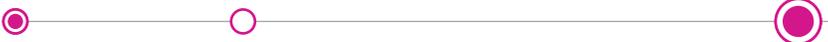


FULL STEAM AHEAD

AT LOS ANGELES PUBLIC LIBRARY



The Connected Learning Alliance Series
on Connected Learning in Practice



Written By:

Anna-Ruth Allen
Vera Michalchik
Katie Van Horne
Michael Harris
Josephina Chang-Order
Amanda Wortman

Produced by the
Connected Learning Alliance



This edition of FULL STEAM AHEAD AT LOS ANGELES PUBLIC LIBRARY is licensed under a Creative Commons Attribution Unported 3.0 License (CC BY 3.0) <http://creativecommons.org/licenses/by/3.0/>



Published by the Connected Learning Alliance. Irvine, CA. March 2020.

A full-text PDF of this report is available as a free download from <https://clalliance.org/publications/>

Suggested citation:

Allen, Anna-Ruth, Vera Michalchik, Katie Van Horne, Michael Harris, Josephina Chang-Order and Amanda Wortman. 2020. *Full Steam Ahead at Los Angeles Public Library*. Irvine, CA: Connected Learning Alliance.

CAPTURING CONNECTED LEARNING IN LIBRARIES



The Capturing Connected Learning in Libraries (CCLL) project — an IMLS-funded research and practice collaboration between the Connected Learning Research Network, CU Boulder, SRI International, Los Angeles Public Library (LAPL), YALSA, and YOUmedia — enables libraries to better assess learning outcomes for their connected learning programs and spaces, and boosts their ability to use evaluation data to improve their programs. It is focused on identifying challenges connected learning programs face and helpful ways of addressing those challenges.

CASE STUDY: FULL STEAM AHEAD AT LOS ANGELES PUBLIC LIBRARY (LAPL)

Since 2014, libraries in the LAPL system have been offering programs for youth focused on Science, Technology, Engineering, Art, and Mathematics (STEAM). This programming has been supported through “Full STEAM Ahead” funding¹, and through a Curiosity Creates² grant, through the Walt Disney Company, to support libraries to develop and share kits of materials for a range of programs, including STEAM related drop-in programs and workshops. Two neighborhood libraries of the Los Angeles Public Library collaborated with the CCLL research team to document connected learning in these programs: The Wilmington Branch, with collaborating librarian Marc Horton, and the Pio Pico – Koreatown Branch, with collaborating librarian, Kevin Awakuni. This case describes the programming and assessment tools CCLL and library staff developed and used to support connected learning for youth.

What happens in LAPL STEAM programs?

Wilmington

At the Wilmington Branch, youth librarian Marc Horton runs STEAM programs that engage youth in activities like making LED greeting cards, e-textile superhero masks, and designing origami flower pots and planting seeds in them. The branch’s afterschool programs are aimed at creating enjoyable STEAM activities and are well attended by youth. The library’s STEAM programs are typically offered once per month, and are generally open-ended, allowing participants to engage in a cycle of “trial, error, redesign, and try again.” Monthly family science workshops are focused on themes such as Stomp Rockets, Building a Marble Run, Lego Building challenges, Making a Zoetrope, and Computer Science Unplugged. The programs are geared toward children and parents building something together in a science workshop, and participation in these children-adult events varies. Some youth attend library programs weekly, some attend only the STEAM-focused events monthly, and some drop in to events periodically.

The programs aim to increase young people’s interest in the STEM activities offered in the library, encouraging them to participate in these events and to develop longer-term STEM interests in the future. By providing youth and their families spaces and materials for trying out STEAM activities, the programs open up new possibilities for STEAM-related activities that participants can pursue. The programs also seek to be relevant to what youth are learning in school, but do so in a way that gives them exposure in a playful and fun environment. Finally, the programs seek to connect youth to each other, providing support for one another and for younger youth at the event.

Pio Pico – Koreatown

Across the city at the Pio Pico – Koreatown branch, librarian Kevin Awakuni runs programs in computer programming, cooking, arts and crafts, cross-stitch, and other STEAM activities. Many of the workshops were developed through the LAPL’s Curiosity Grant, which allowed the library to develop a portable science lab that became the basis of a variety of weekly and monthly events. As described in the Curiosity Creates final report on best practices, this programming was “created to expose children to a wide range of fun scientific activities.” In the program:

¹ See <https://ifla.org/what-we-fund/investing-in-lifelong-learning/full-steam-ahead/> for more information.

