



reaching and retaining girls

promising practices in science, technology, engineering and math



Michele Dischino, Ph.D.
Assistant Professor
Technology & Engineering Education
Central Connecticut State University

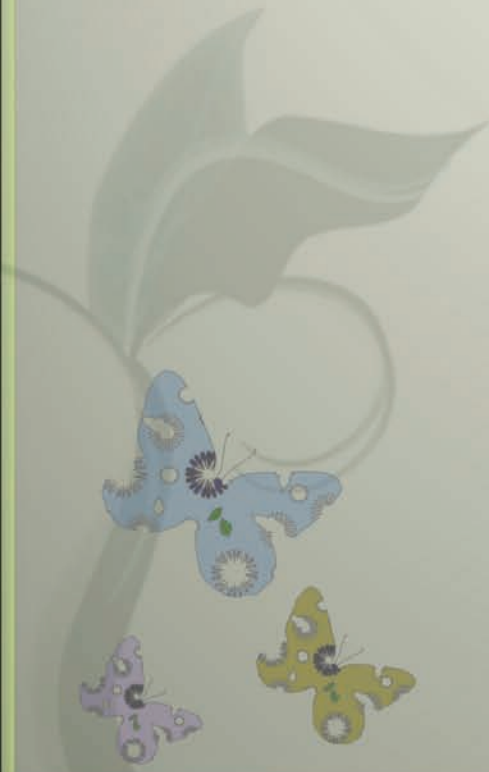
why should we care?

- ⌘ The Connecticut Department of Labor compared the number of graduates in Connecticut with the number of annual openings for each occupation.
- ⌘ Among these occupations mechanical engineering ranked number one with 511 annual job openings but only 268 graduates, indicating that if all graduates decided to stay in Connecticut, only ~50% of openings would be filled.
- ⌘ The pool of women and minorities, traditionally absent in science-based or high-tech occupations must be tapped in order to meet projected employment needs of companies.



what works?

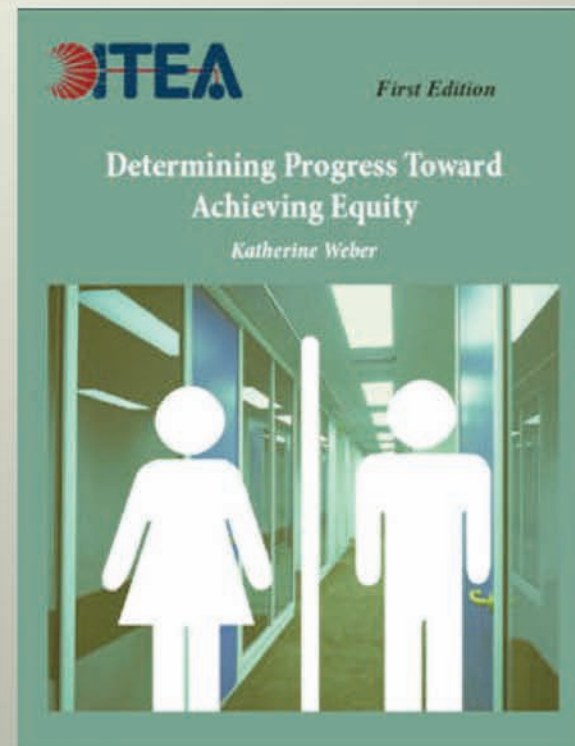
- ⌘ How did everyone in this room become interested in STEM?



new publication (2008)

Purpose:

- ☞ To empower teachers, counselors, administrators and career specialists with an understanding of factors that influence females' decisions to participate (or not) in technology and engineering programs.
- ☞ To encourage teachers, counselors, administrators, and career specialists to envision, devise and implement an equity action plan that promotes female students' participation in technology and engineering.



