



Collaboration Conference



October 20 – 22, 2010 · Washington, D.C.



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Message from the Noyce Foundation

Cradling in our hands a substance almost too light to feel, collaborating to build structures of fragile materials, and measuring our strides—NGCP conference activities felt like one long metaphor for what we're all trying to do together. After all, NGCP is a group striving to shelter and nurture girls' curiosity and confidence, build partnerships, and share with one another how far we've come. The Noyce Foundation has been delighted to play a role.

In October, 2010, in Washington, D.C., the Foundation sponsored the first National Girls Collaborative Project (NGCP) Collaboration Conference. The conference gathered practitioners from across the United States who are committed to encouraging and supporting girls in science, technology, engineering, and mathematics (STEM) so that they could network, receive professional development, and develop partnerships. National experts shared promising practices and successful program models, and a number of national organizations offered opportunities for partnership. From chatter in the halls to enthusiastic participation in the workshops, the participants' excitement was palpable.

While women continue to be underrepresented in many STEM fields, building a collaborative network of role models, mentors, and program providers has great potential to change the picture. Organizations and programs that collaborate can leverage existing resources and share promising practices and program models to provide more and better STEM opportunities for girls. The conference was designed to encourage and facilitate such collaboration.

We appreciate the commitment, expertise, and enthusiasm the presenters and participants brought to this remarkable event. We hope this publication provides helpful resources and strategies for your continued efforts to encourage girls in STEM and provides an impetus to think about collaboration in a new way.



Pendred E. Noyce, M.D.



Acknowledgements

Thanks to all the collaborators who contributed their expertise to the conference.

Moderators, Panelists, Presenters, and Volunteers: Maria Anaya, Ralitsa Akins, Angela Baber, Shayla Bennett, Tricia Berry, Joni Blakeslee, Leslie Blanchette, Siobhan Bredin, Cynthia Brossman, Barbara Bogue, Brenda Britsch, Susan Buckey, Lisa Chappa, Connie Chow, Linda Colón, Jeri Countryman, Jessie DeAro, Michelle Del Rio, Denise Dixon, Kimberly Edgar, Laura Enman, Pam Erickson, Peggy Erlenkotter, Ruthe Farmer, Mara Fiksdal, Dusty Fisher, Amy Foster, Randy Freeman, Joan Freese, Carol Hanley, Linnea High, Sherry His, Judith Iriarte-Gross, Krista Jean, Rene Jefferson, Jolene Kay Jesse, Laura Reasoner Jones, Janet Bandows Koster, Anita Krishnamurthi, Cheryl Lavoioie, Cathy Law, Carrie Leopold, Stephanie Lingwood, Gloria Liu, Mimi Lufkin, Lisa Maatz, Patricia MacGowan, Dale McCreedy, Carol McGillin Sabina Maddila, Rose Marra, Julia Martas, Camsie Matis, Jennifer McDaniel, Dot McLane, Shari Money, Stacey Moreno, Didey Muniz, Vinitha Nair, Geraldine Oberman Jaya Parulekar, Medha Parulekar, Sharon Pearce, Karen Peterson, Kate Pickle, Gina Pirtle, Alice Popejoy, Darryl Porcello, Lisa Regalla, Lynn Reha, Rochelle Reisberg, Stacey Roberts-Ohr, Jennifer Rogin-Marks, Nancy Ruzycki, Ellyn Savard, Sue Scheff, Julie Shannan, Tracy Sherman, Cindy Simpson, Paige Smith, Liljana Stevceva, Maryann Stimmer, Adresse St. Rose, Jen Sorensen, Karen Tandy, Cathy Valentino, Elizabeth Vandenburg, Beverly Walker, Katelyn Wamsted

Overview

The National Girls Collaborative Project (NGCP) brings together organizations throughout the United States that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM). Many girl-serving STEM programs are isolated from one another and have limited access to research and program models. NGCP strives to reduce this isolation by facilitating collaboration among programs and disseminating research-based strategies and resources in accessible formats. In doing this work, both in-person at a regional level and online, a tremendous need surfaced to bring together practitioners working with girls in STEM and national experts in the field. NGCP events and practices have served as a dissemination vehicle between practitioners, national level experts, research, and resources and the next natural step in project development was to bring all stakeholders together.

Many girl-serving STEM practitioners do not have the opportunity to attend relevant professional conferences due to time and financial constraints. Although a number of national conferences provide relevant content and networking opportunities, the field has lacked a primary conference to bring together those focused on girls and women in STEM in a purposeful way. Since it is often difficult for practitioners to attend even one national conference, it is unlikely they will have the opportunity to attend multiple events, and no one conference is likely to meet their needs.

The NGCP Collaboration Conference was designed to address this gap and bring together individuals and organizations interested in expanding STEM opportunities for girls and women, including local practitioners, national level experts, and research-based program models and resources. Event goals included:

- **Increase collaboration between local girl-serving STEM professionals and with national level experts**
- **Increase access to resources such as research-based program models and resources**
- **Provide training and incentives to collaborate on a local, regional, and national level**

In addition to the unique conference focus, sessions and activities were organized differently than other national conferences to address these goals. Collaboration was a consistent theme throughout the conference. Presenters and participants were not only encouraged to collaborate with one another, but to strategize and learn exemplary practices for collaborating with other organizations in their local area to support and enhance their programs. Formal structured networking opportunities were provided throughout the conference for participants to meet and learn from each other's experiences and to facilitate the benefits of sharing strategies and resources with one another.

Three session strands highlighted valuable resources, strategies, and partnership opportunities for practitioners.

Resource Sessions introduced specific resources within our community from national organizations such as the National Center for Women & Information Technology (NCWIT) and the Society of Women Engineers (SWE).

Professional Development Sessions provided in-depth training on research-based strategies for working with girls in STEM, utilizing role models and field trips, and assessing programs from leaders in the field, including Techbridge

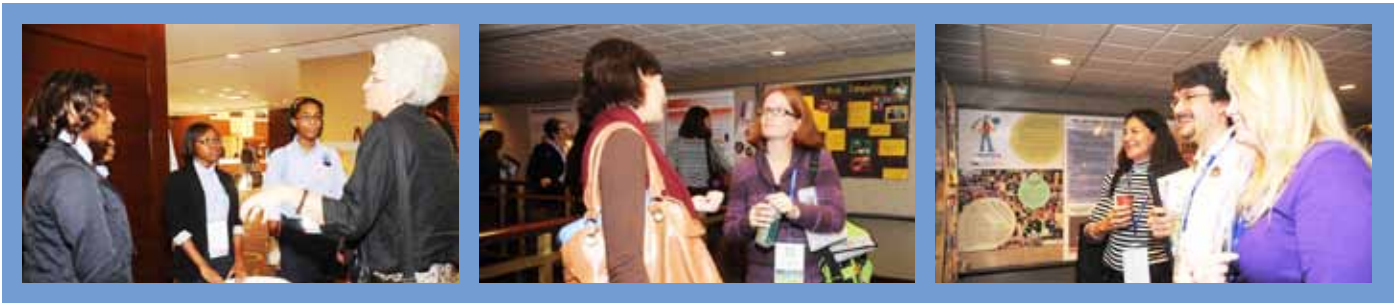
**“I loved the conference!
It was my first time attending a
professional conference and I look
forward to more opportunities for
professional development.”**

— Conference Attendee

and the Assessing Women and Men in Engineering (AWE) Project. **Partnership Sessions** presented opportunities for practitioners to learn about and partner with national organizations from diverse sectors at a regional or local level.

Another unique component of the conference, the **Collaboration Showcase**, provided the opportunity for individuals and organizations who are interested in expanding STEM opportunities for girls and women to learn about ways to enhance their current activities, spark new ideas, and provide opportunities for collaboration. Showcase presenters provided posters designed around three themes:

- **Collaboration Highlights: Work of a NGCP Regional Collaborative**
- **Programming Possibilities: STEM-related Programs for Girls (career days, camps, afterschool clubs, etc.)**
- **Recommended Resources: Research and Resources for Girls**



This report is intended to provide a snapshot of this remarkable national gathering of girl-serving STEM practitioners and those who support them. Readers are encouraged to explore the resources presented, contact participants from your local area, and follow-up with participating organizations that are committed to providing high-quality STEM opportunities for all girls, and hopefully experience a small piece of what one participant described as ‘**an atmosphere of inspiration**’.