² http://www.ala.org/alsc/sites/ala.org.alsc/files/content/awardsgrants/minigrants/ALSC_Curiosity_Creates_Best_Practices_Final.pdf for more information.

Kids had the opportunity to pretend to be scientists. This effect was achieved by kids wearing lab coats, protective goggles, and latex gloves while engaging in actual experiments. Activities included creating lava lamps, soap making, lemon clocks, slime in a bag, balloon cars, kaleidoscopes, fizz inflators, brush bots, and tornadoes in a bottle, among other scientific programs. (Curiosity Creates Report, p. 58)

The programs are offered as a series of drop-in sessions that expose young people to a wide variety of science topics. Kevin designed the program with the intent that participation would be enjoyable to students. Its goals were to spark new interests and generate excitement in young people, and, at the same time, spark new conversations between parents and children.

Program participants range in age from 8-13 years old. Older teens, aged 14-17, often assist adult program leaders or do “demos” in the programs. These teens typically have been through the program themselves. Funding from the Curiosity grant ended a few years ago, but the library still implements the curriculum and lab activities in its programming and purchases new materials (e.g., new owl pellets to dissect) as needed.

SEEKING USEFUL EVALUATION RESOURCES

In collaborating with the CCLL team, Kevin and Marc were looking for evaluation approaches to use with youth in their programs that were more effective than the methods available to them at the time. LAPL had developed some evaluation resources to understand the impact of their STEAM programming. Among these resources were surveys to capture who was participating in these events. LAPL also gathered written narratives from facilitators to detail what was happening in activities at the branch level. Additionally, the STEAM kits provided to each branch included a short survey to be completed by youth participants that addressed their level and degree of engagement with the activities, how much the activities increased their interest in STEAM, how likely they were to pursue further related activities in the future, and what connections youth made with one another—the last of these outcomes intended to indicate relationships that could potentially act as bridges to further learning opportunities.

Despite the intent behind the surveys, library staff found them challenging to use. Staff noted a few reasons for these difficulties. First, the surveys were hard for youth to understand and complete, making them unpopular and a burden for staff to administer. Second, the surveys were meant to follow engagement with the STEAM kit activities, which meant youth were often unsuccessfully trying to fill them out at the end of the day when they were also trying to get ready for their parents to pick them up. Finally, the surveys did not actually help library staff gain a sense of what young people were learning and experiencing. Detailed observations and analysis of how youth engaged with activities would have been more helpful to library staff, but it would have been impossible for them to use an observation protocol or collect narrative field notes without additional staff dedicated to such data collection methods. As it was, program staff were fully occupied with the practical demands of program implementation.

Kevin and Marc wanted practical tools and methods that would help them better understand how youth were experiencing the STEAM activities. As Kevin explained, they did not feel the surveys provided the types of insights intended. Current methods did not help them capture useful, “true data” that could “bottle” the program to share what was happening with others. Besides being difficult to administer, the surveys were also difficult to interpret and turn into actionable changes in programming. Kevin and Marc

needed to know whether youth were learning by participating—whether they understood key concepts in the activities, whether they were thinking critically about ideas and issues, choosing their designs carefully, and iterating through solutions with a feel for the improvements this fostered. They also wanted to know how young peoples’ experiences entered into conversations with families and caregivers, offering additional opportunities for learning. Most of all, they wanted to know whether youth were developing new interests through participating in the STEAM programs.

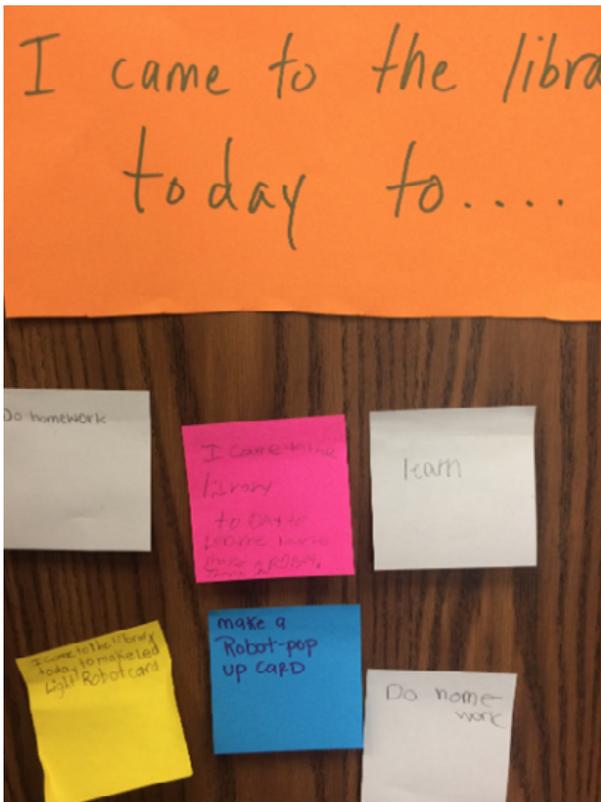
Using youth-centered approaches at Pio Pico - Koreatown