Electronic publication delivered on CD (P232CD)

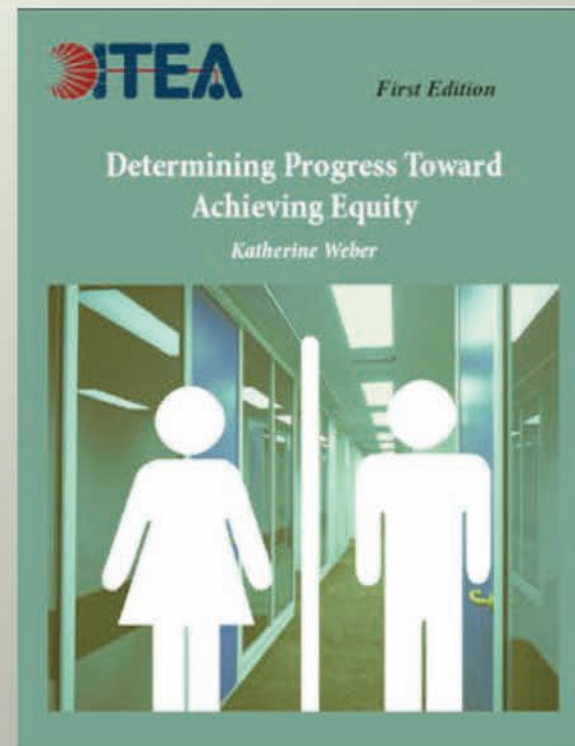
Members, \$19.00; nonmembers \$23.00

Order by calling 703-860-2100 or visiting www.iteaconnect.org.

new publication (2008)

Contents:

- ☞ Factors that influence females' decisions to participate in STEM
- ☞ Assessing equity in your program and creating an equity action
- ☞ Retention and recruiting
- ☞ Resources



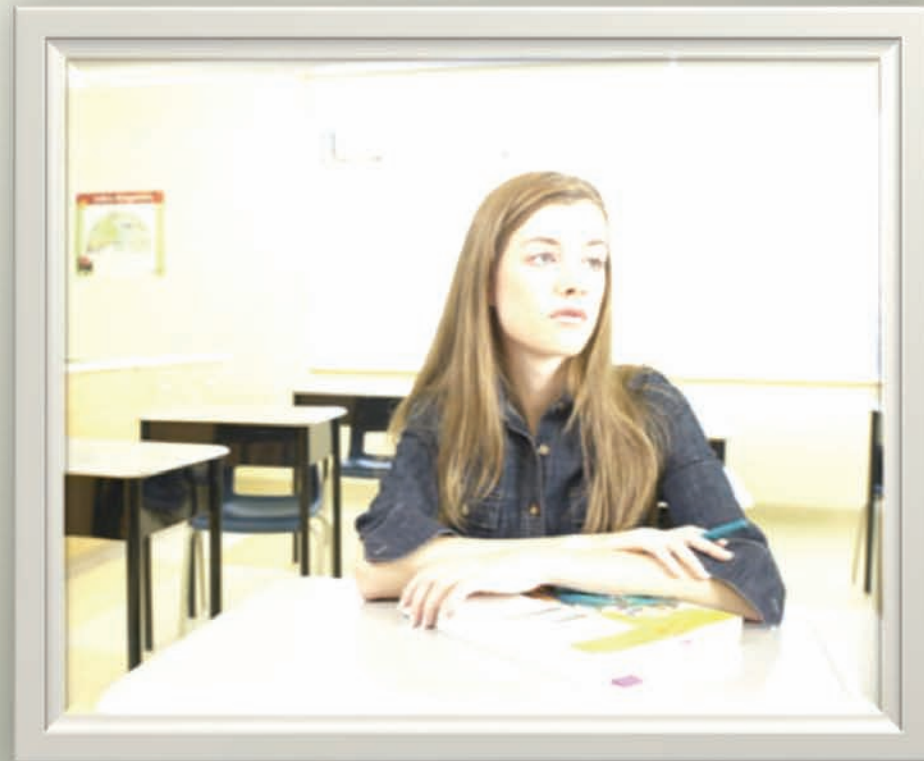
Electronic publication delivered on CD (P232CD)