DAY 1: Sharing Effective Strategies and Resources

NGCP Collaboration Conference participants began networking and sharing resources at a reception hosted by Girl Scouts of the USA the evening before the conference opened. When the official conference opened the next morning, many participants were already old friends. One participant noted she felt the conference was a success before it even started, having made three valuable contacts at the opening reception.

Conference organizers Karen Peterson and Brenda Britsch welcomed participants and shared their vision for the collaborative event. Although NGCP brings together organizations and individuals committing to encouraging girls in STEM on a local and regional level, this was the first national level NGCP event and you could sense the excitement from all who were present.

Jolene Jesse, Program Director of the Research on Gender in Science and Engineering Program at the National Science Foundation, encouraged participants to take advantage of the tremendous opportunities the conference had to offer. She thanked them for the important work they do every day in their communities.

“I loved the networking and energy at this conference! The energy could be felt immediately, each day, each session. The networking was important to establish future connections. The sessions provided new resources and interesting discussions that encouraged further thinking. I especially loved the additional networking provided at the evening receptions. Beginning the conference with the students was inspiring and wonderful. I appreciated the time to talk to them at the poster sessions that followed. I valued every part of this conference; it was very informative and rewarding!”

— Conference Attendee



Jolene Jesse

The Girl Perspective

The conference kicked-off with a powerful reminder of the reason everyone had gathered for this innovative event: a panel of nine girls in grades 6–12 speaking about their unique and empowering experiences in science, technology, engineering, and mathematics. Moderated by Kate Pickle of the Girl Scouts of the USA, the panelists highlighted a number of key points from their own experiences.

- They emphasized the importance of hands-on learning
- The value of connecting STEM to real life; addressing the question of 'why'?
- They encouraged practitioners to get girls out in the field to do STEM work
- They expressed the importance of providing alternative ways for girls to demonstrate knowledge
- Some girls prefer all-girl environments; some girls prefer co-ed opportunities
- Some want to pursue a STEM career; others would like to pursue a career that may incorporate STEM (e.g. journalism)

One student passionately advised teachers to not give up on students who do not receive high grades. "They may be able to apply their knowledge in other ways," she said.

— Conference Panelist

The crowd was very enthusiastic about the message from the girls.



Speed Networking

Speed Networking is an essential element at all NGCP events. The activity encourages participants to practice introducing themselves and their organization, and enables everyone to individually connect with a few other participants early in the event. Participants also share a “need” and a “resource” they have, with the goal of finding someone with a resource that addresses their need. This makes the networking activity more purposeful. Conference participants engaged in Speed Networking during the early part of the conference to experience the power of networking with a purpose and to set the stage for a very interactive, collaborative conference experience. The conversation during Speed Networking was intense, with participants stretching to hear each other above the buzz of the crowd.



Some of the participant comments about Speed Networking included:

“I was able to touch base with a program coordinator at a School of Engineering located JUST down the road from us in Wisconsin. Unfortunately that we had to go ALL the way to DC to make that connection, but I’m so glad it’s been made. We have endless possibilities for collaboration.”

“I had the pleasure to meet Judith Iriarte-Gross, PhD from Middle Tennessee State University. Judith is hoping to put together a project between MTSU & Clemson University’s ICAR Institute for Women. We are hoping to somehow be a part of this with our middle school girls STEM club.”

“When we randomly broke into pairs, I met a teacher from a school I have been trying to visit for months. I finally have a live connection to follow up with.”

Speed Networking not only encourages connections during the event, but often inspires people to follow-up with other contacts upon returning home:

“As a follow-up to this conference I am going to email people to solicit recommendations for members of a Regional STEM Advisory Committee I am forming in the Chicago area.”

Speed Networking directions are located in the Appendix.

Collaboration 101

Amy Foster, Florida Girls Collaborative Project lead, presented an overview of collaboration and how NGCP uses it as a tool for supporting girls in STEM. Participants were encouraged to consider the ways in which collaboration is beneficial and how to choose partners to establish a collaborative relationship. Some key points included:

- Collaboration reduces isolation among STEM professionals.
- Collaborative relationships increase access to scarce resources.
- Collaboration allows for more coordinated services to girls interested in STEM careers. Collaboration increases capacity to provide more opportunities to girls and women in STEM.
- Collaboration strengthens relationships among organizations. It also increases the potential for organizational and individual learning by sharing promising practices.
- Organizations have a better ability to achieve important outcomes. Collaboration allows for the creation of a higher quality, more integrated product for end-users that could not have been created by one organization alone.

Amy shared success stories of building relationships and collaborations from her work at the Girl Scouts of West Central Florida. "Collaboration allows each organization to bring their best gifts to the table and focus on their expertise. For example, at Girl Scouts we have access to girls and research-based curriculum. The local science museum has amazing facilities that encourages hands-on and inquiry-based learning. My local SWE chapter has a cadre of professionals who are eager to share their passion and technical skills with girls and Girls Inc. has access to buses that can provide transportation to girls who may be unable to participate otherwise. Together, we can provide the highest quality event, grounded in research-based strategies, led by professional role models, to girls throughout our community. Collaboration lets each partner achieve their organizational goals without having to wear every hat."



To conclude the morning session, girls from the Girl Perspective panel led conference participants in a fun, hands-on collaboration activity. Working in groups, participants used a string and rubber band to stack six cups in a pyramid, first without talking to one another and then again discussing strategies and coaching each other. Participants experienced both the joy and frustration that often accompany collaboration and were ready to move into breakout sessions to learn more.

Framing the Issue

The first concurrent sessions of the conference provided a foundation for the reason everyone had gathered to focus on the issue of encouraging girls in STEM and to introduce how NGCP uses collaboration to address the issue.

'Gender Equity Basics' and 'Why So Few' summarized current research in the field and provided a wealth of data and research findings about participation of girls and women in STEM. Participants left these sessions with specific research-based arguments to support the valuable work they are doing. Participants especially appreciated having the research and statistics summarized for them and made so accessible by the presenters.

These sessions focused on two research reports, along with other sources: *Why So Few? Women in Science, Technology, Engineering, and Mathematics*, and *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*.

***Why So Few? Women in Science, Technology, Engineering, and Mathematics*, a recently-published AAUW report, draws on the large and diverse body of academic research on women in science, technology, engineering, and mathematics from the last 15 years. The report identifies key findings that help to inform our understanding of issues that contribute to the underrepresentation of women in science and engineering fields**

***Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*, published in 2007 by the Committee on Maximizing the Potential of Women in Academic Science and Engineering, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, focuses on research related to and recommends specific actions to eliminate gender bias in academia.**

Presenters discussed current trends related to gender equity in STEM in K-12 education, higher education, and the workforce, including:

- Girls' performance and participation in math and science subjects in high school has improved over time and, in some cases, has surpassed that of boys.
- Girls' participation and performance on high-stakes tests in math and science in high school are also improving over time, although boys perform better on average.
- Despite positive trends in high school, far fewer girls than boys enter college intending to major in a STEM field.
- Women's representation in the STEM workforce is uneven with certain STEM occupations remaining overwhelmingly male.
- Women make up 24% of the faculty in STEM fields at US colleges and universities.
- In the past 11 years, the percent of women in the National Academy of Engineering has quadrupled: from 1 to 4.
- Women constitute 45% of the workforce in the US, but hold just 19% of science and engineering jobs in business and industry.

Both presentations summarized research related to a number of social/environmental causes for this inequity, including:

- Discrimination
- Stereotype Threat
- Beliefs about spatial skills
- Girls' perceptions of their abilities
- Misconceptions about work in STEM fields

“The statistics were great! They will really be helpful for writing grants, justifying programming priorities, and developing new initiatives.”

