ExpandEDSchools

REPORT

Emerging from Crisis; Building Opportunity

Lessons from Summer Rising and the Bridge to Fall

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INTRODUCTION

The Crisis Brought on by COVID

"If we were doctors treating stage 4 cancer, we would treat it as aggressively as we could."

★ Afterschool Site Director

IN JULY OF 2021, NEW YORK CITY PUBLIC SCHOOLS OPENED THEIR DOORS TO 100% IN-PERSON LEARNING for the first time since the COVID quarantine began in March of 2020. Buildings opened for Summer Rising, an initiative combining the best of summer camp and summer school, as part of the city's ambitious summer plan to welcome all young people back to in-person learning. Summer Rising began the long, and in many ways unknown, journey for students, teachers, administrators, and families to remediate the impact of COVID on K-12 education.

How students recover from the effects of the loss of in-school learning and of social isolation is a long-term question,but preliminary national and New York City-focused reports have begun to document and analyze indicators of student learning and well-being. The initial findings have resulted in recommendations for cooperative, immediate action. Educators and policy-makers alike are now calling for foundational changes to mitigate the worst effects of COVID on academic performance of students, particularly those from low-income communities and communities of color that were hardest hit by the pandemic.

The July 2021 report by McKinsey and Co., *COVID-19 and Education: The Lingering Effects of Unfinished Learning*,[1] analyzed results of standardized testing. The report found that on average students faced at least a five-month learning loss in formal math and a four-month learning loss in formal reading, compared with the previous year. The report also cited greater learning gaps among students from Black, Hispanic, and low-income communities that have faced systemic disadvantages. High school students from these communities were more likely to drop out and less likely to go on to post-secondary education. The report goes on to envision the long-term impact of COVID losses in terms of individuals' potential life-long learning and the country's overall economic health.

The report also analyzes an extensive parent survey, highlighting important trends in their perceptions. Thirty-five percent of respondents said they were "extremely concerned" about their children's mental health[2], while others felt that their children did well at home with remote learning. On their willingness to enroll in enrichment activities, the report cited parents' general hesitancy to sign their children up for tutoring, extended day or weekend academies, highlighting the necessity of authentic partnership with parents to

[1] https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-education-the-lingering-effects-of-unfinished-learning

[2] Specific comparison data shows increases of five to eight percentage points in individual categories such as depression and anxiety: https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-education-the-lingering-effects-of-unfinished-learning . A metaanalysis of global studies on the impact of COVID-19 on children and adolescents' mental health cites a doubling of the prevalence of anxiety and depression above 2019 and previous levels.
https://jamanetwork.com/journals/jamapediatrics/article-abstract/2782796

communicate the benefits of out-of-school learning. Finally, parents are thinking creatively about the future of schooling. Thirty-three percent of parents said that even when the pandemic is over, they would ideally like to see models of education that are different from the typical five days in a traditional brick-and-mortar school. Parents said they would continue to consider hybrid models, remote learning, homeschooling, and learning hubs.

Beyond this report, education advocates are thinking broadly about the experience young people have had throughout the pandemic. Pushing back on the concept of "learning loss," advocates note that students benefited from life lessons in resilience, adapting and developing new skills[3]. In order to leverage some of these newfound strengths, some experts are working to create new approaches. For example, the Rhode Island Department of Education is providing guidance to district-run programs, encouraging them to launch partnerships with community-based organizations that offer a dual focus on academics, enrichment, and social-emotional support.

Currently, New York City is implementing its Universal Academic Recovery Plan, focused most importantly on health and safety protocols, literacy concerns, support for students with special needs, and ways to bridge the gaping digital divide, which the pandemic laid bare.[4] Formal evaluations of Summer Rising's impact are being produced, and more analysis will no doubt be forthcoming on the national and local levels that will help us understand COVID's impact on student learning. In the meantime, we must reflect upon changes underway and face unprecedented, immediate challenges in K-12 education that are apparent to families and educators.

Our challenge is to sustain our sense of urgency and institute those changes that were needed, even before the pandemic. Now is the time to tear down the stubbornly persistent barriers that preclude some children from getting an excellent education. Let's guarantee that going forward, students from any and all backgrounds have access to the rich array of academic and enrichment opportunities that all kids deserve.

