

Afterschool Alliance: Hello everyone! Thank you so much for joining the webinar. If you are having difficulty with the webinar's audio, you can dial in on our listen-only phone line at 1-877-860-3058, passcode 1135574.

Afterschool Alliance: We like to keep our webinars interactive! Feel free to introduce yourself and let us all know where you're joining us from.

Afterschool Alliance: The webinar will be starting in a few minutes.

Eric Howland: Eric Howland, Madison WI

Kamlynn Thomas: Kamlynn Thomas and Lauren Marks, Phoenix, AZ

Danika McClenahan: Danika McClenahan, Pueblo, Colorado

Alyssa Kenney: in Madison WI

Lauren Causey: Lauren Causey at the Science Museum of Minnesota

Kaitlin O'Donnell: Kaitlin O'Donnell, Girls Inc. of the Island City, Alameda,CA

Johanna Friedel: Hi! This is Johanna Friedel from Greenville, Texas. Also with me are Jason Kramer and Everett Webb.

Tracy Truzansky: Tracy Truzansky - Vermont Afterschool, PD and STEM

Reid Bingham: Hello! This is Reid Bingham, Makerspace Coordinator at the NY Hall of Science

Kylie Garcia: Kylie Garcia, Pueblo, Colorado

Meg Escude: Hi Reid!

Kristin Steinfurth: Hello! Kristin Steinfurth, EdVenture Children's Museum, Columbia SC

Greg McIntosh: Greg McIntosh, PCS Edventures - Florida

Tracy Truzansky: Eric and Alyssa - do you work with Erica Halverson at UW- Madison?

Stephanie Parton: Stephanie Parton and Kelsey Pruitt, Carbondale Community High School, IL

Reid Bingham: Hi Meg!

Luis E Beltran: Hello, Luis Beltran, PA

Ginsie Simmons: Ginsie Simmons, Museum of Discovery, Little Rock, AR!

Liz Wright: Liz Wright, Roads to Success NYC

Panto Thenic: Roman

Karen Schmitz: Karen Schmitz, parent volunteer @ Rio Rancho Elementary, Rio Rancho, New Mexico

Tony Perry: Tony Perry, Lemelson-MIT program

Jean Ryoo: Jean Ryoo, Exploratorium, San Francisco, CA! Hi everyone!

Lauren Abner: Hi, I'm Lauren Abner, technology consultant for the KY Dept. of Libraries & Archives

Sandra Shybunko: Hi, Sandra Shybunko, Girls Incorporated of Long Island

Nicole Bulalacao: Hello everyone! Nicole Bulalacao, Exploratorium.

Eric Howland: @Tracy not yet.

Luis E Beltran: PA Migrant Education Program. Reading PA

Kaitlin O'Donnell: Hello Jean! From Girls Inc. of the Island City in Alameda.

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Joseph Schantz: Joe Schantz from the Science Museum of Minnesota

Patsy Martin: Patsy Martin: Anderson District 2 Director of Afterschool in SC

Theresa Ramos: Theresa Ramos from Free Library of Philadelphia - Maker Jawn Initiative

Kelley Javinett: Kelley Javinett from Tarrant City Schools in Alabama

Monica Armendariz 2: Monica Armendariz- Technical Assistance Consultant with Texas 21st CCLC programs across the state

Meredith W: Meredith from The Big-Brained Superheroes Club in Seattle, WA

M Justin McCaskill: Justin McCaskill from the Urban League of Greater Pittsburgh

Staci Leech-Cornell: Staci from Explore & Soar, Charleston WV

Isheika Officer: Isheika Officer, SONYC Program, Brooklyn NY

Emily Elmquist: Emily Elmquist, Pathways to College STEM Teacher, Milwaukee, WI

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Danielle Martin: Hi Everyone - Danielle Martin from Intel Computer Clubhouse Network at Museum of Science Boston here

John Spence: John from the Texas Comprehensive Center at SEDL

Sonia Moreno: Sonia from Boys & Girls Clubs of Metro Denver

K-Fai Steele: Hi! K-Fai Steele here from the National Writing Project

Judy Perez: Hello All, Judy Perez, Fort Worth SPARC

Andrew Moffett: Hello, I'm Andrew - A Program Manager at United Way NYC

Christine Bunce: Hello from Bethel Woods Center for the Arts in Bethel NY

Julia Nesbitt 2: Hello. Julia Nesbitt, YWCA White Plains

Danielle Martin: Hey Sonia - do you work with the Owen Branch and the Best Buy Teen Tech Center? That's one of my Computer Clubhouse sites!

Johanna Friedel: Love the scribbling machine!

Melissa Ballard: @Johanna, we'd can include some resources for maker-style activities when we send out the recording/slides

Sonia Moreno: Yes I do. Awesome site!

