“Effective Strategies for Working with Girls in Science, Technology, Engineering, and Math”

Wednesday November 14, 2007
11 am (PST), 2 pm (EST)

This Webcast will begin at the top of the hour.

For assistance, e-mail: help@learningtimes.net
The National Girls Collaborative Project (NGCP) brings together organizations that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).

www.ngcproject.org

Regional Collaboratives
California  www.ngcproject.org/california
Florida  www.ngcproject.org/florida
North Carolina  www.ngcproject.org/northcarolina
Northwest  www.ngcproject.org/northwest
Project Goals

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.
Strengthening Capacity

The NGCP will disseminate Research Based Strategies to strengthen the capacity of girl-serving organizations to provide high-quality informal learning environments for girls in STEM and to effectively evaluate and assess their efforts.

Our partners
• Education Development Center (EDC)
• Assessing Women and Men in Engineering (AWE)

Our methods
• Webcasts
• Collaborative events
• Resource collection on NGCP website
Engaging Girls in STEM: What Works?

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Hosted by Education Development Center, Inc.

National Girls Collaborative Project Webcast
From Research to Practice

- Mentoring
- Experiential learning
- STEM career perceptions
- Importance of 21st century skills
- Fostering persistence
- Creating a culture of high expectations
Mentoring

• Relationships and career development
• Peer and near-peer mentoring, families, exposure to women STEM professionals
• Use local/community resources
  – Local high school students, undergraduate students, teacher groups, and local chapters of professional societies
  – Local corporations with a strong community presence
  – Corporations having women’s initiatives
Experiential Learning

- Contextual STEM experiences that connect the subject matter to the real world
- Embedding STEM concepts into meaningful cultural and human contexts
- Project-based learning and scientific inquiry
- Linking formal and informal learning strategies
Positive Perceptions of STEM Careers

- Making a difference
- Impact on society
  - Environment, helping others, etc
- Not solitary occupations
- Combating the ‘geek’ factor
21st Century Skills

- Not just about academics
- Variety of skills needed in the workplace
- Quality STEM content + technical skill + exposure to 21st century skills. For e.g.,
  - Critical thinking and problem solving
  - Communication, collaboration and social skills
  - Creativity
  - Flexibility and adaptability
  - Leadership
Fostering Persistence

• Developing an overall sense of self-efficacy
  – Parental buy-in
  – Appreciation of girls’ individual identities
  – Dispelling myths and gender stereotypes about their capabilities
  – Maintaining open communication about all these issues
High Expectations

• Begin program design with the assumption that girls can and will excel
  – Reinforce this message continually
  – Design programs that are compensatory and intentional about battling negative stereotypes
  – Allow girls to make big and interesting mistakes
  – Provide a ‘safe’, supportive and judgment-free environment in which to succeed and fail
Examples of Supporting Research

Girl Game Company
Jill Denner

Funded by a grant from the National Science Foundation to Education, Training, Research (ETR) Associates
Program Details

- 80 girls will participate over three years
- weekly during the school year, and daily for three weeks in summer
- part of the extended learning program
- goal: to increase girls’ interest, capacity, and motivation to pursue a career in information technology
Who are the girls in Girl Game Company?

- Live in a rural community in central California
- Middle school students
- Most are Latina (Mexican); mix of first and second generation
- Range of computer experience & access
Origin of Strategies

- previous research
- lessons learned in the Girls Creating Games program (GCG): lesson plans, program guides, girls’ games, and publications list from GCG are at:
  
Strategy #1

Use instructional approaches that research and program staff persons say will appeal to girls:

- project-based design-based learning (a product that others will use)
- digital game design (a game that is fun and helps others)
- collaborative learning (pair programming and teamwork)
- only female participants
Strategy #2

*Expose girls to career paths in digital game design and the tech industry:*

- work in a game company department (production, public relations, human resources)
- field trips to universities and tech companies (Google, Electronic Arts)
- dispel negative stereotypes about the IT workforce (identity exploration in the context of family obligations)
Strategy #3

*Increase girls’ network of support to pursue IT careers and classes:*

- virtual and real role models (college students and computer engineers)
- contact with tech savvy peers (through Whyville.net)
- family involvement (internet safety and career options)
Questions

- Do these strategies apply to a generation that has grown up with technology?
- Are these strategies relevant to all girls?
- Which of these strategies could be applied in a classroom?
• Mission
• Delivery Method
• Programs
  – Club Girlstart
  – Saturday Camps
  – Summer Camps
  – IT Girl
• Goals
• Participant Demographics
• Year 2 Project
Engaging Girls in STEM

• Career Exploration
  – Expert Interviews & Guest Speakers
  – Field Trips

• Modeling
  – Professional Female Volunteers
  – Program leaders

• Mentoring
  – High-tech community
  – Multi-generational
Additional NGCP Information

Program Directory
www.pugetsoundcenter.org/ngcp/directory/index.cfm

Join the NGCP listserv
www.pugetsoundcenter.org/ngcp/resources/newsletter.html

Upcoming Webcasts
• Tools for collaboration success: National Girls Collaborative Project mini-grants
  December 12, 2007 11:00-12:00 Pacific Standard Time
• Programming for girls in STEM: Lessons from the field
  January 9, 2008 11:00-12:00 Pacific Standard Time