[3] For example, see:
https://www.forbes.com/sites/nataliewexler/2021/08/12/learning-loss-urgent-crisis-or-harmful-myth/?sh=69eb8d2277a2
https://kappanonline.org/salazar-why-white-journalists-need-to-stop-focusing-on-learning-loss-russo/
[4] https://www.schools.nyc.gov/docs/default-source/default-document-library/family-letter-july-8-2021

> "The immediate imperative is to not only reopen schools and recover unfinished learning but also reimagine education systems for the long term. Across all of these priorities it will be critical to take a holistic approach, listening to students and parents and designing programs that meet academic and nonacademic needs alike."
>
> ★ McKinsey Report, July 2021

ESTABLISHING COMMON VISION

New Collective Energy to Build Capacity

"Take the big bold policy messages and have them meet on the ground--and in the middle."

★ Intermediary
Executive Leader

EXPANDED SCHOOLS AND THE NYC STEM EDUCATION NETWORK UNDERTOOK THEIR OWN SENSE-MAKING PROJECT AT THE END OF SUMMER 2021 TO UNDERSTAND STUDENT NEEDS EMERGING FROM SUMMER AND TO IDENTIFY WAYS OF ENHANCING STEM EDUCATION IN RESPONSE. Following Summer Rising, New York City's first-ever effort to provide a combined summer school and summer camp experience, we conducted in-depth interviews and surveys of more than 15 stakeholder participants to surface important lessons and a strengthened "bridge" to the 2021-2022 academic year. From stakeholders participating in Summer Rising, we have gathered their best practices, as well as the challenges their programs encountered. Given the NYC STEM Education Network's focus on STEM, this report looks at how STEM learning and engagements were integrated into the innovations of Summer Rising and outlines lessons that can help accelerate STEM integration going forward.

New York City's Summer Rising program enhanced and extended the traditional summer school schedule. Grounded in a partnership between the New York City Department of Education (DOE), Department of Youth and Community Development (DYCD), and community-based organizations (CBOs) that typically run afterschool programs, Summer Rising blended academic learning and enrichment opportunities for students, extending the camp day to 6 pm. The vision was that formal school-day teachers and community educators from CBOs and contracted service providers would work together to create fun, engaging, supportive, and academically meaningful activities throughout the day. All students, regardless of whether they were required to attend summer school, were eligible for enrollment in Summer Rising. Demand from families was high, especially for elementary students: at the start of the initiative, officials reported that 200,000 students had signed up for 800 sites.

Together with United Way and Children's Aid, ExpandED Schools was selected by the DOE as one of three external intermediary organizations to lend support and technical assistance to sites, including resource curation, planning support, professional development, and ongoing coaching for school and CBO leaders and educators.

In order to achieve its goals, ExpandED turned to its partners in the NYC STEM Education Network (for which it serves as the backbone organization) to provide STEM professional learning opportunities. The goal was to support community educators and DOE teachers to incorporate rich, hands-on STEM learning activities into Summer Rising. The Summer Rising ecosystem is illustrated by Figure 1.

