Welcome to the NGCP National Webinar
Making STEM Meaningful for Girls

Wednesday, May 6, 2020

Please respond to the poll below:

Vision

The National Girls Collaborative Project brings together organizations committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).

NGCP Goals

1. Maximize access to shared resources within organizations interested in engaging girls in STEM.
2. Strengthen the capacity of programs by sharing exemplary practice research and program models.
3. Use the leverage of a network to achieve gender equity in STEM.

NGCP Activities

Virtually:
- Distribution and Content Projects
- The Connectory – Collaboration Tool
- FabFems – Role Model Tool
- E-Newsletter and Social Media
- Webinars – Exemplary Practices

Local Collaboratives:
- Professional Development: Conferences and Forums
- Incentives to Collaborate: Mini-Grants
- Newsletters and Local Resources

National Network of Collaborative Teams

SciGirls

SciGirls is an Emmy Award-winning PBS Kids show funded by the NSF that
- Features real girls doing STEM investigations they’re passionate about;
- Highlights science and engineering processes;
- Features real female STEM professionals as role models and mentors
Rationale

Why do we still care about girls and STEM?

• Boys and girls do not display a significant difference in their abilities in STEM. The cause is social and environmental.
• Differences consistently appear in girls’ interest and confidence in STEM subjects, starting at a very young age.
• These differences can be linked to a negative self-perception, enhanced by stereotypes.

The SciGirls Approach

On TV
• National PBS Kids series—Seasons 1-5 are airing now Season 6 in is production (funded by NASA)

Online
• A PBS Kids website with videos, games and role model profiles (pbskids.org/scigirls) and on the PBS Kids Video App

On the Ground
• STEM activities and professional development for 200+ partners and 3,600 trained educators, and hundreds of SciGirls-affiliated role models on FabFems.

SciGirls Research to Practice Model

• SciGirls uses research-based strategies proven to engage girls in STEM to create media + outreach programs
• Five PBS seasons feature STEM role models working with real girls on meaningful STEM projects
• SciGirls CONNECT has trained over 3,600 educators in gender equitable teaching strategies, resulting in more than 1,600 youth programs for 101,000 girls (and boys!)
Making STEM Meaningful for Girls

Bright spots and lessons learned

Snapshots: Community Projects

Technovation Challenge
EngineerGirl Ambassadors

Lessons learned

1. Connect STEM experiences to girls’ lives

- Facilitation is a balancing act
- STEM skills are only the beginning
- Motivation matters (a lot)
- Girls with promise: Setting them up for success

What it takes to support #1

- Supporting mentors and volunteers
- Monitoring projects and knowing when to pivot
- Supporting project management
- Maintaining a humble approach to learning from what’s not working

5. STEM is collaborative, social and community-oriented
Lessons learned

- Groupings matter, even more with long-term projects
- Community-building isn’t just nice to have
- Feeling safe to make mistakes and take risks

What it takes to support #5

- Icebreakers are non-negotiables
- Monitoring dynamics
- Opportunities for girls to self-reflect
- Training beyond STEM skills

Resources

- Reframing “Failure” in Making: The Value of Play, Social Relationships, and Ownership
- Strategies to Keep Your Mentoring Programs Active—Lessons from Technovation
- K-12 Pair Programming Toolkit
- Bridging Differences: How Social Relationships and Racial Differences Matter in a Girls’ Technology Program

The updated SciGirls Strategies Guide

- A team of 6 from SciGirls systematically collected and examined 130 peer-reviewed articles with a focus on K-12 settings from 2013-2017 using keywords associated with STEM broadly and STEM fields specifically.
- Published in 2018

Do girls feel like they belong? STEM identity is important

- STEM identity requires opportunities to develop competence in STEM-related skills, perform these competencies, and be recognized by perceived experts (Carlone & Johnson, 2007).
- The importance of recognition by peers, teachers, and family in the three spheres of middle school: home, school, and out of school. (Calabrese Barton et al., 2013).
1. Connect STEM experiences to girls’ lives

What does the literature say?
- Engaging girls in activities that draw on their culture, interests, perspectives, needs, knowledge and lived experiences helps them to develop a STEM identity and increases their sense of belonging in STEM.
  - (Bonner & Dornerich, 2016; Erete, Pinkard, Martin, & Sandherr, 2016; Stewart-Gardiner, Carmichael, Latham, Lozano & Greene, 2013; Civil, 2016).

5. STEM is collaborative, social, and community-oriented

What does the literature say?
- Girls benefit from collaborative environments that recognize the need for a sense of group membership or collective community.
  - (Capobianco, Ji, & French, 2015; Diekmann et al., 2015; Leaper, 2015; Riedinger & Taylor, 2016; Robnett, 2013),
  - especially when they can participate and communicate in collegially nurturing safe spaces.

Resources

- Cracking the Gender Code: Get 3x More Women in Computing
- MakeHer: Engaging Girls and Women in Technology through Making, Creating, Inventing
- Changing the Game for Girls in STEM: Findings on High Impact Programs and system-building strategies

Discussion

1. How do you learn about the interests and lived experiences of girls and how do you incorporate these insights into your programs? How do you account for differences among girls?
2. Training and ongoing support is important to help staff support these SciGirls strategies (#1 Connecting STEM experiences to girls’ lives and #5 Emphasizing how STEM is collaborative, social, and community-oriented). What are some specific ideas and strategies for how you have successfully supported staff in this work?
3. In response to COVID-19, how are you re-imagining your programs and supporting girls with activities that connect to their lives and that are collaborative and community-oriented?

Upcoming NGCP Webinars

- Girls STEAM Ahead with NASA Free Resources
  - Wednesday, May 20, 2020
- CryptoClub: Exploring Mathematics in a Playful and Engaging Way
  - Thursday, May 21, 2020
- Equity in STEM Education: The Connection to Culture
  - Wednesday, May 27, 2020

Register on the NGCP Website