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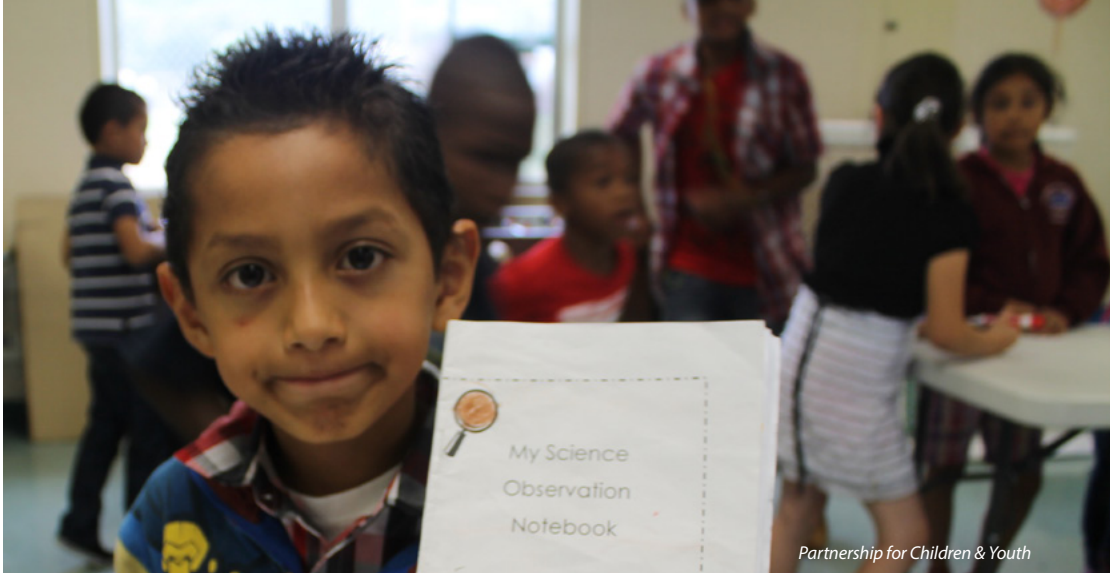

Partnership for Children & Youth

research in brief >

Investment in Staff Yields Summer Success for Students

JESSICA MANTA-MEYER
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Delivering a high-quality science, technology, engineering, and mathematics (STEM) summer program can seem daunting, especially when front-line staff may have limited STEM experience. In this study, researchers focused on the impact of providing staff with hands-on curriculum, professional development, coaching, and quality assessment, in order to better engage youth in summer and STEM learning.

We spoke with researcher Jessica Manta-Meyer from Public Profit to learn how investing in a well-trained staff translates to student outcomes.

HOW DID YOU BECOME INTERESTED IN STUDYING THIS ISSUE?

I used to run out-of-school time programs in Oakland, so I've been interested in program quality and staff engagement for a while. Science has always held a special place for me as well; in another life I would have been a science teacher! Evaluating the impact of staff support can easily be overlooked since summer learning programs have such a strong focus on youth outcomes. This project in particular interested me because it allowed me to see ways in which proper investment in staff could lead to consistent, high-quality programming.

HOW WAS THE PROGRAM STRUCTURED?

The Summer Science Project supported the availability and quality of summer science, technology, engineering, and mathematics (STEM) learning programs in three California communities. The project was led by the Partnership for Children and Youth (PCY) and Techbridge, in collaboration with the communities where the program was implemented in 10 elementary schools. PCY and Techbridge were especially helpful in facilitating the project as they had previous experience working with summer initiatives.

Summer Science combined these partners' resources to build the capacity of expanded learning staff to lead hands-on summer and science programming for youth in grades three through five. Through this initiative, project communities received hands-on curriculum, professional development, and coaching around best practices to engage youth in summer and STEM.

The goals for the program included both increasing participating youths' interest and confidence in STEM learning, as well as strengthening line staff's ability and confidence to teach science lessons in summer and afterschool. We also wanted this study to support development of a replicable and sustainable system of technical assistance for summer STEM programs in other communities in California.

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digging into the data:

WHAT DATA DID YOU GATHER TO STUDY THIS ISSUE?

This project included a heavy investment in staff support, so we gathered data from both youth and staff before and after the program to understand the impacts. Youth were asked to self-report their opinions of STEM subjects and their confidence levels relating to learning and participating in science-based activities. Staff were asked about their confidence and competency with teaching and specifically with teaching STEM subjects. We also performed a mix of formal and informal observations throughout the program. At the end of the program, we collected qualitative data on the program as a whole through focus groups with staff.

WHAT POSITIVE EFFECTS DID YOU FIND?

Throughout the program, students increased their knowledge, skills, and confidence in STEM. 91 percent of students reported that Summer Science made learning fun and increased their confidence in science. Just as importantly, high attendance rates confirmed the participants' excitement to be involved. Although this program was a STEM program for youth, a large area of our study was the structured staff training and support. Through the data we collected, we saw improved staff confidence in teaching STEM subjects: staff who reported they could effectively lead summer STEM activities increased from 69 percent to 95 percent. We also found that our staff retention rate was very high, with staff returning year after year to the program. When staff went to teach during the school year, their standards for their own teaching stayed high because they had new tools and techniques for providing quality lessons to their students.

creating a successful summer:

WHAT DO YOU THINK WERE THE KEY ELEMENTS OF SUCCESS?