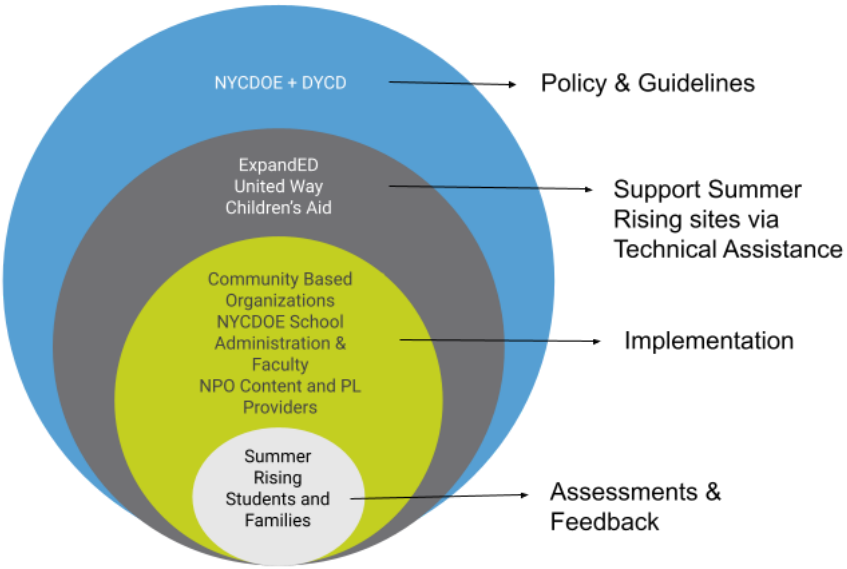

Figure 1: **Summer Rising Ecosystem**

Summer Rising offered an important blueprint for blending academics, social-emotional learning, and enrichment at scale. Almost every interviewee from both schools and CBOs recommended pulling that blueprint forward into the school year via extended learning time in the afternoons and Saturdays. They viewed out-of-school time support as an essential asset as students emerge from "unfinished" formal learning and the social-emotional costs of COVID. Continued reflection and analysis, underscored by a mandate of urgency, will innovate and sustain learning and engagement that takes advantage of young peoples' full days and the city's rich community and cultural assets and creates more equitable access for those students without access to exemplary STEM learning and engagement. All parties can begin now to move to the "next level" of partnership, where leadership from the City, schools, community organizations and the different stakeholders will co-develop goals for student outcomes throughout school and afterschool experiences.

Taken together, the recommendations in this report suggest that we may focus our collective energy in the following areas:

- Broad planning and setting a common vision;
- Establishing a welcoming culture grounded in a shared focus on social and emotional development; and
- Coordinating content and crafting a well-balanced curriculum across all grades.

I. BROAD PLANNING AND SETTING A COMMON VISION

A. DOE AND DYCD: PLANNING "FROM THE TOP."

Recommendation #1: The City Should Commit to and Broaden the Summer Rising Model.

Despite limited planning and preparation time, most interviewees welcomed the Summer Rising model and all acknowledged that, with a longer planning runway, it would have great potential. In order for the City to seize the momentum, DOE and DYCD will need to formalize a communications and partnership process for the participating organizations. Working together, the agencies and organizations can build a framework that clarifies the roles of each stakeholder to lift a new initiative like this ambitious program. The City agencies can articulate expectations for how stakeholders in each sector, such as intermediary and non-profit organizations, could use their expertise in school-community partnerships, professional learning, or direct-to-youth experiences to support the vision. For STEM organizations in particular, the model is exciting because of the potential for developing pathways to long-term engagement with CBOs and schools, ensuring their offerings do not go untapped.

Most interviewees recommended more input by all stakeholders including students, parents, CBOs, schools, and non-profit organizations to create a shared understanding of priorities and to identify when urgent action is needed to mitigate learning loss through increased access to enrichment experiences for the most vulnerable students. City leadership should hold more frequent convenings and webinars that regularly gather and disseminate information on how specific school-community partnerships could leverage their collective assets to support their goals. City agencies could also tap existing internal expertise of such offices as the DOE Office of Family and Community Empowerment and the STEM education office.

Site Directors praised the weekly webinars given by the DOE and DYCD that conveyed timely updates and offered resources for very specific aspects of implementation. City agencies' scaffolding supported the transition from 'policy' to 'execution' and provided essential feedback from providers, families, and students. This kind of real-time, scaffolded assistance from city agencies is necessary for sustainable implementation of extended learning for all school communities.

Federal funding may enable continued commitment to sustaining the innovative Summer Rising model for future summers, which would provide many more families with day-long, subsidized summer child care and many more students with holistic learning experiences

that meet diverse learning styles, academic and SEL needs. Planning for summer 2022 presents an ideal opportunity for CBOs to partner with the DOE and NYCD to refine and improve the model's outcomes, reach, and operations.

Recommendation #2: The City Must Financially Support Partnership Capacity-Building while Allowing for Flexibility.