— Conference Attendee

For example, research on stereotype threat has shown that negative stereotypes about girls' and women's abilities in math and science persist despite girls' and women's considerable gains in these areas in the last few decades, and these negative stereotypes can adversely affect female performance in these fields. Also, one of the largest and most persistent gender gaps in cognitive skills is found in the area of spatial skills, where on average boys and men outperform girls and women. Spatial skills are considered by many people to be important for success in engineering and other scientific fields and it is vital to clarify that they are not innate, but rather can be improved with training.

Based on this research, session leaders presented recommendations for practitioners to increase girls' achievement and interest in STEM fields:

- Teach children that intellectual skills can be acquired.
- Praise children for effort.
- Highlight the struggle.
- Gifted and talented programs should send the message that they value growth and learning.
- Expose girls to successful role models in math and science.
- Teach students about stereotype threat.
- Set clear performance standards.
- Help girls recognize their career-relevant skills.
- Encourage girls to play with building toys and draw to develop their spatial skills.

“Even as a committed outreach leader, I did not realize some of the things I did that created a contradiction. This helps me show others even as I improve.”

— Conference Attendee

The 'NGCP Basics' session presented an overview of NGCP and ways in which collaboration among girl-serving organizations, K-12 and higher education, professional organizations, and industry can help address the gender inequity that continues to exist in STEM fields. Specifically, the session highlighted how collaboration is needed to better coordinate services to girls interested in STEM, reduce competition for scarce resources, strengthen relationships among organizations and gather information in a centralized location accessible to the general public. NGCP provides the structure for this collaboration to occur through the following methods: in-person and online opportunities for organizations and girl-serving STEM programs to engage with one another; incentives for participation and collaboration, such as mini-grant funding for collaborative projects; and, sharing of promising practices.

Professional Development Sessions

NGCP strives to make research accessible to practitioners in order to increase the quantity and quality of STEM programming available to all girls. Sharing of effective strategies decreases “reinvention of the wheel” and optimizes time and resources that practitioners have to offer. In order to help address this need, the NGCP Collaboration Conference offered four in-depth professional development sessions facilitated by nationally recognized organizations focused on gender equity in STEM. These sessions lasted 2 ½ hours, providing presenters and participants with the opportunity to interact with the material and with each other in a meaningful way. A summary of key strategies for practitioners from each session is presented here. Readers are encouraged to follow-up with the organizations and presenters for additional valuable tools and resources.

“The most valuable aspect of the presentation was the discussion about setting clear, specific and assessable goals for activities. I learned how to write goals that will lend themselves to survey questions that will truly allow me to assess the achievement of those goals. That was a new mindset for me that I know I will be using immediately in my work.”

— Conference Attendee

AWE: Seven Steps to Getting What You Want – Best Practices in Assessment

Presenters: Barbara Bogue, Assessing Women and Men in Engineering Project, and Tricia Berry, Women in Engineering Program, University of Texas at Austin

NGCP and the Assessing Women and Men in Engineering (AWE) Project partner together to bring evaluation expertise and tools to Collaboratives and practitioners across the nation via collaborative events, the NGCP Web site and NGCP webcasts. The AWE project offers a number of valuable evaluation and assessment resources for practitioners:

- Tested and validated surveys for K-12 outreach and college level activities;
- Capacity building tools (workshops, webcasts, supporting Web site); and
- Practical tools (data entry and online surveys).

For more information about AWE and to download survey instruments and other tools: visit www.aweonline.org Through case study examples and small breakout working groups, session participants learned concrete examples of evaluation and assessment in practice, and had the opportunity to apply the material themselves. Participants appreciated learning about the accessible and effective assessment tools the AWE project has to offer, as well as the in-depth discussions around goal setting and making assessment meaningful.

The session opened with a case study of a residential engineering camp for girls. The camp was hosted by a university with the goal of getting the participants to enroll in the university’s engineering program.

Key Points:

- Participant enjoyment is a poor success indicator.
- It is important to look at program results that were counterproductive.
- Poor data or half the data can lead to wrong overall evaluation and decision making.

Survey data collected from the camp showed that all the girls had fun and were very enthusiastic about the camp, however, only two participants applied to the engineering program at the university. A cost and time analysis of the camp showed that the camp was expensive and only 27% of the time was spent on engineering activities. This data encouraged camp staff to revise programming to incorporate more engineering focused activities to more accurately address program goals.

Presenters walked participants through AWE’s *Seven Steps to Getting What You Want: From Building Your Foundation to Telling Your Story*, which underscores building a strong foundation, in addition to data collection or activity identification, as a key, but often overlooked component of program assessment. Presenters emphasized that good program assessment helps organizations to:

- Know whether program activities are accomplishing what they are intended to.
- Use resources (both money and people) more efficiently.
- Create credibility for program activities.
- All of which lead to increased funding opportunities.

“They presented interesting info on how to do assessments that are meaningful. We do them all the time, but the data we collect is not always useful or meaningful, and this was very helpful.”
— Conference Attendee

Seven Steps to Getting What You Want

Building a Strong Foundation, Steps 1-3

Step 1: Identify Overarching Goal

The goal should be aspirational; it is what you want to achieve overall.

Step 2: Define Measurable Objectives

Objectives are specific statements of what you want to achieve. Objectives must be measurable. Objectives identify how to achieve the overarching goal. AWE Tools contain specific projective objective questions.

Step 3: Plan Data Collection

Consider all aspects of the data collection process, including how you will collect and store data. Select methods and tools that will provide data that measure your objectives. Explore a variety of measures and supplement surveys with other data when appropriate, such as time analysis (i.e. how much time was actually spent on programming that addresses the objectives?).

Build on your foundation, Steps 4-5

Step 4: Identify Activity

Identify activities to achieve objectives.

Step 5: Explore Resources

Explore resources (what others have done) to review proven, best practices.

Tell the Story, Steps 6-7

Step 6: Collect Data

Implement data collection, using tools that assess program objectives.

Step 7: Use Data

Analyze the data and use to continuously improve activity, motivate volunteers and participants, deploy resources effectively, and attract sponsors. Use data to showcase your activity and convince funders that you are worth funding.

Tip: Many outreach veterans offer prizes for survey completion.

An Equity Approach to STEM, Gender and Afterschool

Presenters: Maryann Stimmer and Linda Colón, Educational Equity Center at AED

This session incorporated an in-depth, hands-on activity to demonstrate effective science programming for girls. Presenters discussed research-based strategies for working with girls in STEM, based on curricula used by *Great Science for Girls*, a National Science Foundation funded initiative that provides inquiry-based, informal science learning programs that stimulate girls' curiosity, interest and persistence in STEM and break down the barriers of gender stereotyping. For more information about Great Science for Girls and related resources: www.greatscienceforgirls.org.

"It was valuable to hear what program components are considered necessary for a good after-school experience in science."

— Conference Attendee

Participants experimented with oobleck, a substance that acts like a liquid when being poured, but like a solid when a force is acting on it. Oobleck, named after a green gooey substance in the Dr. Seuss book, 'Bartholomew and the Oobleck', is an engaging science tool for all ages. Presenters used the oobleck activity to demonstrate research-based strategies that have been found to be effective for engaging girls in particular.



Activity:

- Each table was given a tin of oobleck. Participants were told to discover everything they could about the substance, using all of their senses.
- Each table was then given a bag of items to test float or sink: coffee stirrer, popsicle stick, tin foil, paper clip, kidney bean, and rubber bands.
- Participants were then given the materials (cornstarch, water, and food coloring) to make their own oobleck and were encouraged to explore at what concentration it loses its properties. Each table called out characteristics of the oobleck and the presenter charted what was said.

Key Point:

It is important to record exactly what youth say. If one says it tastes like bologna write it down. If another says it tastes like Pepsi write it down.

This session focused on out-of-school time as a venue for providing STEM opportunities for girls. Programming that

occurs outside of the traditional school day has additional benefits, such as increased flexibility and often greater potential for field trips and site visits. These programs usually have fewer guidelines about curricula that need to be covered and, therefore, have more freedom to provide diverse activities and learning experiences for the students.

Participants appreciated learning how to approach activities in such a way that eases students into the actual “learning lesson” behind it. For example, participants created three charts during the activity: Discoveries, Guesses, and New Discoveries. These charts were later re-named: Observations, Hypotheses, and New Observations/Conclusions. Using the less scientific language first is a strategy to take the intimidation out of the scientific process for youth.

