



Discussion Board Transcript for NGCP webinar: Gender Equity in Online STEM Learning

September 2, 2020

Marisa Garcia: Share examples of how you've adapted STEM activities for virtual learning:

Shana: I use Pear Deck to make STEM learning slides more interactive and engaging

Rachael MacKeigan: I tried to focus activities on simple items that most homes would have access to.

Victoria Hrdina: We are building at-home early CS kits to loan to our regional childcare providers - both family centers and school-based sites. Collecting mindset data from parents/teachers on their personal self-efficacy with the materials.

Katie Worthen: During the summer, we used activities in a box paired with a magazine format (like Highlights magazine) or some virtual facilitation through Zoom. It was gratifying to see that some of the activities that we did are similar to those shared here like the Three Little Pigs!

Cori Araza-GCU: I have increased video communication using Flipgrid to have students share their innovation via video. One student created a document camera stand for her cell phone to be able to show off her Engineering project. The creation of a YouTube Channel has increased video communication of STEM concepts.

Cheri Burch (AAUW Tech Trek NM): For STEM camp, sent box including supplies for science activities and tablets with video information and guides, as well as text guides, to try to make the program available for girls without Wi-Fi.

William Fee: Online macroinvertebrate searches from Potomac Highlands Watershed School, Engineering with home materials.

Rachael MacKeigan: Web-based platforms rather than something students need to download.

Claudia Poglitsch: Preload learning materials and resources on tablets that do not require an internet connection to access.

Matthew Cross: We're using Google Meets for our Code Club program with an eventual move to a hybrid online and in person meeting soon. For our other STEM programming we're doing a build along program for LEGO, and a pickup activity for a paper circuit program, that are presented on FB and Instagram Live platforms.

Scott Killough: Engaging in Argument from Evidence through Flipgrid. Students record their claim with evidence. Older students provide reasoning. Students are then required to view another students recording and provide feedback.

Katie Worthen: We're meant to be a statewide museum, but we got feedback that this was the first time some areas felt they could participate in our summer programming since they're usually barred from access due to drive time, so I think we're planning to continue that long term.

Connie: With my cadets, I email them materials to have in front of them. Then I do a discussion of what we are trying to learn in that lesson and I physically do the activity with them all of us on camera. Mikes are open for discussion. Keeping all the mikes open all the time encourages comments and keeps the group interested.

Rachael MacKeigan: Minecraft and virtual reality classrooms.

Anne: We ran a remote STEM camp this summer and found that sending home a kit of parts (including rapid prototyping materials such as cardboard, crafting supplies, Legos, etc.) made running hands on activities much easier. We were also able to conduct impromptu engineering/prototyping challenges every day.

Claudia Poglitsch: Encourage girls to share their exploration of suggested STEM activities via Instagram.

Snehal Bhakta: We've had much success with STEM movies in the Theater for girls and their families and now have pivoted to streaming their movies into their homes and have Q&A sessions with female STEM professionals.

Rachael MacKeigan: Sending out kits if there were any special materials needed.

Jennifer Kolbauer: At the USC K-12 STEM Center, we have recently developed a virtual Catalina experience for students that involved a lot of pre-recordings from the Island that allowed them to still participate (I.e. IDing plankton, soil activity at home).

Anne: here are many web based tools for 2d/3d design that students can learn quickly. Also, Tinkercad has a tool for prototyping for Arduino.

Shannon Campe: [2:https://pages.etr.org/pair-programming-toolkit](https://pages.etr.org/pair-programming-toolkit). we have a free pair programming toolkit if interested - based on ours and others' research.

Connie: We are doing a Ham radio class online which is fairly easy to do. It has a little for everyone, rule, operating principles, radio theory. IT is easy to get participation getting them ready to talk on the real radio.

Snehal Bhakta: We have been mindful in our STEM/STEAM experiences to also include families and male allies/advocates involved as well.

Marisa Garcia: What remaining questions, thoughts, or ideas do you have about gender equity in online learning?

Kam Yee: Boys are so used to dominating the learning space. How do you have a conversation with them (and their parents)?

Kate Van Dellen: I'd love to know more about how to increase engagement of female students in online learning.

Snehal Bhakta: What are strategies to engage girls in an online, virtual environment to ensure they have the STEM opportunities and are aware of them?

Chris Beimborn: Some girls told me that learning STEM online made them infer that STEM professionals work that way and felt less motivated about STEM fields. Especially not having in-person collaborators. Have others encountered this and what can we do to head off accidentally creating an unappealing stereotype?

Karen North: My observation, through my grandchildren and friends, is the teachers are on survival mode and do not have the expertise or time to think about gender equity. How do we get facilitator support systems and observers into the classrooms?

April Browne: I am trying to make my class more open for exploration and failing safely. In that way, I have moved to a standards based grading scheme (so most things are just complete or needs more work). I struggle to get buy in as students worry about their "grades".

Katherine Weber: How has the pandemic affected students hands-on learning? We so often in STEM create collaborative learning environments where the students work together to solve a problem. With all the safety measures, how this affect future activities?

William Fee: Teachers are having a tough time adapting to online, and girls can get run over in the attempt.

April Browne: I find in k-3 it's getting the teachers to be willing to try something new.

Linda Chen: How do you conduct STEAM activities that intend to emphasize hands-on collaboration (working together to build something)?

Lecia Barker: @April Browne -- I heard once about an educator who gave a grade of "not yet" to emphasize growth mindset.

Cori Araza-GCU: I look forward to building framing questions and parameters within the curriculum. I think we need to add these to updates, announcements, and communication within the college, so women are more apt to contribute and join STEM clubs.

Connie: I call on everyone without regard to gender. I tend to be more Socratic in my approach to teach my aviation classes. I pick a student and then get them to develop the answer. Everyone gets called on sooner or later. I do not tailor the material to the student.

Jennifer Kolbauer: How do we create an inclusive environment without segregating a specific group. (having all female groups).

April Browne: @Lecia - I do this. The issue is getting them past the first day to stay to see it work. It is just too different for them. But I truly think it is better.

Lecia Barker: @April would love to hear from you how it works.

Adrienne Provenzano: NGCP has great archive.

Cori Araza-GCU: How can clubs like SWE or WIT help to create frames?

Kate Van Dellen: @Cori - SWENext is a great club idea.

Karen North: How many are scaling outdoor education as a solution? Outdoor Education is an option for the required Physical Education credit in Texas Education Code §74.74 (6)(A)(ii)e- would love to get coaches doing STEM Education.

April Browne: @Lecia Baker - I started looking at gradeless classrooms, but that wasn't quite what I wanted. So, I focus on my SLO's and the Summative Assessments. All formative are "marked" with complete or "resubmission required" with written feedback.

Katherine Weber: Jennifer - On the first day of school have a conversation about professional conduct. I would talk with my students about what is expected from each of them. So that they all understand that my expectations of their behavior is reflective of what is expected in the workforce.

April Browne: Love the book hacking assessment as a start.

Lecia Barker: @Snehal good question - people are starting to study this and compile ideas.

Cori Araza-GCU: Thanks for the great Q&A!

Connie: When the females I work with tell me the guys don't want to date girls who are smarter. I just tell them they are not looking for a date they are looking for a worshiper and they are better than that, the guy should be worshipping them.

Lecia Barker: Love everyone's questions and ideas.

Snehal Bhakta: With the importance on starting early, then how do we get more resources targeted there.