> "COVID presents a range of needs that we know and do not yet know, and many times, the first signs will show up at the entrance to the school day."
>
> ★ Intermediary Executive Leader

COVID upended practically all of the processes, norms and procedures for school, after-school, and summer education. As we build back, school, CBO, and STEM Network partners can strengthen academic and social-emotional learning. An immediate infusion of capacity-building resources will provide the support necessary to sustain such partnerships and generate innovation.

A key to seizing momentum is the availability of new funding. In August, New York State's plan to use the American Rescue Plan (ARP) to support K-12 schools was approved by the U.S. Department of Education, sending billions to the state to support the return to in-person learning. The New York State Department of Education released a roadmap to guide school districts' use of funds that offers school communities new assets and resources. [5]

The ARP's Elementary and Secondary School Emergency Relief Fund created an opportunity to enact new policies to meet immediate needs and support long-term change. The NYC STEM Education Network leadership, and ExpandED, as the backbone organization, can be proactive in conversations with DOE and DYCD to allocate stimulus funds to afterschool and extended learning programs. Two clear recommendations about funding from interviewees surfaced:

- Support for partnerships for low-income communities: Targeting funding to strengthen community partnerships in low-income communities can advance educational equity and access for students' academic and social-emotional growth, especially in the area of STEM. Interviewees highlighted the need for additional

[5] https://sites.ed.gov/roadmap/landmark2/

funds to support professional development for community educators, which entails not only paying workshop fees but paying staff for time spent commuting and attending learning sessions.

- Allow flexibility beyond technical assistance: Technical assistance funds to support Summer Rising were helpful, however more flexibility was needed to meet sites' immediate needs. Many of these needs, such as understaffing, prevented technical assistance from being as useful as it could have been. Policies need to support a greater level of flexibility that recognizes this variation. On the school partnership level, principals felt flexibility was critical in aligning priorities for student outcomes among community partners. On these grounds, one Network organization CEO strongly recommended working with the principal to find school budget allocations to support the partnership outcomes. This coming year, principals will benefit from a new infusion of funds from Fair Student Funding.[6] These funds can be used flexibly to provide direct services for students, so are a place to leverage local decision-making.

B. A COMMON VISION "ON THE GROUND."

When it comes to partnership, one Network CEO advised, "take the long view." He relayed that his programs this summer had benefited from a 2-year period of co-development between his organization and the schools with which they partnered. The time to begin or deepen a long-term, successful partnership begins now. But how? Schools and CBOs may need support to identify common goals, leverage their individual strengths, and build sustainable partnerships. And occasionally, CBOs are overlooked as equal partners. As one CBO leader expressed, "CBOs need to be at the table." CBOs cannot be viewed as an afterthought or unconnected provider of after-school childcare. As the on-the-ground, foundational support for families, CBOs have important relationships that support children and their educational needs. These relationships became even more important during COVID, when CBOs took on additional roles to meet the essential needs of many families in their communities.

Successful partnership requires recognizing that CBOs and formal STEM educators (be they school-day teachers or STEM service providers) have different strengths. Acknowledging these distinct areas, growing capacity on all sides, and taking advantage of each sector's expertise is what comes next. CBO educators' expertise in youth development and school-day teachers and NYC STEM Education Network members' expertise in STEM

[6] https://www.schools.nyc.gov/docs/default-source/default-document-library/preliminary-update-on-arp-esser-and-on-foundation-aid-funding

content need to find a platform for dialogue to develop common goals and pathways to engage more students, especially those from communities lacking access to exemplary STEM learning resources. Figure 2 illustrates the complementary skill sets of different educators:

Figure 2: **Complementary Skill Sets**

Among interviewees, ExpandED was seen as a powerful trusted convenor to support improved partnerships between schools and CBOs, as well as non-profit partners like members of the NYC STEM Education Network. One network organization leader cited ExpandED's exemplary role as a convenor, stating, "They are on the cutting edge of collaboration." In particular, they cited the organization's role in generating partnerships, advancing new ideas, and bringing together disparate partners. Another recommended that, in the future, ExpandED could support the Network to have more agency: "they have shown that they are responsible and responsive. We could do a lot as a network." The following recommendations are directed at partnership-building, and can support strong, ongoing collaborations among schools, CBOs and the broader ecosystem, including members of the NYC STEM Education Network.