Participants also valued learning which program components are considered necessary by girls for an after school experience in science to be effective, including:

- Engaging
- Fun
- Messy
- Make Literacy Connections
- Make Career and Role Model Connections
- Make Cultural Connections
- Make Family/Home Connections
- Present Science in a Context (What does it have to do with me?)
- Support Skill Development
- Support Knowledge Development

Participants were given a follow-up activity about oobleck that demonstrated these strategies, such as writing a poem about oobleck (helps to make literacy connections for students) and making a list of careers that could use oobleck in practical application (helps to make career connections for students).

Techbridge: You Can Make a Difference: Planning Role Model Visits and Field Trips to Inspire Girls in Science, Technology, and Engineering

Presenters: Jeri Countryman and Maria Anaya, Techbridge

Techbridge began in 2000, through a grant with Chabot Science & Space Center, and currently supports 16 programs across three school districts, serving 500 girls from grades 5-12. Techbridge provides support for teachers, families and role models and is a test bed for curriculum development. Overall, Techbridge has served 4,000 girls, trained over 5,000 role models and partners, and is acknowledged as a “model program demonstrating significant achievement” by the National Science Foundation.

For more information about Techbridge, including the Role Model Toolkit and Parent Resource Guide: www.techbridgegirls.org.

The presenters focused on activities for girls that build teamwork and community and build skills and confidence. This session incorporated activities for practitioners to experience and then be able to take home and use with the girls they serve. Participants valued the resources that were made available during the session, including many hands-on activities with instructions. Presenters showed how they tie in “Career Exploration” with girls in their programming by doing activities such as life maps, career calendars, researching various careers, taking photos of various careers, and reflection from girls on what they researched.

“The Techbridge role models materials will be extremely useful to me. I especially appreciated learning how to prep role models so that the participants get the most out of the experience.”

— Conference Attendee

Activity Example:

Career Step-up. For this activity, participants worked in small groups and were given career cards, each with a different occupation related to engineering, such as Electrical Engineer, Material Engineer, Toy Designer, Mechanical Engineer, Materials Engineer, and Software Engineer. The facilitator then called out particular products. Groups had to decide whether or not each occupation is responsible for making the product and then explain why or why not. This activity is a good example of how to help girls build knowledge about what different STEM careers actually do.

5. Provide academic and career advice, such as reinforcing the importance of never giving up, highlighting career benefits such as having a flexible schedule, and acknowledging that knowing a second language is an asset.

The presenters walked participants through a classroom visit case study and a field trip case study. Presenters helped participants think about planning and preparing for these activities, emphasizing the importance of preparing the company and role models as well as the girls for the experience, and then walked through what the visit or field trip might look like starting from the icebreaker activity to lunch with the role model to post-activity reflections.

The group also discussed the importance of recruiting diverse role models and providing role models practical guidance, such as keeping the language simple and not sharing negative aspects of their work with the girls.

Science and Engineering Activities for Girls

Presenters shared tips for providing science and engineering activities, including asking open-ended questions, encouraging students to make predictions, making the connections to careers, and showing students how to find answers themselves.

Participants brainstormed where to find role models in their communities and generated the following list:

- Universities/colleges
- Science organizations
- Museums
- Chamber of Commerce
- Hospitals
- Companies
- Transportation
- Sports
- Meteorologists
- SWE (Society of Woman Engineers)
- ACM (Association of Computing Machinery)
- Parents of girls served
- AAUW
- American Optical Society
- Daughters of the American Revolution
- Engineers without Borders
- Cold call companies
- 4-H
- Ask everyone you know

Role Models

Participants discussed successes and challenges they have experienced related to bringing in role models to work with their students. This discussion transitioned into how incorporating role models into programs is a research-based strategy that can have a significant lasting impact on girls.

Techbridge has a recipe for success that outlines which components should always occur when incorporating role models into programming:

- Icebreaker: Sets the tone and warms up girls and role models
- Personal Story: Makes connection to students
- Hands-on Activity: Engages students
- Wrap-up and Reflections: Questions and feedback

The session also emphasized the importance of preparing the role models, as well as the students, when incorporating role models into programming: Strategies include encouraging role models to:

1. Share a personal story.
2. Share their passion.
3. Make it interactive (incorporate a hands-on activity).
4. Dispel stereotypes by talking about hobbies, interests outside of work, and family.

“I LOVED that we got FULL instructions for some activities so we could take and use them right away. I also love that we were able to try some of the hands-on activities - we like to play, too! Thanks for a great session!”

— Conference Attendee

The SciGirls Seven: Strategies to Engage Girls in STEM

Presenters: Lisa Regalla and Joan Freese, SciGirls

SciGirls was developed to change how millions of girls think about science, technology, engineering, and mathematics (STEM). SciGirls, funded by NSF, began as an outreach program of Dragonfly TV, which focuses on real kids doing real science. SciGirls evaluation data show that girls gained confidence, deeper understanding of inquiry, and broadened awareness of and interest in science careers. SciGirls includes twelve 30 minute episodes that highlight the process of science by showing real girls doing investigations they are passionate about. SciGirls has also developed resources to accompany the television series for girls aged 8-13, parents and educators.

“I have already posted the SciGirls Seven on my blog and plan to adapt one of their activities to use in schools.”

— Conference Attendee

This session focused on seven research-based strategies for engaging girls in STEM and methods for incorporating these strategies into programming. Session participants especially valued the takeaway materials provided, which included lesson plans and activities, as well as a DVD of SciGirls Season 1.

Seven Strategies for Engaging Girls in STEM

1. Girls benefit from collaboration, especially when they can participate and communicate fairly.

Encourage working in small groups, both cooperative groups (assigned roles) and collaborative groups (no predetermined roles). Set the rules at the start to make sure that there is no teasing or unfriendly talk. It is important to set up a community atmosphere that is open and positive.

2. Girls are motivated by projects they find personally relevant and meaningful.

Demonstrate and talk about your own enthusiasm for the scientific material and how it affects you personally. Be sure to discuss material related to why kids would need to know it, making it relevant for them. Case studies are also effective tools.

3. Girls enjoy hands-on, open ended projects and investigations.

Try an activity without step-by-step directions. Encourage girls to suggest approaches to a problem and when stumped, have girls start by identifying, drawing, or labeling things they do understand. Resist answering the question “Is this right?” Rather, suggest ways for girls to check the answers for themselves.

4. Girls are motivated when they can approach projects in their own way, applying their creativity, unique talents and preferred learning styles.

Allow girls to design their own experiments and use girls’ language to reiterate their point. Help girls feel that they are valued members of a group by asking them to share personal stories. Encourage girls to communicate their findings in a variety of ways, such as poetry, music, posters, plays, models and drawings.

5. Girls’ confidence and performance improves in response to specific, positive feedback on things they can control – such as effort, strategies and behaviors.

Reward success publicly and immediately. Avoid statements such as “You are really good at this!” It sends the message that being smart doesn’t require effort or struggle. Convey the same level of respect for and confidence in the abilities of all your girls. Let a girl know you believe she can improve and succeed over time and emphasize that working scientists struggle and make mistakes, too.

6. Girls gain confidence and trust in their own reasoning when encouraged to think critically.

Let girls embrace the scientific process. It is okay to make mistakes; there is more than one way to solve a problem. Support an environment free of “instant answers” and remember that it is okay to disagree. Stress the importance of considering different approaches and viewpoints.

7. Girls benefit from relationships with role models and mentors.

Invite guest speakers and invite guest scientists to help lead an activity. If you are unsure of their comfort level working with children, pair them with other educators or leaders. Show videos of female scientists.

For more information on SciGirls and related resources: www.pbskids.org/scigirls/.

Resource Sessions

Following the Professional Development sessions, Resource Sessions were offered to increase participants' awareness of relevant resources available for practitioners. Session presenters described how girl-serving STEM programs may be able to utilize resources their organizations have to offer and participants had the opportunity to exchange ideas with others in a small group setting.

A summary of organizations and resources presented at the conference is listed here, including expanded highlights of two sessions related to encouraging parent involvement and public policy implications.