We were able to work with an existing system of partners and out-of-school time learning with a long history of coordination. Adding the STEM component with staff support was a way to propel and improve quality. In this project, the significant investment – in both money and time – in staff hiring, training, and support was essential. Summertime instructional observation and coaching provided by school-year teachers from the schools operating the program; we found this investment to be invaluable.

Shifting mindsets to start planning and training early for summer also mattered a great deal. Throughout the school year, PCY and Techbridge conducted a series of summer quality and STEM professional development sessions to promote inquiry-based, hands-on STEM teaching, as well as pre-summer coaching on best practices to engage youth in these activities. Quality coaching in the spring was followed by onsite quality assessment site visits during the summer using the Comprehensive Assessment of Summer Programs (CASP) Site Observation Tool and the Summer Learning Program Quality Assessment (SLPQA). These year-round elements all came together to contribute to a successful summer.

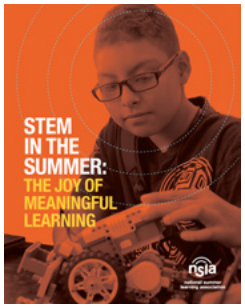
A comprehensive curriculum that is responsive to community needs was also important. Because most staff members were passionate about science but had varying backgrounds, the balance of prescriptive instruction with inquiry-based learning was a good fit. The project was fortunate that Techbridge provided a strong STEM curriculum that could be adapted to individual sites' needs. The project was also able to invest in Technical Assistance (TA), which included extensive observation and feedback that held them accountable for creating and delivering effective lessons. Alongside external help, another partnership that allowed this initiative to occur was with the school systems. For example, Oakland has a history of high quality summer learning opportunities, so they joined the project with both the interest and capacity needed to implement summer STEM programs.

WHY WAS THIS APPROACH EFFECTIVE FOR BOTH STAFF AND STUDENTS?

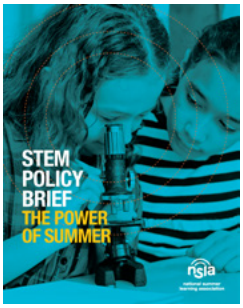
Overall, the staff training and quality of the curriculum were very engaging and staff were energized to deliver the material; it showed in the enthusiasm they brought into the classroom. Even though the curriculum was challenging, it was well-structured for staff to deliver these high quality, interactive activities. Something about it was a little bit scary for the staff, but in a good way! The material and training set high expectations for staff that they carried over to their students, and pushed them both to rise to the challenge of teaching and learning this material. During the summer lessons, the continuous cycle of observations, feedback, and instructional coaching was the key to keeping quality high and staff motivated. In the closing debrief, staff reported that they were in awe of themselves having accomplished so much over the summer!

more stem resources

FIND THEM AT SUMMERLEARNING.ORG!



STEM in the Summer:
The Joy of Meaningful Learning



STEM Policy Brief:
The Power of Summer

lessons learned and the way ahead:

IS THERE ANYTHING THAT WOULD HAVE MADE THE PROJECT RUN MORE SMOOTHLY?

It would have been good for the project partners to have had steady and committed sources of funding for a few years in advance, so they could plan ahead more without having to account for possible budget shifts. The project also highlighted the challenge of proper materials management. STEM activities tend to require a lot of specific materials, which requires advance preparation and storage space. In order to successfully carry out activities, managing the materials cannot be an afterthought.

WHAT DO POLICYMAKERS NEED TO KNOW ABOUT THESE PROGRAMS?

This type of program goes far beyond just keeping kids occupied during the summer months. For students referred to summer school, STEM learning is so engaging that it can feel like a really positive experience and make school a place that kids want to be. Through these high-quality lessons, students maintain and improve academic as well as social-emotional skills for the school year, and teachers improve their pedagogical skills. For this to happen, however, programs need support and funding from the federal government, states, and school districts to provide materials, qualified staff, a working curriculum, and year-round preparation and planning. With proper funding, the return on investment for these programs is incredibly significant, if not invaluable to our youth and country.

WHAT ARE SOME NEXT STEPS FOR RESEARCH ON THIS ISSUE?

Since this project only spanned three years, we would need more studies to know the longer-term impact of summer science learning on both staff and youth. We would like to learn more about the impact of informal STEM activities on math, reading, and science outcomes. We have seen some connection between STEM education and support for English language learners, but it would be helpful to know just how strong of a correlation that is. It would also be beneficial to collect opinions from parents on the STEM project. Summer science is a part of a complex ecosystem of learning, but potentially a very important component. This data along with other evaluations could be put together to assess what the contribution of summer science programs may be to communities that invest in them.

new resources

FIND THEM AT SUMMERLEARNING.ORG!

Head over to NSLA's **Summer Learning Knowledge Center** for the latest research on summer learning on topics such as program quality, STEM, literacy, fundraising, and more.

Citation:

Public Profit. (2014). Summer science project evaluation findings 2014. Oakland, CA: Manta-Meyer, J., Kong, S., Laurel, V. & Newhouse, C.

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ABOUT THE NATIONAL SUMMER LEARNING ASSOCIATION

The National Summer Learning Association is the only national nonprofit exclusively focused on closing the achievement gap by increasing access to high-quality summer learning opportunities. NSLA recognizes and disseminates what works, offers expertise and support for programs and communities, and advocates for summer learning as a solution for equity and excellence in education. NSLA's work is driven by the belief that all children and youth deserve high-quality summer learning experiences that will help them succeed in college, career, and life.

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