Recommendation #1: Collaborating Partners Must Designate Roles.

All partnerships benefit from distinct, articulated roles. For school-CBO partnerships, those roles should inform the academic and social-emotional growth for each student in the school community. A designated 'community partnership' staff position within a school, such as those in the community schools model, is highly desirable, but rare. Establishing key "point people" among partners is essential to on-going planning and implementation. Of those interviewed, the most successful Summer Rising partnerships shared very specific examples of effective collaborative, cross-sector teams and co-leadership between the principal and site director. In one negative example, disagreement between the principal and site director regarding priorities for spending allocations dissolved a long-held partnership between the school and CBO.

Recommendation #2: Partners Must Assess Student Needs.

By design, Summer Rising did not distinguish between students who required summer school for academic progress and those who did not. School and CBO administrators recommended more guidelines about how to structure out-of-school time to support students who need extra academic help, while providing enrichment for all. Shared assessments of students' strengths and needs would help educators understand how to accommodate each child. All teachers working in collaborative learning environments like Summer Rising would benefit from having more knowledge of IEPs and how to identify different emotional and learning needs. In one instance, a DOE teacher and CBO site director encouraged more frequent targeted assessment measures for students most in need of learning and social-emotional support. One STEM Network partner, NYCFirst, was able to find funding for a third party evaluation of their summer students' positive youth development outcomes. While this assessment was for their own programs, we can look to the benefits of sharing such assessment processes and data across the school community to drive shared goals and program planning.

Recommendation #3: The City Must Allow for Customization of Program Features.

For partnerships to succeed, they need to be responsive to the individual needs and personality of each school community. School and CBO leaders frequently spoke of customization as an aspiration during interviews, but were not confident how (or if) they could negotiate existing partnerships and city regulations they felt were inconsistent with their goals for their community. Customization—formatting policy and assets into the special needs of a particular school community—requires extensive planning time and flexibility. For example, a teacher at a Summer Rising site had a partnership with a STEM provider but wanted flexibility to choose activities a la carte to align with the school team's goals for the students. In order to make customization feasible with STEM providers, one teacher recommended that the NYC STEM Education Network receive on-going guidance from principals and administrators regarding goals, challenges, and opportunities. Another advocated for more student voice in planning. Importantly, some interviewees suggested that in exchange for input, stakeholders receive incentives such as funding, innovative STEM materials and supplies, and family engagement opportunities.

Recommendation #4: Boost Digital Access and Use It to Drive Engagement.

COVID brought to light the extent of the digital divide for economically disadvantaged families, who make up nearly 75% of the New York City school population. In order to meet the challenge, some programs got creative and made digital access for all students a priority, which allowed students to partake in school and strengthened communications

between home and school. For example, the community-based organization Phipps Houses created a new position, Director of Digital Access.

In addition to ensuring that young people and their families have access to technology, CBOs have leveraged digital tools to drive engagement and access to resources. For example, during Summer Rising, Children's Aid launched an innovative tool to help families find services that they may need in navigating the impact of COVID, findhelp.org, using the free access Aunt Bertha platform. This tool was kicked off for Summer Rising, has millions of users, and is intended to grow and be sustained in the future. Another CBO site director utilized a Slack-like platform, RocketChat, to unite his Summer Rising community partners, teachers, and students.

II. Establishing a Welcoming Culture Grounded in a Shared Focus on Social and Emotional Development

The focus on social-emotional learning (SEL) has never been greater. All survey respondents said they conducted a great deal of preparation in advance of their students entering Summer Rising and returning to school in the fall. Many incorporated activities to help children rebuild their social relationships, re-engage with friends, and interact with someone new. Others focused on physical and mental wellness for the entire community. Many recommendations surfaced, and all potential partners should strengthen their knowledge of recommended best practices.[7]

Recommendation #1: Practitioners Should Forefront the SEL Capacity of STEM with a Focus on Culturally Responsive Teaching.

