

Welcome back!

SciGirls massi Google

- Please introduce yourself, your organization, and Collaborative in the chat box.
- What is one highlight from your holiday, and what is one goal for your Collaborative in 2019?

January 9, 2019

AccessSTEM



Agenda

- Speaker Introductions
- SciGirls CONNECT2
- STEM Identity
- Learning Environment
- Culturally Responsive
 Teaching Practices
- Successes and Challenges
- Updates and Closing









Barbara Billington, Instructor University of Minnesota, College of Education and Human Development

Speakers



Brenda Britsch, STEM Education Researcher and Consultant



Alicia Santiago, Research Scientist and Diversity Consultant





B KIDS SciGirls

Recent research findings: engaging girls in STEM

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SciGirls CONNECT2: Literature Review

- Review of existing research about gender equitable teaching strategies that affect girls' STEM identity, interest and persistence in STEM studies and careers.
- Focus on research from 2013-2017, formal and informal STEM education.
- Inform the development of new/revised SciGirls Strategies for educators.





- Provide specific, positive
- Allow for critical thinking.
- Involve role models & mentors.





What's New?

Overview of the role/importance of:

- STEM identity
- Learning environment
- Culturally responsive teaching strategies



STEM Identity

- STEM identity development is a reflection of <u>how one sees and</u> <u>aligns oneself</u>, and is seen by others, within STEM (Carlone & Johnson, 2007).
- STEM identity and personal identities <u>intersect</u> and play a major role in continued STEM interest and persistence, particularly for students underrepresented in STEM (Tan, Calabrese Barton, Kang, & O'Neill, 2013).
- Research suggests that <u>developing a STEM identity is an</u> <u>important factor</u> in girls choosing to participate in STEM courses, activities, and potentially careers.

Learning Environment

Importance of considering/structuring the learning environment:

- Comfortable and safe (Hubert, 2014; Sammet & Kekelis, 2016; Riedinger & Taylor, 2016)
- Looks and feels inviting, allows girls to feel they belong (Sammet & Kekelis, 2016)
- Personally meaningful (Riedinger & Taylor, 2016; Hubert, 2014)
- Collaborative (Boucher, Fuesting, Diekman & Murphy, 2017; Sammet & Kekelis, 2016; Capobianco, Ji & French, 2015)

Learning Environment

Importance of considering/structuring the learning environment:

- Collegial and nurturing, offers a sense of group membership or collective identity (Adams, Gupta & Cotumaccio, 2014)
- Counters stereotypes about who is capable of/does STEM (Master, Cheryan, & Meltzoff, 2016)

Linked to positive impact on girls':

- interest in STEM
- motivation in STEM
- STEM identities
- perceptions of STEM

Culturally responsive teaching (CRT) or culturally responsive pedagogy (CRP) is...

- student-centered
- assets-based
- values and nurtures unique cultural strengths of students
- challenges and supports students

(Geneva Gay, 2013; Gloria Ladson-Billings, 2014)



CRP is also referred as: *culturally relevant, culturally appropriate, culturally congruent.*

STEM educators are STEM facilitators...

CRT/CRP = Culturally Responsive Facilitation



CRT/Culturally responsive facilitation empowers girls by recognizing, respecting and incorporating their culture, interests, identities, backgrounds and experiences as central to the learning process (Gay, 2013; Ladson-Billings, 2008 & 2014; Sammet & Kekelis, 2016, Scott & Zhang, 2014; Verdin, Godwin, & Capobianco, 2016; Civil, 2016).

WHY?

- Respond to the changing demographics
- Cultural, ethnical, linguistic diversity
- Diversity reflected in schools and out-of-school time programs

Research on culturally responsive practices to engage girls in STEM:

- Know your students identify girls interests, values, home lives, practices, knowledges (Civil, 2016; Sammet & Kekelis, 2016, Verdin, Godwin, & Capobianco, 2016).
- Maintain and communicate high expectations for students demonstrate genuine respect for the student and a belief in their capability (Ladson-Billings, 2009)

Research on culturally responsive practices to engage girls in STEM:

- Build caring, trusting, supporting relationships with students - increases girls' motivation and engagement, and maximizes STEM learning (Gay, 2010; Simpkins, Riggs, Ngo, Vest Ettekal & Okamoto, 2017).
- Connect STEM to students' everyday life highlight the impact girls can have in their communities and the world through STEM (Sammet & Kekelis, 2016; Civil, 2016; Simpkins, Riggs, Ngo, Vest Ettekal & Okamoto, 2017).

Research on culturally responsive practices to engage girls in STEM:

- Design inclusive learning environments that offer collaborative learning opportunities, look and feel inviting and allow girls to feel that they belong (Boucher, Fuesting, Diekman & Murphy, 2017; Sammet & Kekelis, 2016; Simpkins,Riggs, Ngo,Vest Ettekal & Okamoto, 2017; Capobianco, Ji & French, 2015)
- Understand your own cultural identity Become aware of your own beliefs, biases, attitudes and actions, and work to shift your mindset to one that is culturally inclusive and open minded (Villegas & Lucas, 2002)

Questions?



NATIONAL GIRLS COLLABORATIVE PROJECT



NATIONAL GIRLS COLLABORATIVE PROJECT

Successes? Challenges?







Girls

General NGCP Updates

- 2019 Community Meeting Schedule
- January is National Mentoring Month, follow and contribute to the conversation using #NGCPMentors2019
- Twitter Chat: 'Tracking Long Term Impacts of STEM for Girls' on Wednesday, January 16, 2019 at 11:00AM Pacific/2:00PM Eastern using #STEMEffect
- NGCP Collaborative Lead Support



Upcoming National Webinars

Design Squad Global Inventing Green: Engage Kids in Hands-on Engineering around Sustainability



Thursday, January 10, 2019 11:00AM Pacific/2:00PM Eastern Design Squad Global Inventing Green: Engage Kids in Hands-on Engineering around Sustainability



Thursday, January 24, 2019 11:00AM Pacific/2:00PM Eastern



http://ngcproject.org/events

- GIRLS COLLABORATIVE PROJI ATIONAI

Next Collaborative Leadership Teams Meeting: February 13, 2019