Encouraging Parent Involvement in Girls' Science Learning

Most practitioners working with youth have struggled with engaging parents in their activities, even if it is not a main focus of the program. We know that parent involvement can be beneficial to the youth and to the program, but what are effective strategies for attracting parents and working with them once they are engaged?

This session, presented by Dale McCreedy of the Franklin Institute, provided strategies for engaging parents in girls' science learning and offered sample hands-on activities to use when offering family programming. The information and strategies shared come from Girls at the Center (G.A.C.), a program based at The Franklin Institute.

Girls at the Center is a national collaboration to encourage family involvement in girls' science learning. The program, funded in part by the National Science Foundation, provides opportunities for girls and adult partners to investigate the world around them through inquiry-based, hands-on science activities. G.A.C. recognizes the need for girls to receive equity, opportunity, and support in the world of science and technology. Through partnerships between science museums and Girl Scout Councils in thirty-one sites (and growing), G.A.C. is reaching local communities nationwide.

For more information on Girls at the Center: www.fi.edu/tfi/programs/gac.html

"I valued learning some of the issues that prevent parent participation and how to address those issues. I also appreciated being able to keep a workbook with lots of great examples of activities that can be used to increase parent involvement. This was an excellent session!"

— Conference Attendee



Participants began the session by identifying a number of obstacles they have experienced in offering family programs, including:

- Parents are not always confident in STEM areas.
- Finding parent volunteers willing to give their time is a challenge.
- Families are eager to be involved with younger students, but not as much with older students.
- Helicopter parents present challenges (How do we involve parents without having them take over?).
- Undocumented individuals are sometimes afraid to attend programs.
- Not all parents realize the value of STEM education for their daughters.

The presenter emphasized three important steps to recruiting parents: Invite them, engage them, and sustain their involvement. She also shared strategies for enticing parents to attend an activity or event, such as providing food (and letting them know ahead of time there will be food provided), having the children offer a performance for parents to see, and requiring parents to stay for the first meeting with their daughter so program leaders have the opportunity to engage them and encourage them to attend again.

The presenter and participants discussed the following tips for program leaders who are working with parents:

- Start with non-inquiry (non-threatening) based activities to help make the parents feel comfortable and less intimidated.
- Girls should be able to collaborate with their parents without the parents taking over. Be clear about this expectation throughout the experience.
- It's okay to make mistakes---both parents and children.
- The child is the engineer---the parent acts as a guide and asks questions to help move the project forward.
- It is a slippery slope between science creativity and arts and crafts, so limit materials.

Program leaders need to be clear about the role of adults and youth in workshops and activities. Provide opportunities for parents to be engaged in the activity so they participate, sending the message that it is important and allowing parents to debrief the activity with their daughter later. By involving parents in STEM-related workshops and activities, they may find they have something to talk with their daughter's teachers about and as a result, may become more engaged with what is happening at school.

Parents and other adult partners in science also need guidance about how to most effectively do science with girls. Tips for parents who are working with girls include:

- Let girls take the lead.
- Invite questioning.
- Promote testing of predictions.
- Ask open-ended questions.
- Turn the girls' questions back to them.
- Resist telling the girls what to do or giving the "answer."
- Encourage a number of alternative answers rather than focusing on one "correct" answer.
- Encourage further exploration.

Key Points:

When evaluating an event or activity that involved parents, ask the parents what they learned about the child they came with. This shows the impact the program had on the parent, but also encourages the parent to think about what they learned about their child.

Public Policy Implications and Resources for Women and Girls in STEM

Panelists: Jessie DeAro, Office of Science and Technology Policy, The White House; Anita Krishnamurthi, Afterschool Alliance; Sharon Pearce, GSUSA; Alice Popejoy, AWIS; Tracy Sherman, AAUW

Experts in national policy from the American Association of University Women (AAUW), Girl Scouts of the USA, Association for Women in Science (AWIS), the Afterschool Alliance, and the White House Office of Science and Technology Policy discussed recent developments and initiatives in policy affecting women and girls in science, technology, engineering, and mathematics.

Panelists described how each of their organizations is working to support STEM education and shared relevant resources for participants to access.



Jessie DeAro emphasized the White House’s commitment to STEM education and provided examples of activities the administration is engaged in to support STEM efforts. Students who are working hard in STEM need to be acknowledged as valuable, in the same way athletes are. This is a priority for the administration. For example, the White House recently held a science fair, which has not happened in the past, in order to highlight the contributions and accomplishments of science students.

She discussed a recently released key report to the President, ‘Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Mathematics (STEM) for America’s Future’, developed by the President’s Council of Advisors on Science and Technology: <http://www.whitehouse.gov/ostp/pcast>.

The report includes five overarching priorities:

- Improve Federal coordination and leadership on STEM education.
- Support the state-led movement to ensure that the Nation adopts a common baseline for what students learn in STEM.
- Cultivate, recruit, and reward STEM teachers that prepare and inspire students.
- Create STEM-related experiences that excite and interest students of all backgrounds.
- Support states and school districts in their efforts to transform schools into vibrant STEM learning environments.

Other panelists emphasized the importance of various pieces of currently active legislation that participants should be aware of. They all urged support of Congresswoman Lynn Woolsey’s bill, the “Balancing Act”, which aims to improve the lives of working families by expanding access to the Family and Medical Leave Act, providing paid family and medical leave, expanded child care opportunities, including both in-school and after-school options, and a variety of other initiatives that will help working parents.

Anita Krishnamurthi of the Afterschool Alliance stated their commitment to STEM education in the afterschool hours and explained that a significant funding stream for afterschool programs is the 21st Century Community Learning Centers grant program, which is part of the Elementary and Secondary Education Act reauthorization. Many afterschool programs are currently shutting down as a result of state budget cuts and the 21st Century Community Learning Centers are vital to their continuation.

For more information on the Afterschool Alliance, including lead contacts by state for the afterschool network: www.afterschoolalliance.org.

Other key points included:

- The Girl Scouts of the USA is endorsing 85 STEM-related Girl Scout badges, using a new Girl Scout curriculum that is making STEM more relevant and building cultural support for STEM careers for girls.
- AAUW is disseminating the report ‘Why So Few’, focusing on measuring science achievement for women and girls and supporting incorporating STEM policy guidelines within Title IX legislation: <http://www.aauw.org/act/index.cfm>.
- AWIS advocates for Women in Science in various ways, including supporting the reauthorization of the America Competes Act: <http://www.awis.org/>, which addresses the need for enhanced gender equity and outreach to underrepresented groups in STEM to maximize our nation’s potential for innovation.

Participants appreciated the knowledge and expertise of the presenters and learning about current policy issues that relate to girls and women in STEM. There are many challenges to getting involved with policy issues, including lack of time and expertise, but increasing awareness of current policy issues and actions that everyone can take to impact those issues is a valuable step to getting more people involved.

Design Squad, Dot Diva, and Engineer Your Life

What about the T and E of STEM? What do kids know about engineering and technology? Where are they learning it? What are we telling them? What opportunities do they have to engage in them? Design Squad, Dot Diva, and Engineer Your Life provide exciting, relevant, and hands-on introductions to engineering and computing. Design Squad hooks them in middle school, and Dot Diva and Engineer Your Life keep them interested and help kids, especially girls, think about their careers and next steps. Participants learned about the original research, tested approaches, and proven impact of these initiatives and ways they can use them in their work with kids in and out of classrooms.

www.pbskids.org/designsquad

IEEE - Advancing Technology for Humanity

IEEE is the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities. IEEE and IEEE-USA provide a number of online resources, including TryEngineering.org, TryScience.org and TryNano.org, as well as the Education-Engineer Award and small reimbursement grants to assist teachers in their efforts to educate our students in the STEM areas. Lesson Plans and TISP programs were reviewed.

www.ieee.org

International Work

Participants discussed the possibilities of expanding programming for girls around the world. The context included issues of global awareness, environmental impacts of our actions on all societies in all parts of the world, and how students (especially girls in other societies) develop identities as scientists.