Many interviewees celebrated the ways that STEM activities helped their students engage in SEL activities. One educator noted that "when you mention 'STEM,' [the students] are resistant because they do STEM during the day, where STEM is largely a passive learning experience. Once they realize that they will be doing a project, they become engaged." Another site director stated, "STEM is an essential way to ensure that students have more active learning." These observations align with research on the natural connection between SEL and STEM experiences: competencies such as social awareness are explicitly linked to

[7] https://casel.s3.us-east-2.amazonaws.com/CASEL-Gateway-SEL-Roadmap-for-Reopening.pdf

addressing local and global scientific problems and relationship skills are fostered in the collaborative decision-making necessary for STEM project-based active learning.[8]

Many community educators offered examples of connections between STEM and SEL competency areas like self-efficacy, motivation, and the development of new interests. For example, one middle schooler at a New York Edge site was dubious about his interest in Robot Soccer at the start of the lesson but became an active and avid participant by the end. STEM learning opportunities provide important opportunities for youth to explore who they are and uncover existing strengths.

Interviewees were also adamant about ensuring culturally responsive curricula and environments. Indeed, attending to equity as a key component of SEL is an area of growing consensus: CASEL describes this work as "'transformative SEL,' a process whereby young people and adults build strong, respectful, and lasting relationships that facilitate co-learning to critically examine root causes of inequity, and to develop collaborative solutions that lead to personal, community, and societal well-being."[9] But intentional work is necessary to ensure that STEM and SEL learning experiences really are grounded in a culturally responsive approach. One educator emphasized the opportunities for culturally-responsive learning in problem-based STEM experiences; she incorporates local phenomena and students' lived experience into her lessons. One site director recommended more professional learning in culturally responsive STEM for her staff, and all interviewees cited the need to more carefully address immigrant students' needs.

While the research on the connections between STEM and SEL is still evolving, the NYC STEM Education Network has the power to gather and disseminate the innovative approaches among its membership.

Recommendation #2: Attend to Social & Emotional Needs Throughout the Day.

Some STEM program providers revamped curricula to be more youth-focused. They started the days outside with "camp stuff--basic body routines," and figured out how to conduct labs outside. They made sure that students could find and claim physical spaces for themselves. They created individual kits for each student and found that the students "bonded with their stuff," decorating their kits.

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[8] https://ejrsme.icrsme.com/article/download/19925/13664
https://casel.org/fundamentals-of-sel/;
https://www.taylorfrancis.com/chapters/edit/10.4324/9780429021381-14/informal-stem-program-learning-margaret-blanchard-kristie-gutierrez-bobby-habig-preeti-gupta-jennifer-adams

[9] https://casel.org/fundamentals-of-sel/how-does-sel-support-educational-equity-and-excellence/transformative-sel/

Another site director recommended that every student have their own yoga mat and a water bottle, and that time for yoga and meditation be incorporated into the students' days. She relayed that students' biggest "complaint" was that they "couldn't hug their friends," and again cited the important role that empathy plays in generating the trusted relationship between adult and student. As applied to STEM engagements, one CBO educator emphasized "checking in" throughout the lesson, incorporating SEL approaches into questioning strategies.

Summer Rising has surfaced these and other details of how DOE teachers, community educators, and NYC STEM network programmers and educators innovated to incorporate SEL to support children's needs throughout the day. The opportunity now is to continue this important exchange, encouraging new ways wherein in-school and CBO adults can bring their unique strengths to build a coherent and on-going approach to SEL integration.

Recommendation #3: The City Must Expand Professional Learning in SEL.

All of the interviewees emphasized that DOE teachers and community educators would benefit from professional learning in social-emotional learning. One educator recommended a training in SEL that is part of the RULER approach[10] that emphasizes the use of a "mood meter" to help students articulate feelings, identify where they come from and process them. Similarly, the NYC STEM Education Network members may have the capacity to provide professional learning around the ways in which STEM learning fosters social-emotional skills such as collaboration, self-efficacy, and motivation. The training should include how personal backgrounds and identities affect STEM learning and discuss strategies to engage students with various learning styles in "doing science" and the intersection of SEL with the process of scientific inquiry. Such professional learning engagements may benefit from sharing existing research, in addition to supporting teaching practices and approaches.