Members, \$19.00; nonmembers \$23.00

Order by calling 703-860-2100 or visiting www.iteaconnect.org.

factors that affect females' participation in STEM

- ✧ Classroom climate
- ✧ Curriculum and instruction
- ✧ Role models and mentors
- ✧ Messages from counselors
- ✧ Social fit



retention and recruitment strategies: classroom climate

- ☞ Ensure that the workspace is neat and clean.
- ☞ Create a warm and welcoming physical environment.
- ☞ Provide appropriate protective gear in a variety of sizes for both cleanliness and safety.
- ☞ Address each student by name, and address the group in non-gender-specific ways.
- ☞ Pair female students together to develop confidence and skills.
- ☞ Actively point out and dissuade activities, comments, and jokes between students that reflect stereotyping, bias, or harassment.
- ☞ Ensure that the school culture encourages girls in technology and engineering.
- ☞ Create or identify community-based programs for girls to engage in technology.



retention and recruitment strategies: curriculum

- ✧ Connect curriculum to the real world of diverse students.
- ✧ Use tools and materials that girls will want to use with confidence and ease.
- ✧ Give frequent and supportive feedback.
- ✧ Encourage girls to develop confidence and "act as experts."
- ✧ Feature technologists of the week, and ensure that men and women of all ethnicities are equally represented.
- ✧ Capitalize on girls' verbal strengths.
- ✧ Give frequent feedback.
- ✧ Develop cross-curricular projects or design problems.
- ✧ Choose socially relevant topics.



retention and recruitment strategies: role models/mentors

- ☞ At the end of projects, have celebrations to which students may invite friends.
- ☞ Prominently display projects and/or provide poster sessions in the gym where students share what they've done in technology and engineering.
- ☞ Create a mentor program for high school girls with women in the community who are engaged in technological pursuits.
- ☞ Connect middle school girls with high school girls in technology and engineering to work on a specific project.
- ☞ Develop a pen pal program/Internet connection with other girls and young women interested in technology or engineering.
- ☞ Encourage young women to job-shadow.
- ☞ Work with technical colleges, colleges, and universities to connect students to other students.



retention and recruitment strategies: social fit

- ☞ Sponsor multiweek, after-school programs for families to explore technology together through fun activities.
- ☞ Recruit girls to participate in technology and engineering as a group, rather than as individuals.
- ☞ Include female and minority business, industry, and labor representatives and advocacy groups for girls and women on school advisory committees.
- ☞ Send home fliers that discuss technology, technology and engineering, and nontraditional occupations with children in elementary grades.
- ☞ Post fliers about technology, technology and engineering, and nontraditional occupations on community bulletin boards in food markets, hospitals, churches, food banks, drug stores, employment centers, shelters, schools, etc.
- ☞ Encourage girls to engage in technology and engineering after-school activities with their friends.



retention and recruitment strategies: curriculum

- ☞ Connect curriculum to the real world of diverse students.
- ☞ Use tools and materials that girls will want to use with confidence and ease.
- ☞ Give frequent and supportive feedback.
- ☞ Encourage girls to develop confidence and “act as experts.”
- ☞ Feature technologists of the week, and ensure that men and women of all ethnicities are equally represented.
- ☞ Capitalize on girls' verbal strengths.
- ☞ Give frequent feedback.
- ☞ Develop cross-curricular projects or design problems.
- ☞ Choose socially relevant topics.



resources

- ∅ NGCP Web Site: www.ngcproject.org
- ∅ Nerd Girls: <http://www.nerdgirls.com/>
- ∅ NSF New Formulas Web Site:
<http://www.nsf.gov/ehr/hrd/Newformulas/newformulas.jsp>