National Center for Women & Information Technology (NCWIT)

NCWIT is the National Center for Women & Information Technology, a coalition of over 200 prominent corporations, academic institutions, government agencies, and non-profits working to increase women's meaningful participation in information technology (IT). Attendees left this session equipped with free materials and information for attracting more girls and underrepresented groups to computing and information technology, and for engaging universities and other partners in implementing or enhancing computing education programs. Presenters shared a series of professionally produced, free materials that provide curricula and information of interest to informal educators, parents, and policy makers.

www.ncwit.org/resources.summary.html

"The resource packets and the discussion of online resources through NCWIT. I will absolutely be using these resources immediately."

— Conference Attendee

National Science Foundation: National Lab Day

This session focused on how practitioners can use National Lab Day to form connections between scientists, technology experts, engineers, mathematicians, K-12 teachers and students. National Lab Day is part of the White House Educate to Innovate Initiative, and was launched in November 2009. Since then, over 5,000 teachers, scientists and volunteers have signed up at www.nationallabday.org to promote hands-on, exciting STEM learning experiences for all students.

www.nationallabnetwork.org

“This was the best session I attended during the conference. The information I got was directly applicable to my classroom setting and will be of enormous benefit.”

— Conference Attendee

Society of Women Engineers

The Society of Women Engineers offers resources to four audiences: girls, parents, educators and engineers. In this resource session, participants learned who and what SWE is, where to find and how best to use SWE’s collection of resources, how to engage and partner with SWE membership on a local level and how to access SWE grant opportunities.

www.aspire.swe.org

“By meeting with a member of SWE that I was able to sit and speak with on both a personal and professional level, I was able to feel more comfortable with incorporating SWE in my own programming. I have now made the connection with how some engineers target outreach and some don’t.”

— Conference Attendee



DAY 2: Making Connections and Celebrating Collaboration

Day Two opened with a question for participants: How big is your collaboration toolkit? Participants reflected on the valuable strategies and resources shared on day one and the tools they had gained for engaging and supporting girls in STEM. Day two focused on sharing collaboration strategies and providing opportunities for participants to make connections with each other and with national organizations committed to increasing gender equity in STEM. Participants heard from NGCP Collaborative Leaders, a dynamic keynote speaker, and a host of national organizations that offer opportunities for partnership.

Sharing Strategies – Voices from Collaboratives

Panelists: Connie Chow, Science Club for Girls; Judith Iriarte-Gross, Middle Tennessee State University; Vinitha Nair, Platform Shoes Forum; Lynn Reha, Illinois Center for Specialized Professional Support

NGCP Collaborative Leaders shared their personal experiences and success stories of the power of collaboration in action at the regional level. This panel, moderated by Stacey Roberts-Ohr, Executive Director of Expanding Your Horizons, focused on how collaboration is benefitting girl-serving STEM organizations across the country and provided ideas for how participants can put some of these lessons learned into practice. Panelists provided strategies and best practices that participants can apply to establish mutually beneficial collaborative relationships that will increase services and support to girls in STEM.



No Pressure, No Diamonds! The Challenges, Rewards, and (Most of All) the Fun in Motivating Girls to Pursue Careers in Science, Technology, Engineering, and Mathematics

Presenter: Catherine Valentino, Author-in-Residence for Houghton Mifflin Harcourt Company

The morning session on day two concluded with a powerful keynote by Catherine Valentino, Author-in-Residence, and Houghton Mifflin Harcourt Company. Cathy's presentation provided a great example of hands-on learning techniques, which the girl panelist from the girl perspective panel emphasized on day one. Participants played with math and science manipulatives as Cathy described methods for incorporating the manipulatives into activities with girls to relay a math or science concept.

Cathy shared four 'tried-and-true' presentation strategies to help motivate and encourage girls in science and math:

Share yourself before you share your career. Take five minutes to tell the girls about yourself before you begin your workshop/presentation. Model your own scientific curiosity and excitement about science and math. If you have a photo of a younger you looking like a gawky kid or a gorgeous cheerleader, share it. There will be all types of girls in your audience. They will relate. If you ever flunked a class or felt like an idiot compared to others in your class, tell them!

Never underestimate the power of science and math manipulatives! Cathy provided participants with samples of simple manipulatives that spark interest and curiosity.

Regardless of the specific topic of your workshop presentations, stress the importance of scientific thinking! Help girls understand how and why learning to think scientifically will be an invaluable lifelong asset—not just in science class or in future science careers.

Most of all . . . encourage girls to marvel at the science and mathematics in their daily lives and to take control of their own learning! Push them to challenge themselves to observe more, question more and learn more!

This activity demonstrates just how wrong opinions can be, even expert opinions, and reinforces the need for gathering and analyzing objective mathematical and scientific data.

How many standard-size metal paper clips can be dropped one by one into a super-filled cup (3 oz size) before the first drop of water spills over the edge? What variables affect the ultimate number? Some variables students have identified that affect the maximum number of clips are the volume of water in the cup, how the clips are dropped, whether or not the table is level. The reason that the cup can hold such a seemingly large number of clips is that the surface tension (attraction of molecules) of water on earth is strong. Without something that breaks the attraction of molecules in water (such as a drop of soap), the water is displaced up out of the cup but does not spill out. (Note: One team of 5th graders in Idaho dropped 162 clips into the cup! Is that a record? Challenge your students to find out.)



Partnership Sessions

Following the keynote presentation, participants attended partnership sessions designed to increase awareness of national organizations, potential partnership opportunities at a local level, and available resources. Presenters provided an overview of their organization and their efforts related to girls in STEM and how girl-serving STEM programs may be able to partner with their organization for mutual benefit. Partnership sessions were offered twice, allowing participants to attend two of the seven sessions offered by the following organizations:

State Governments: National Governors Association

The National Governors Association (NGA)—the bipartisan organization of the nation’s governors—promotes visionary state leadership, shares best practices and speaks with a unified voice on national policy. Its members are the governors of the 50 states, three territories and two commonwealths. NGA provides governors with services that range from representing states on Capitol Hill and before the Administration on key federal issues, to developing and implementing innovative solutions to public policy challenges through the NGA Center for Best Practices.

www.nga.org

School Counselors: The American School Counselor Association

The American School Counselor Association (ASCA) supports school counselors’ efforts to help students focus on academic, personal/social and career development so they achieve success in school and are prepared to lead fulfilling lives as responsible members of society. ASCA provides professional development, publications and other resources, research and advocacy to more than 27,000 professional school counselors around the globe.

www.schoolcounselor.org

Professional Organizations: AWIS and SWE

The Association for Women in Science (AWIS) is the largest multidisciplinary organization devoted exclusively to championing the interests of women in science, technology, engineering, and mathematics (STEM) across all disciplines and employment sectors. Through 52 chapters around the country, AWIS reaches out to young women by providing role models and mentors, volunteering with local grassroots organizations, and advocating for better educational and professional environments.

www.awis.org

The Society of Women Engineers (SWE) is a not-for-profit educational and service organization. SWE is the driving force that establishes engineering as a highly desirable career aspiration for women. SWE empowers women to succeed and advance in those aspirations and be recognized for their life-changing contributions and achievements as engineers and leaders.

www.swe.org

Professional Organizations: 4-H

4-H is a positive youth development organization that empowers young people to reach their full potential. A vast community of more than 6 million youth and adults working together for positive change, 4-H enables America's youth to emerge as leaders through hands-on learning, research-based 4-H youth programs and adult mentorship, in order to give back to their local communities.

To address increased demand for science and technology professionals, 4-H is working to reach a bold goal of engaging one million new young people in science programs by 2013. Currently, 4-H Science programs reach more than 5 million youth with hands-on learning experiences to ensure global competitiveness and prepare the next generation of science, engineering, and technology leaders.

www.4-h.org

Business and Industry: Cisco

Cisco believes that community belongs to everyone and connecting and collaborating with others is a key element of the Cisco culture, focusing on making the world a smaller place through technology and using it to enhance life experiences. Several Cisco educational initiatives and resources were highlighted along with ways programs can collaborate with Cisco people and resources.

www.cisco.com

Higher Education: Collaborations with Colleges and Universities

NGCP Collaborative Leads from the University of Kentucky and the University of Maryland shared strategies on forming collaborations and partnerships with colleges and universities, as well as available resources.