III. Coordinating Content and Crafting a Well Balanced Curriculum Across All Grades

Perhaps unsurprisingly, given Summer Rising's emphasis on school and community partnerships, the most frequent recommendation from interviewees was the need for

[10] https://pg.casel.org/ruler-approach/

coherence and continuity between the academic and social-emotional learning that students experience both in the classroom and in afterschool and summer programs.

Recommendation #1: Schools and CBOs Should Take a Collaborative Approach to Identifying and Covering Learning Goals.

The DOE and DYCD both endorse the CASEL framework for social-emotional learning[11], but have many separate recommendations for literacy, math, and STEM curricula. This recommendation is to identify where the curricular assets among CBOs and non-profit organizations can more precisely meet school-community learning goals. The NYC STEM Education Network may have a unique role to play here: how can the Network support schools, nonprofits, and community partners to build a "STEM ecosystem" at the school level? School principals and site directors, with support from STEM cultural and educational organizations, can work together to generate common goals for all students' STEM learning and use their combined assets to best effect. There are of this approach in action (such as the partnership between the Brooklyn STEAM center and the career and technical education partnerships it hosts), but the opportunities are not equitable enough or accessible to students across the city. After 18 months of COVID, many believed that strengthening the STEM learning ecosystem by coordinating content across learning settings and crafting a well-balanced curriculum would offer a critical pathway to bridge the learning losses experienced by so many students.

The NYC STEM Education Network's members, collectively, represent a deep well of research and practice in the STEM teaching and learning, drawing on standards such as the Next Generation Science Standards. This expertise can be leveraged to create an exciting menu of professional learning for CBO community educators and NYC DOE elementary level teachers, who may lack science backgrounds and access to specialists in their schools.

Recommendation #2: Providers Should Create More Opportunities for STEM Learning in the Early Grades.

More than one interviewee relayed the need for more STEM learning in the earliest grades, and many cited the research on STEM learning as important for developing curiosity and motivation for learning.[12]

Educators of young learners may often adjust curriculum intended for older students for a younger audience. For example, one educator knew from her participation in NYC STEM

[11] https://casel.org/
[12] https://link.springer.com/article/10.1007/s10763-017-9812-8

Education Network professional learning sessions that there was more she could be doing with younger children and then sought more guidance for adapting and creating lessons for young children. She had great success in engaging young students in making lava lamps and slime. Another STEM organizational leader cited the evidence that younger children are more likely to talk about their school work with parents at home, emphasizing additional family engagement benefits to beginning STEM learning early.

Recommendation #3: STEM Network Members Should Focus on College and Career Readiness.

Many interviewees expressed the need for unique approaches to different grade levels, but this need was stressed most emphatically by those working with high school students, who will have spent at least 35 percent of their high school time under COVID. One STEM organization leader sees the need to expand their high school work as one response to findings that COVID's negative impact on high school graduation rates could be offset by collaborations with partners in the NYC STEM Education Network that are engaged in post-secondary workforce programs. A coordinated effort among the NYC STEM Education Network for work-based learning and internship opportunities, in collaboration with DOE and DYCD (home of the largest summer youth employment program for the city), can catalyze support for high school youth.

Some interviewees cited the success of the Youth Empowerment Summer (YES) program in the summer of 2020. Due to COVID, the SYEP instituted remote or virtual internships. More needs to be reflected upon and studied, but there are several examples of success in virtual internships. The Network may benefit from continuing support for virtual internships that will open opportunities to more employee and student participation.

Recommendation #3: Network Members Should Leverage Professional Learning and Strategic Partnerships to Build STEM Capacity at Sites.

Longstanding tensions exist in the afterschool field around STEM instruction. Should programs contract with STEM non-profit service providers who can offer content-specific expertise? Can after school educators lead engaging, effective STEM instruction without necessarily having a background in STEM teaching and learning? Are other approaches possible?

Many interviewees mentioned the unique nature of the CBO workforce that relies on part-time, sometimes seasonal educators from a variety of different professional and personal backgrounds. Several CBO leaders recommended a more concentrated and extended program of professional learning for their educators that would be more aligned

to teachers' professional development in general, where self-reflection and communities of practice implemented over time show evidence of improved practice. For these leaders, building the capacity and content-specific skills of frontline educators is possible. STEMteachersNYC, a nonprofit organization dedicated to supporting a community of STEM teachers across the NYC region, offered a Community of Practice (CoP) for Summer Rising educators via the Network. The CoP was designed as a way for Summer Rising educators leading STEM activities to engage with peers, share and learn from each other's experiences and successes, and provide spaces to offer solutions in real time. The Community of Practice was an important step in the right direction, but it was sparsely attended.

