Today’s Speakers

Melissa Ballard
STEM Manager
Afterschool Alliance

Meg Escudé
Director of Community Youth Programs
California Tinkering Network
Exploratorium

Emelyn Green
Executive Director
Community Science Workshop Network
Webinar Overview

1. Snapshot of Programs (20 min)
   - California Tinkering Network
     - With the Boys & Girls Clubs
     - Community Science Workshops

2. Digging into Equity (20 min)

3. Audience Q&A (10 min)

4. Resources & Upcoming Opportunities (5 min)
Defining Equity
Equity as Access

1,395 HRS PRE-SCHOOL + 220 HRS FAMILY READING TIME + 245 HRS WEEKEND DAY TRIPS + 1,080 HRS SUMMER CAMP + 3,060 HRS AFTER-SCHOOL ACTIVITIES = 6,000-HOUR LEARNING GAP

Source: The After School Corporation (TASC)
Equity: Going Beyond Access

**Non-dominant populations:**
Race/ethnicity, class, gender identity, language, disability

1. Not about “sameness.”

2. Avoiding reproducing or perpetuating inequities.

3. Being mindful of the types of experiences kids might have in other learning environments—make STEM meaningful, relevant, & empowering.

The After-School Tinkering Program
Part of the California Tinkering Network

- Partnership between the Exploratorium & SF Boys & Girls Clubs
- Weekly workshop focused on STEM learning & the arts
- Collaboration between researchers & teachers (adult & young adults)
- Research focus: teaching, learning & equity
Activity Guides: http://tinkering.exploratorium.edu/projects
Explicit focus on Process & Shared Activity
Facilitators using Research Practices

I worked with Jazmin on making a rainbow with her. First, I was trying to explain the idea of how the colors of a rainbow are arranged. At first, my mind had a little bit of a straight and to the point and has to be this way but I was thinking back to the meeting we had about left hand and right hand. This kind of came with their thinking instead of shooting it down.

Love it, Zoey.

Doug and Jazmine
Website: California Tinkering Afterschool Network

Paper: Tinkering, Learning and Equity in the Afterschool Setting
Shirin Vossoughi, Meg Escudé, Fan Kong & Paula Hooper
Part of the 2013 FabLearn Conference

Blog Interview: Grappling with Equity & Gaze: A conversation with Shirin Vossoughi & Meg Escudé
Read on DML Central
Community-based nonprofit programs providing opportunities for underserved youth to **tinker, make, and explore** their world through science.
CSWs in California
1991 - Present

- Over 150 Locations in five CA cities
- Over 120,000 visits annually
- Over 70% of participants eligible for FFRSL
Interactive Science Exhibits + Making and Tinkering
Community Access

• Permanent, dedicated spaces located on existing walking routes to low-income homes and schools

• Free to individual participants and affordable for schools

• Drop-in hours let kids participate without enrollment forms and permission slips

• Partnering with existing enrollment-based programs to reach broad sectors of the community

• Multiple entry points in time and space
Role Models and Relevancy

- Recognizing the value of the community’s existing knowledge base

- 1/3 of educators statewide are former students or parent volunteers

- Majority female staff members

- Bilingual facilitators & labels

- Students are encouraged to express their expertise through mentoring & peer-to-peer learning
This is Your Science Workshop

- Everyday materials and hand-made exhibits
- Tools stored at kid-height

- Purposefully messy environment shows kids that nothing is off-limits

- User-generated content
Open-Ended and Student-Driven

• **Students choose** what they want to do, how they want to do it, **what** questions to ask & **how** they want to answer them

• Emphasis on the **Science & Engineering Practices** vs. a particular content area or material

• Adults **facilitate**

• **Frustration** is part of a positive process of learning

• **Infinite combinatorial capacity** in activities, tools & materials as presented in the space
California Tinkering Afterschool Network Collaboration – New PD

- New PD tools to help **staff** identify the **values** driving their work
- “Welcoming everyone to the same opportunities”
- “Students are in charge, not us, we just make it possible for them to succeed”
- “All kids are smart no matter what!”
Inequities Exist!
(and how they show up in the program)

- Patient girls, guys with ideas
- “Anyone here done robotics before?”
- Impatient to finish the project
Check out our website at:

www.cswnetwork.org
Digging into Equity
Facilitated Questions

Emelyn Green
Community Science Workshop Network

Melissa Ballard
Afterschool Alliance

Meg Escudé
California Tinkering Network
Tips you can use (tomorrow!)
Questions that encourage meaning-making vs. the ‘right’ answer

- Can you imagine how this was made?
- What did you discover while working on/playing with circuits?
- What are some of the things you investigated?
- What surprised you while you were investigating or building?
- What tips would offer someone doing this for the first time?
- What new questions do you have now?
Questions that value process & iteration

• What was the part that made you think the hardest or work the longest on?
• What part of your plans changed while you were building?
• Tell us the story of your project? How did it come to be?
• What’s the trickiest part about working with (motors, circuits, etc.)?
• What tips would you offer someone doing this for the first time?
• What would work on if you had more time?
Audience Q&A
New Resources

1| Connected Collections:
A set of research briefs on a hot topic in science education, along with a synthesis.

• Equity in Science Education
• Tinkering & Making in STEM Education

2| Equity in Out-of-School STEM Learning:
Professional Development Needs & Strategies
Thank you for attending!

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Afterschool Snack Blog
CSW Network News

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