Participants valued learning more about the organizations that presented the partnership sessions, their STEM initiatives, and resources. Many participants also reported learning how to approach and work with different types of organizations with the goal of creating strategic collaborations to benefit their programs.

"We have a large university in our local area that we have yet to really tap into regarding STEM. It was helpful to learn that there are universities with a staff person designated to this type of outreach that we can contact. I enjoyed hearing from university staff about their perspectives and the resources available. Also, through informal conversations, I got some great ideas of how to market some of my current programs."

Celebrating Collaboration

The NGCP Collaboration Conference concluded on a high note with the recognition of the first ever NGCP Collaboration Award winners. Over lunch, participants enjoyed making more connections and hearing from the Collaboration Award recipients. NGCP values collaboration at all levels and in an effort to show appreciation to an individual and an organization that exemplify the spirit of collaboration, was very honored to present the Collaboration Awards to Kate Pickle and the Motorola Foundation.

Outstanding Collaboration: Individual

Kate Pickle, National Program Manager, Science, Technology, Engineering, and Mathematics (STEM), Girl Scouts of the USA



Kate L. Pickle, National Program Manager, Science, Technology, Engineering, and Mathematics (STEM) at Girl Scouts of the USA (GSUSA) in New York, New York, is responsible for advancing the organization's efforts in STEM through collaborations, resource development, training, and grant management. Kate serves on the NGCP National Champions Board and has proven to be an invaluable resource for the project. She is a natural collaborator, making connections for GSUSA with a variety of organizations and individuals that complement the work of GSUSA, and always connecting NGCP to others when relevant. Kate is always thinking about how to leverage existing resources, how to fill gaps in services without duplication of efforts, and how to work together for the greater advancement of girls in STEM with a generous, non-competitive spirit.

Outstanding Collaboration: Organization

Motorola Foundation, Accepted by Karen Tandy, Senior Vice President of Public Affairs

The Motorola Foundation has created the Innovation Generation grants program, which focuses on science, technology, engineering, and mathematics (STEM) education, especially for girls and underrepresented groups. Innovation Generation funding is designed to inspire students to learn about science and generate interest in science-related careers. Now in its fourth year, the program builds on President Barack Obama's "Educate to Innovate" campaign and federal initiatives like the Race to the Top Fund by incorporating funding, employee volunteers and intra-grantee collaboration to help boost American students' engagement in STEM.



MOTOROLA

The Innovation Generation network provides an unparalleled opportunity to leverage a national system of peers eager to advance U.S. STEM education. To extend the impact of funding, Motorola employee volunteers are matched with Innovation Generation grantees to build strong relationships that bring unique expertise into the communities where Motorola employees live and work. The Motorola Foundation's application guidelines inspire organizations to collaborate to create something that leverages the strengths of each partner while delivering innovative programs



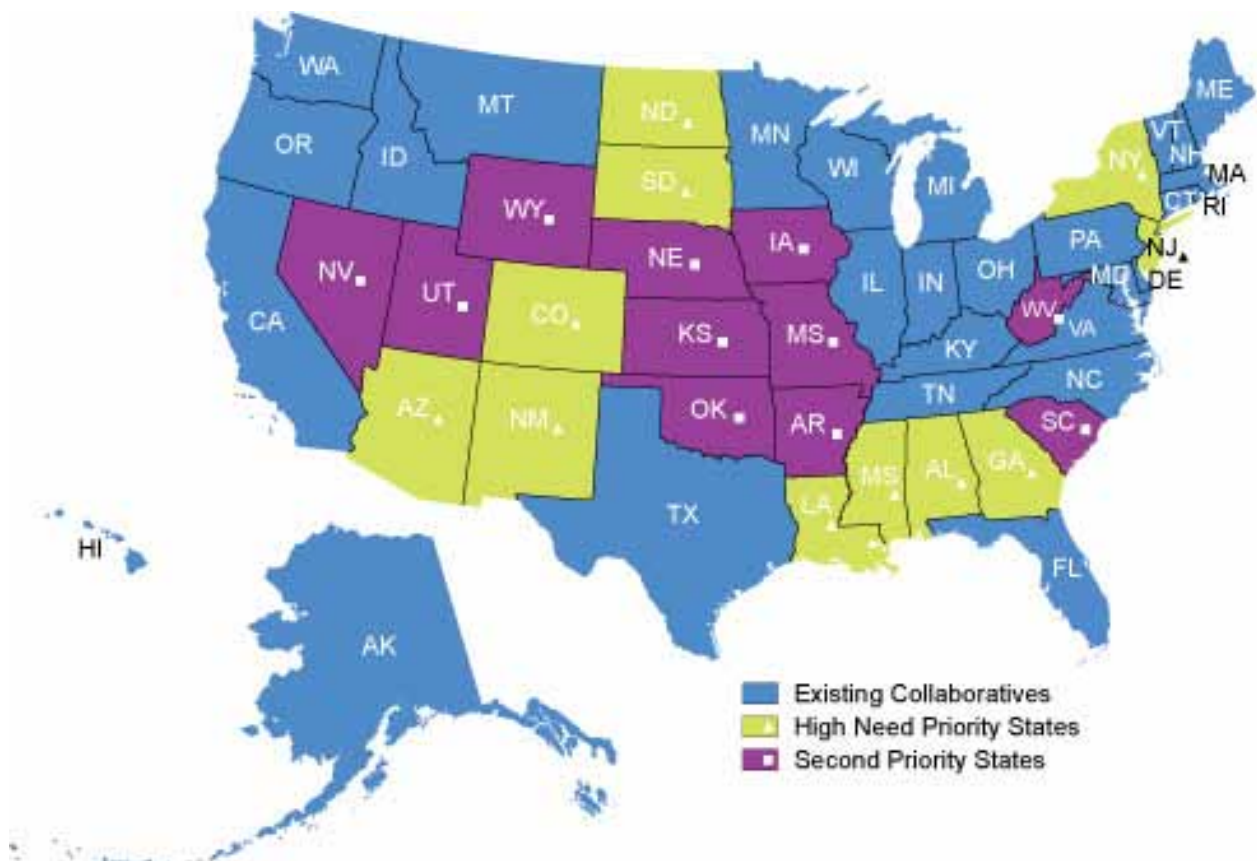
Next Steps

Although the NGCP Collaboration Conference has ended, the collaboration has only just begun. Participants are strengthening connections they made, implementing effective strategies they learned, and utilizing the valuable resources they heard about at the Collaboration Conference. For two participants' stories of how they have benefitted from the conference, watch the NGCP Collaboration Conference Highlights webcast archived here: www.ngcproject.org/resources/webcastarchive.cfm?eventid=183.

NGCP continues to host regional and state-wide events that bring together girl-serving STEM practitioners and offer valuable networking and professional development opportunities. For more information about Collaboratives and upcoming events, visit the NGCP Web site: www.ngcproject.org.

In 2011, the EdLab Group was awarded a \$2,500,000, five year grant to expand and continue the work of the National Girls Collaborative Project through the Research on Gender in Science and Engineering program at the National Science Foundation. To date, 18 Collaboratives, serving 30 states, have been established as a part of the NGCP, facilitating collaboration between more than 8,800 organizations and indirectly serving more than 4.8 million girls. The NGCP will expand to serve at least 11 additional Collaboratives in high need areas.

NGCP: Building the Capacity of STEM Practitioners to Develop a Diverse Workforce will strengthen the capacity of girl-serving STEM organizations to reach and serve underrepresented girls and provide high quality resources for K-12 school counselors to address the barriers to girls' engagement in STEM. The project will also work to increase the effectiveness of current Collaboratives by providing targeted professional development on sustainability, organizational capacity, and shared leadership.



Appendix

The National Girls Collaborative Project Vision

The vision of the NGCP is to bring together organizations throughout the United States that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM). The NGCP is designed to reach girl-serving STEM organizations across the United States. The organizations which host local collaboratives are impressive in their knowledge, experience, and diversity. As a group, the local collaboratives have an extensive network of organizations and individuals engaged in pursuing this common goal and the opportunity to share with and learn from each other. They vary in focus areas and populations served and include higher education institutions, community-based organizations, private non-profits, but all work to increase gender equity in STEM fields.