Exit tickets create reflection and dialogue

Kevin and the team at Pio Pico – Koreatown decided to use an “exit ticket” approach to documenting connected learning in their programs. An exit ticket is a single “sentence starter” youth complete as they are leaving the program. These can be completed with a parent or caregiver present and were designed as both a conversation starter for parents to discuss with students and as a tool for evaluation. Some of the sentence starters that proved helpful to program evaluation included:

- ◉ “Something I did today that was really fun was....” [interest, enjoyment]
- ◉ “Something I plan to do with what I made today is....” [connections to home, going deeper]
- ◉ “If I could redesign what I made next time, I would....” [planning, design iteration, interest development]

If participants had difficulties writing out their responses, the prompts were read aloud to youth by library staff, who then recorded their responses in parent or caregivers’ presence. Examples of exit tickets used by LAPL are shown below.



Talkback boards for ready insights

Similar to the exit ticket, talkback boards provide youth with a chance to give feedback on the program, collated and displayed in a public place. Talkback boards prompt youth to endorse responses to questions posed by library staff using a sticky dot or a “yes” or “no.” The prompts help staff understand young people’s experiences and include statements such as the following:

- ◉ I would come back to another program like this one. [YES/NO] If NO, write suggestion.
- ◉ I discovered a new interest. [YES/NO] - if YES, write what.
- ◉ I enjoyed my time here. [YES/NO]
- ◉ Today, I figured out something on my own. [YES/NO] - if YES, write what.

Kevin and his team discovered that talkback boards work best when located near the spaces and materials where youth are working., Pio Pico – Koreatown staff have also noted that, for optimal input, the best time to ask participants to respond is about 15 minutes before the end of each session. Above all, staff emphasize the importance of experimenting to determine what works best for each group of respondents when making use of talkback boards.

Parents talk back, too

Library staff also find value in parents’ perspectives on STEAM programming. Just a brief interaction with parents at drop-off or pick-up can be a rich source of input for library programs. Talkback boards provide a particularly easy approach to do so, using prompts such as the following:

- ◉ “After my child came last time, s/he talked to me about....”
- ◉ “My child would be interested in a session about....”

Pio Pico – Koreatown staff found talkback boards to be potent tools for soliciting information about program-related conversations parents have had with their child. They also have gleaned valuable insights about youths’ interests from the parent or caregivers’ perspective using this tool.