One Network leader suggested that the Network's professional learning is underutilized because it is largely unknown. This idea was underscored in interviews where most of the professional learning participants relayed that they knew of the professional learning sessions only because of a personal email, and that they did not think their colleagues were aware of the offerings. Many advised the Network to "get in front of principals," and to market the professional learning programs throughout the year.

As with customization mentioned above, there is a desire for STEM professional learning to adapt more specifically to a school community's needs. A Good Shepherd administrator wanted STEM providers to work with them part-time on site to build capacity among staff; at present, the program provides a lower hourly wage than the usual per session rate for DOE teachers (so struggles to hire them), and lacks STEM expertise among existing educators. Because many of her after-school personnel do not usually leave the neighborhood for professional learning, on-site group learning would be best, allowing staff to be immersed in working together in a hands-on fashion. She recommends a set time, periodically over the course of the year, to allow more immersion in the subjects. While this summarizes one director's preferences, there were other recommendations as well, underscoring the diversity of professional learning needs and the variety of strategies and approaches that will be necessary across the ecosystem. Some interviewees recommended front-loading professional learning in September-October or back-filling sessions in April-June. Other suggestions included leveraging technology, such as video, to help teachers assess themselves more accurately, and running professional development sessions for diverse groups of school-day and after-school educators so that they can learn from each other.

Like educators, providers of professional learning should seek to thoughtfully integrate skills they developed during the pandemic to maximize both access to and effectiveness of professional learning. In-person, on-site workshops support deep learning and growth, while online trainings allow educators to more easily schedule learning into their busy

workdays. Providers should therefore tailor the delivery and format of their workshops to meet the specific needs and capacity of their audience. As stated earlier, funds must be provided to pay staff for professional learning time.

While the recommendations above reflect belief in the necessity of professional learning opportunities for after-school educators in STEM, another CBO leader was less convinced that her workforce could effectively deliver STEM instruction, reflecting longstanding tensions in the afterschool field overall. As such, her preference is to partner with one of NYC's STEM education non-profit organizations for a full-year contract with a consistent number of engagements. For these CBOs and providers, the NYC STEM Education Network could act as a clearinghouse, helping to match CBOs looking for STEM programs with STEM service providers that have the content, curriculum and educators ready to go.

Thinking more broadly, another Network CEO recommended that ExpandED lead a project to recruit a city-wide "after-school corps" of pre-certified teachers and educators who could support after-school and summer STEM learning with targeted professional learning and support.

Finally, NYC STEM Education Network may choose to focus more strategic funding on equity and access to exemplary STEM engagement to ensure that its members reach those students most impacted by the opportunity gap created in the out of school learning environment.

Conclusion

"The asset value of STEM learning cannot be overstated. Understanding the scientific process and being in close proximity to science will recreate the trusted relationship between the public and science that is so necessary today, as evidenced by the crisis of the COVID pandemic."

★ STEM non-profit leader

THE FINDINGS AND RECOMMENDATIONS IN THIS REPORT ARE INTENDED TO FOSTER A CRITICAL CONVERSATION. The NYC STEM Education Network should consider which are the most pressing issues and how can we work together to successfully address them.

The STEM Education Network represents more than 60 organizations of varying sizes and areas of expertise. Together, this group has extraordinary capacity and promise to deliver innovative STEM programming to New York City's more than 1 million students. As we look for ways to help students rebound from the COVID crisis, this programming will be more important than ever.

As Mayor Eric Adams begins his time in office and many new City Council members take office, the network has a unique opportunity to make its case for the need for greater cooperation and partnership between the schools, CBOs and STEM Network organizations that wish to be a part of the solution.

> "In a crisis, lean on the organizations that have been doing the work for years. We could do a lot as a network."
>
> ★ STEM non-profit leader