Karen Schmitz: we built and used scribbling robots in our after school STEM class last semester. Grade range 3-5 grade. Kids loved it!!

Eric Howland: How do you balance getting the kids the tool (e.g. circuits) that let the kids take off with their tinkering

Johanna Friedel: That would be amazing. Everett and Jason want to do this next year!

Kellie Zuniga: I am checking in. I am here. Kellie Zuniga

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Danika McClenahan: @Melissa, that would be awesome!

K-Fai Steele: Meg, did you say "they share it in circle the next day" - can you talk about that? Is it part of a reflection process?

Melissa Ballard: @K-Fai - we'll be covering a similar topic in the facilitated discussion, so I will make sure to weave your question in.

Johanna Friedel: I love the reflection piece with the personal journals. Really aligns with core day.

Theresa Ramos: I had the same question, K-Fai! This is so relevant to what we're doing in Philly!

Jean Ryoo: Hi K-Fai! Yes, Meg begins every afterschool session with "circle time" which involves some reflection on learning and sharing of ideas...of course, Meg can describe this much better than I but thought I'd weigh in from what I've learned while having the privilege of working with Meg :)

Rob van Nood: Catlin Gabel School in Portland, Oregon and Founder of Tinker Camp in Portland.

Karen Schmitz: In our afterschool STEM club, we start in a circle and do names and highs and lows for the day/week (we meet weekly). Great way to ground ourselves as a team before we start activity for the day.

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Jean Ryoo: It's cool too because I've also seen videos of Meg's students sharing their ideas about how things work (electrical circuits, marble machines, etc.) that really gets into the STEM content of the tinkering activities

Johanna Friedel: Our program utilizes TRIBES for sharing and reflecting. The journaling is a nice component and would mesh well with our existing structure.

Jean Ryoo: I LOVE this aspect of CSW that Emily is describing right now

Jean Ryoo: I think they do a really nice job of emphasizing how to build on the ideas/perspectives and wealth of knowledge that kids bring into the space rather than treating kids like blank slates who don't know anything

Johanna Friedel: I would love to see a list of basic materials that you regularly have on hand for the students to explore.

Jean Ryoo: And I think this is also what Meg does during circle time!

Karen Schmitz: Having a dedicated space is a hurdle. How can communities overcome that?

Melissa Ballard: @Johanna - Both Meg and Emily can definitely provide that!

Melissa Ballard: @Karen - Saved your question for the Q&A portion!

Theresa Ramos: In Philly, we do it on the floor of the library - with stuff on shelves (sharing space with book!) and materials in tupperware boxes. It works well.

Meg Escude: Yes a dedicated space is wonderful when you can. But we also pack in and pack out every day- we think a lot about arranging the room for multiple work spaces- a rug for working on the ground, tables arranged so kids see each other's work, etc

Karen Schmitz: How can I sell that idea to my school? I am just a parent up against bureaucracy of public school

K-Fai Steele: oh love the self-reflection here

Kelley Javinett: @Karen I would suggest finding your community education person, after school program leader, or a teacher that you have a connection with

Rob van Nood: Karen, what are the opportunities that you can provide as a parent after school?

Melissa Ballard: @Karen - Added to the list! But others should definitely add their own advice

Rob van Nood: I have always felt that schools can support tinkering and for some kids it becomes the place to connect with it, but the real work happens when kids are doing it at home outside of school. What are the ways that we can give kids opportunities outside of the school space?

Karen Schmitz: I am looped in with them already. I am still trying to provide an after school club for free (at a Title I school) and the school will not list it as free. Very frustrating

Rob van Nood: Karen, do you have teacher or administrator allies?

Kelley Javinett: @Karen, can it be self-sustaining as a free program? Do you have funding to support the program?

erin jones: Will this webinar be archived and if so, when will it be available?

Melissa Ballard: @Rob - both of these example programs are afterschool programs. I think both Meg and Emilyn have some things to say about out-of-school vs. in-school.

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Melissa Ballard: @Erin - Yes it is recorded and archived. I will send out by early next week.

Karen Schmitz: @Rob I think kids need to try it in a school environment (after school club) where they are provided the items and recipes for the "making" for free, and then take them home and tinker at home. My students were excited about building ideas they learned for over the summer.

Danielle Martin: isn't there a bunch of research around where they argue and document that there are skills that youth in underserved communities have that are uniquely qualified for tinkering?

K-Fai Steele: @emilyn **\*\*finger snapping\*\*** about lack of geographic distribution of resources in California

Danielle Martin: around resourcefulness, working with recycled materials on low budgets, finding expertise in less likely places, etc

Tracy Truzansky: Vermont Afterschool is hosting a Tinkering Symposium for Afterschool on October 22nd. Equity and Access will be one topic. How to facilitate discourse with kids - sharing and supporting ideas, how they got there, what they imagine doing next to improve or extend their project. How do we measure the learning in tinkering without using another paper/pencil pre/post tool? Let me know if you are interested.