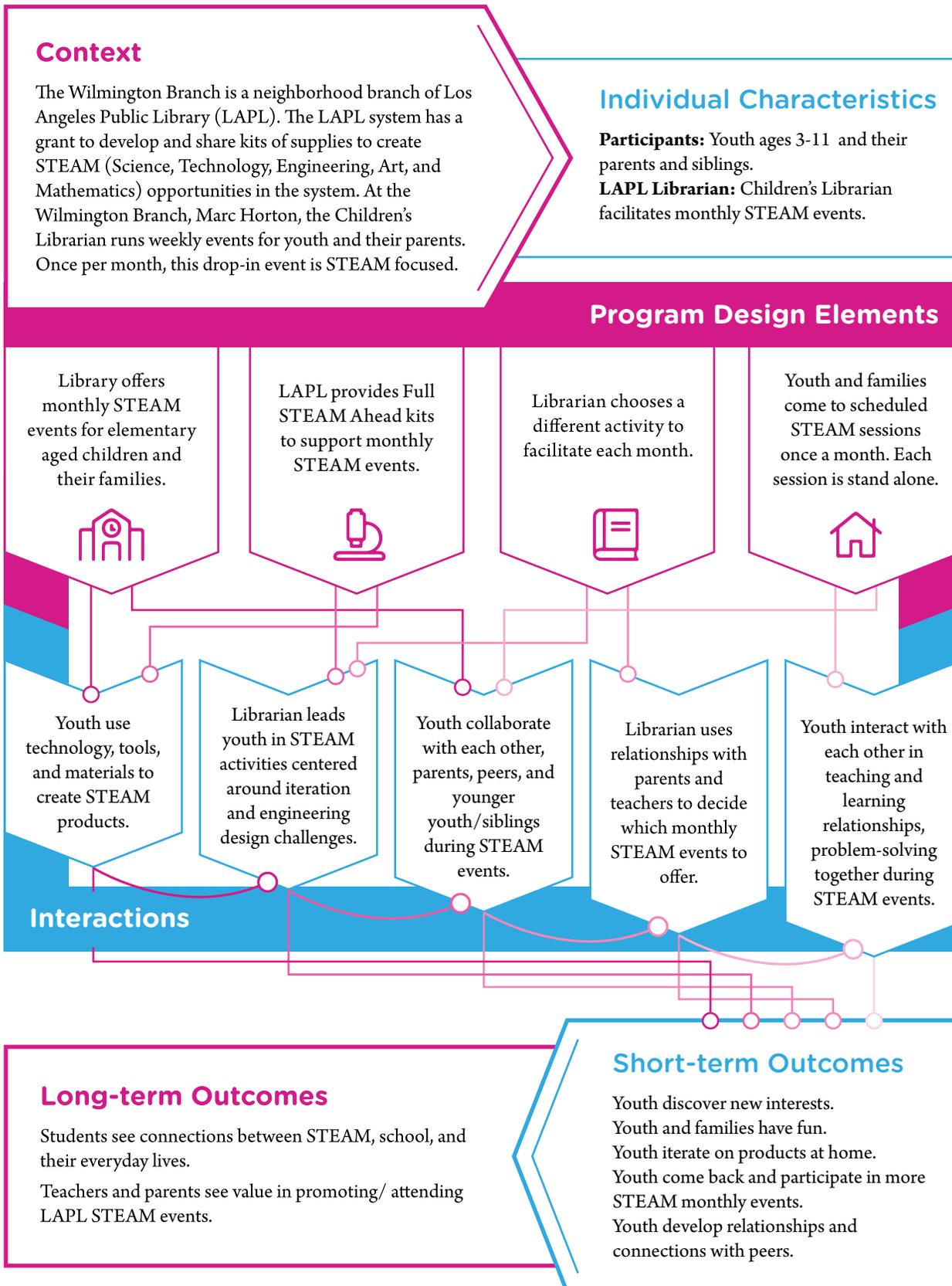
Evaluation questions at the Wilmington branch

Designing for outcomes

In designing monthly programs at Wilmington, Marc sought explicitly to align his design elements with intended program outcomes and goals. He aimed to create opportunities for youth to improvise, think on their feet, and try the same thing in different ways, using different thinking processes, skills, and approaches to problem solving. Rather than trying to fit activities within a program session, Marc designs programs that might take longer than the time on site, offering youth the opportunity to continue working at home. He emphasizes iteration, improvisation, and trying multiple approaches or pathways to finding solutions to a given problem. Marc and his colleagues sought answers to questions such as: In what different ways do youth engage in the monthly STEAM events? Do STEAM events help youth identify new interests? How can programming help youth “level up” or deepen their interests? What new friendships and connections are formed through these programs?

Documenting a theory of change

In developing an evaluation plan, Marc and the CCLL team worked together to create a visual representation of the program's theory of change. A theory of change representation specifies how program components and interactions among participants are meant to lead to desired outcomes.



The theory of change diagram also identifies the short-term and long-term outcomes of the program and the program activities that are designed to lead to those outcomes. Theories of change make clearer which components of a program make the most sense to query when developing surveys, prompts for talkback boards, and other means of collecting data that can answer questions about program quality, value, and effectiveness at promoting intended outcomes. For Marc at Wilmington, the theory of change developed was the foundational tool for building the use of talkback boards into his library programming.

REFLECTIONS ON LEARNING FROM TALKBACK BOARDS



Kevin, Marc, and their colleagues found the type of feedback talkback boards provided to be especially useful for inviting feedback from program participants of all ages and the adult caregivers in their lives. Marc offered:

The boards helped me connect more with individual families, in a way that our traditional surveys tended not to, by giving them a chance to communicate more directly about how they thought things went.

The talkback boards provided a means for midstream, practical evaluation, the type of evaluation that helps staff gauge how well their programs are working and what might help to improve them. To be sure, talkback boards present some design challenges of their own. Kevin and Marc needed to decide, for example, when to design prompts as yes-no answers and when to use open-ended prompts. The yes-no answers make it easy to tabulate responses, while the open-ended prompts provide richer and more nuanced feedback that can be analyzed to inform certain types of program changes. Overall, such design decisions depend on the particular intended use of the data, analysis, and interpretation, including the audience, such as library administrators, funders or a board, to which the findings will be presented.