The goals of NGCP are to:

1. Maximize access to shared resources within projects and with public and private sector organizations and institutions interested in expanding girls' participation in STEM.
2. Strengthen capacity of existing and evolving projects by sharing promising practice research and program models, outcomes and products.
3. Use the leverage of a network or collaboration of individual girl-serving STEM programs to create the tipping point for gender equity in STEM.

NGCP Website

The NGCP Project Web site includes complete descriptions and up-to-date information for each regional collaborative. It is an online resource for people involved in the project, as well as those interested in learning more about the NGCP. Regional Collaborative Web pages include an overview page, Regional Champions Board members, Leadership Team members, partners, collaborative activities, a newsletter archive and contact information.

www.ngcproject.org

NGCP Program Directory

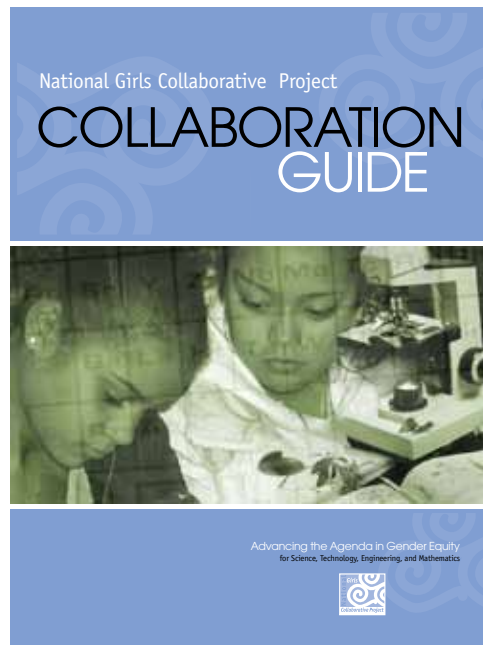
The Program Directory lists organizations and programs that focus on motivating girls to pursue careers in science, technology, engineering and mathematics (STEM). The purpose of this Directory is to help organizations and individuals network, share resources, and collaborate on STEM-related projects for girls. The Directory contains Program descriptions, resources available within each organization, Program and/or organization needs, and contact information. Submitted entries undergo review and verification prior to publication.

www.ngcproject.org/directory

NGCP Collaboration Guide

The NGCP National Leadership Team along with assistance from regional leadership teams has created the Collaboration Guide, a user-friendly handbook to implementing the National Girls Collaborative Project, including an overview of the project, description of events and activities, and helpful tools and templates. Download the Collaboration Guide on the NGCP Web site under Resources.

www.ngcproject.org/NGCP-CollaborationGuide.pdf





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*Visit the NGCP Web site for current collaborative contacts.

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Collaboration Showcase

AWE's Seven Steps to Getting What you Want

Barbara Bogue; Rose M. Marra, Assessing Women and Men in Engineering

AWIS EL Paso Mentorship Program

Michelle Del Rio, Stacey Moreno, Liljana Stevceva, and Ralitsa Akins Association for Women in Science El Paso Chapter, TX

Building Inquiry Science Capacity in Volunteers

Jen Sorensen, Stephanie Lingwood

CELLS: A whole-girl approach for adolescent girls

Erika O'Bannon, Connie Chow, Science Club for Girls, MA

Coastal Studies for Girls

Pam Erickson, Coastal Studies for Girls, ME

Dot Diva and Engineer Your Life

WGBH Educational Foundation, WGBH - Engineer Your Life, Dot Diva, Design Squad, MA

ExCEL Afterschool

Maryann Stimmer, Linda Colon, Karen Polk, Matt Pemberton, SFUSD (San Francisco Unified School District) ExCEL After Schools, CA

Futures Unlimited

Gloria Liu, Oakton Community College, IL

Girl Scouts of Connecticut for the Connecticut Girls Collaborative Project

Ellyn Savard, Peggy Erenkottter, Connecticut Girls Collaborative Project, CT

Girls and the Web--GEMS club online

Laura Reasoner Jones, GEMS (Girls Excelling in Math and Science) Club, VA

Girls Raised In Tennessee Science

Judith Iriarte-Gross, Girls Raised In Tennessee Science, TN

Girlstart

Katelyn Wamsted, Julie Shannan, Girlstart, TX

Greetings From Florida

Shari Money, Denise Dixon, Jennifer McDaniel, Florida Girls Collaborative Project, FL

GUESS What?

Carrie Leopold, Kristi Jean, North Dakota State College of Science, ND

Introduce a Girl to Engineering Day

Tricia Berry, Didey Muniz, Women in Engineering Program - The University of Texas at Austin, TX

Kentucky Girls STEM Collaborative

Carol Hanley, Andrea Lamb, Sue Scheff, Suzann Shaver, and Stephanie Shrewsbury, Kentucky Girls STEM Collaborative, KY

MAGiC & University of Maryland

Paige Smith, Elizabeth Vandenburg, Mid-Atlantic Girls Collaborative (MAGiC), MD

Maine Girls Collaborative Project

Leslie Blanchette, Maine Girls Collaborative Project, ME

Midwest Girls Collaborative Project

Lynn Reha, Linnea High, Gerry Oberman, Midwest Girls Collaborative Project, IL

Organizing G.E.M.S. Workshop

Sabina Maddila, Jaya Parulekar, Medha Parulekar, G.E.M.S. (Girls, Engineers, Mathematicians, & Scientists), IL

Pacific Northwest Girls Collaborative Project Mini-Grant Highlights

Karen Peterson, Pacific Northwest Girls Collaborative Project, WA

SCIGIRLS

SciGirls Production Staff, TPT Twin Cities Public Television, MN

SET in the City: TechSavvy Camps

Cheryl Lavoie, Rochelle Reisberg, Nathalie Heshbie, Connie Chow, Cynthia Brossman, Science Club for Girls, MA

Sisters4Science

Gabrielle Lyon, Elsa Rodriguez, Project Exploration, IL

SmartGirls - Collaborative Mentoring Model

Nancy Ruzycki, SmartGirls, WA

STEM Programming for Girls at Oregon State University

Cathy Law, Saturday Academy, OR

STEM week Girl Days on the Texas Border

Lisa Chappa, Imaginarium of South Texas, TX

Texas Girls Collaborative Project

Tricia Berry, Didey Muniz, Texas Girls Collaborative Project, TX

Viva Computing: STEM-success

Ethel Schuster & Liliانا Brabd, North Essex Community College, MA

Wisconsin GEMS

Leanne Doyle, Renae Fischer, Molly Haack, University of Wisconsin-Fond du Lac, WI



National Girls Collaborative Project Speed Networking Activity

Activity Format: This activity uses a series of rectangular tables arranged in either a circle or in long rows. It is ideal for groups of 40 or less, but can be implemented with larger groups. Half of the group is seated randomly on one side of the tables and the remaining half on the other side. This can also be done with two rows facing each other standing in a hallway or down the side of a large room.

Activity Instructions: Share the following instructions with the group:

"The goal of this "speed networking" activity is to provide you the opportunity to learn about other STEM-focused, girl-serving programs with the expectation that you may discover a program that could be a promising collaborator. If you are considering a mini-grant, the mini-grant application requires you initiate a collaboration with a program that your organization may not have worked with in the past. This is your opportunity to scan the field of potential collaborators in search of the best, most promising mini-grant partner.

In three minutes, describe your program to the person across from you. Provide the following information:

- Your name*
- Organization name*
- Organization mission*
- Organization current activities*
- Organization needs*
- Organization successes or resources*



Collaboration Guide

The NGCP National Leadership Team along with assistance from regional leadership teams, has created the Collaboration Guide, a user-friendly handbook to implementing the National Girls Collaborative Project, including an overview of the project, description of events and activities, and helpful tools and templates. Download the Collaboration Guide on the NGCP Web site under Resources.

The Collaboration Conference is Partially Funded By:

The National Science Foundation:
National Girls Collaborative Project:
Advancing the Agenda in Gender Equity
for Science, Technology, Engineering and
Mathematics, Grant No. HRD-0631789
and the Noyce Foundation

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