Karen Schmitz: @Kelley, I am funding the program and focusing on re-usable items I can pass on.

Melissa Ballard: @Karen - Emilyn definately has a lot to say on funding! Added to the question list for later.

Tracy Truzansky: My email is [tracytruzansky@vermontafterschool.org](mailto:tracytruzansky@vermontafterschool.org)

Danielle Martin: tracy - we're def developing evaluation tools for "making" in informal learning spaces

Jackie Gerstein: Making MAKEing More Inclusive <http://wp.me/pKlio-1VI>

Danielle Martin: not sure if I can make it up to VT though ;)

Monica Armendariz 2: Will the chat notes be archived as well? Lots of great resources, ideas and comments are being shared!

K-Fai Steele: Where can we learn more about the California Afterschool Tinkering Network?

Tracy Truzansky: Excellent, Danielle. Would love to get a rep from MOS to our event in the fall.

Afterschool Alliance: The chat will be included in the archived version of the webinar! No worries!

Danielle Martin: send more info to [dmmartin@mos.org](mailto:dmmartin@mos.org)

Kelley Javinett: @Karen what is the rationale for the school not listing it as free? What seems to be the stumbling block for the school?

Stu Armstrong: do you know of any organization that is doing what you are doing but on the east coast in urban cities?????

Tracy Truzansky: Will do, Danielle!

Sandra Bonnici: sandra Bonnici: Madison WI

Melissa Ballard: @K-Fai - the California Network is working on a website redesign so its not live yet. But their evaluation report is in the files pod, which will give you some info.

Monica Armendariz 2: What national conference, gatherings and networks are available for folks to join or attend to learn more about making/tinkering in education....if there are any happening related specifically to out of school time, that would be great to know!

Johanna Friedel: Tracy, I would like more inforamtion also. [friedelj@greenvilleisd.com](mailto:friedelj@greenvilleisd.com)

Karen Schmitz: I am the only parent teacher. Rest are teachers at school who must be compensated for their time. They worry I will get too many kids....which cracks me up because I am doing this for the kids. I am an accountant with a passion for teaching lol

Jackie Gerstein: ISTE15 has a lot of making workshops and activities this year

Danielle Martin: you can also check out our interim evaluation report at <http://www.sri.com/work/projects/evaluation-intel-computer-clubhouse-networks-start-making-clubhouses>

Danielle Martin: there also needs to be more research around connecting tinkering skills to workforce development or engineering/computer science skills

Danielle Martin: also, it's less about brand and more about identity as a creator and agency

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Tracy Truzansky: Yes - exactly Danielle.

Tracy Truzansky: You got it, Johanna Friedel!

Danielle Martin: so the equity argument becomes less about diversity and affirmative action, and more about smart business practice, to hire the most qualified applicants to be the most creative designers/engineers

Jackie Gerstein: Leah Buechley's talk about gender in making is worth a view <https://vimeo.com/110616469>

Danielle Martin: OR it's about how "making" skills are useful in other career pathways other than college trained engineers and computer scientists

erin jones: Thank you Melissa. I am a former science teacher from Los Angeles. I have founded a STEAM out of the classroom program in Louisiana and this information is very useful.

Meredith W: Agreed that focusing on outcomes tends to pull programming in a less equitable direction.

Karen Schmitz: Is there a way to ask kids to evaluate the program?

Melissa Ballard: @Tracy - didn't your webinar a couple months ago get into evaluating learning outcomes?

Dennis Schatz: What journal does the Tinkering Learning & Equity in Afterschool come from?

Danielle Martin: or you focus on "outcomes" that are just technical skills around materials/tools, but about creative competencies that align with cross cutting habits of minds

Kelley Javinett: @Karen I come from the school perspective, I kind of ride the line between school and community. The only insight that I might offer would be that they may not have extra funds available to pay teachers if you do get too many kids to handle alone or with the number of teachers that you have available to you. I run a highly demanded after school program but can only serve a third of the kids who are interested or need the program. I only have the funds available to serve 80, when I could serve 200 if I had the space and funding. Our kids pay a small fee to participate.

Meredith W: We've been looking for "love of learning" metrics for a while now. Nothing useful.

Danielle Martin: Kelley could you get support to create a co-learning space, so youth/volunteers teach each other and don't have to spend funding on only teacher salaries?

Danielle Martin: there's lots of "dedicated spaces" just looking for youth members and adult mentors...they just need funding for supplies/tools

Jean Ryoo: @K-Fai - I'm the director of the California Tinkering Afterschool Network, feel free to contact me if you have any questions! [jryoo@exploratorium.edu](mailto:jryoo@exploratorium.edu)

Kelley Javinett: @Danielle we do that too. We are a 21st CCLC site, and hire high performing high school students and volunteers

Jean Ryoo: Also, our website will be going live in early June

Melissa Ballard: @Jean - can you answer Dennis' question about where Shirin and Meg's article was published?

