9</sup> McGee, Ebony, and Lydia Bentley. 2017. "The Equity Ethic: Black and Latinx College Students Reengineering Their STEM Careers toward Justice." *American Journal of Education* 124 (1): 1–36.