Karen Schmitz: @Kelley. Thank you. I worked with the coordinator to ensure I am within the proper teacher-child ratio and have a cut-off so there is no burden to the school. I think over time they will trust me more in that I will be there, but boy, they sure don't make it easy for a parent willing to foot the bill and teach the class :-)

Jackie Gerstein: A school in Canada is using student engagement as measured by "flow" as a metric <http://www.cea-ace.ca/education-canada/article/sorting-students-learning#.VWYRFE8GQIY.twitter>

Tracy Truzansky: Melissa - yes - we are working with several researchers in WI, IN and IL. Would love to have you attend in Oct too and hear more about the research and other ways to measure what is happening.

Danielle Martin: OR you get funding for transportation

Kelley Javinett: @Karen I understand your frustration. It is hard to understand why a school would stifle a program that would benefit kids and not cost them money.

Jean Ryoo: @Dennis and Melissa - the article on equity and tinkering in afterschool was published as part of the FabLearn conference., I believe.

Jean Ryoo: FabLearn 2013 at Stanford



Danielle Martin: We talk about making at Clubhouses in terms of five creative competencies and those came from youth development outcomes, not just technical tool literacy

Danielle Martin: there's some connection to the NGSS engineering practices

Monica Armendariz 2: @jean and others, here is the link to that article:

<http://fablearn.stanford.edu/2013/wp-content/uploads/Tinkering-Learning-Equity-in-the-After-school-Setting.pdf>

Danielle Martin: It's actually been a little frustrating that the Maker culture folks have sort of looked down around connecting making/tinkering to "vocational" careers / aka shop

Melissa Ballard: @Danielle - Yes! And many youth workers really do think that career options is at the core of equity

Melissa Ballard: by providing opps to increase earning potential for kids from low income families

Danielle Martin: and the whole "coding" movement being about connecting to computer science ap exams and college programs...instead of how a lot of "coders" are self taught

Karen Schmitz: excellent reflection and discussion questions

Melissa Ballard: And there's some interesting critiques of how Maker culture prizes certain types of making (high tech "designers" vs. manufacturing)

Meredith W: Some of our kids do care about jobs and some don't at the moment. The challenge is finding funding that doesn't limit the entire program to what some kids care about that others don't.

Danielle Martin: I also just learned about the Activation Lab tools <http://www.activationlab.org/tools/>

Monica Armendariz 2: What I love about making/tinkering is that it emphasize the PROCESS over the product. It also celebrates failure and helps build important resilience and patience with students AND adults.

Danielle Martin: they're offering up free making/tinkering evaluation tools

[https://docs.google.com/forms/d/1tMyKfO2bElgYPkp\\_eHibfCNm3Bgny0-j43D0-7VduHk/viewform?usp=send\\_form](https://docs.google.com/forms/d/1tMyKfO2bElgYPkp_eHibfCNm3Bgny0-j43D0-7VduHk/viewform?usp=send_form)

Jackie Gerstein: thanks - lots of good content - needs to address equity issues!

Johanna Friedel: I would love the material list. Thank you! This was a great webinar! Very helpful.

Kelley Javinett: I would love a materials list too.

Monica Armendariz 2: This was a really wonderful webinar. I will be contacting MANY of you!

Meredith W: Thanks all!

Danielle Martin: thanks ladies!

Tracy Truzansky: Wonderful!!

Danielle Martin: but I also thought it was insightful ;)

Luis E Beltran: thanks

Kelley Javinett: Thanks Meg, Melissa and Emilyn

Melissa Ballard: Thank you all!

Reid Bingham: Thank you so much Meg Emilyn and Melissa!

Alitia Kerr: I missed the Webinar, can I pick up on the reorded webinar somewhere?

Kylie Garcia: Thank you all!

Melody Ricci: The research briefs sound interesting,,,Where is a good place to maybe read or even write white papers on these types of topics ?

Karen Schmitz: Thank you so much. Very useful information!!

Sandra Bonnici: Thank you for the resources and links. Hearing and watching the questions and comments and then being able to read and digest more later is very helpful -thank you

zoe antonopoulos: Thank you great information

Melissa Ballard: @Alita - we'll email everyone the recording, slides, and additional docs next week

Emilyn Green: Another place you can look for research is the CAISE website at [informal.science.org](http://informal.science.org)

Danielle Martin: If y'all want to learn more about a book we're working on for informal learning spaces to Start Making! with 10-14 year olds from underserved communities, check out <http://www.computerclubhouse.org/making>