



Increasing the Pipeline

For Students in
Nontraditional Careers

Mimi Lufkin, CEO
National Alliance for Partnerships in Equity
CTEEC Conference
Tulsa, OK
September 16, 2010



Review Research Summary

- *“Nontraditional Career Preparation: Root Causes and Strategies”*
- Authors: Lynn Reha, ICSPS; Mimi Lufkin, NAPE; Laurie Harrison, Foothill Associates

School Climate

- Nontraditional faculty and staff
- Acceptable behavior in hallways, cafeteria, school events, etc.
- Administration and staff support and encouragement
- Extracurricular activities
 - Clubs
 - Competitions
 - Summer Programs/Camp



Strategies for Retention

- Increase teacher and administrator quality and equity-capacity through professional development

The Equity Principal

Graymill

NAPE Professional Development Institute

Washington, DC

Taking the Road Less Traveled II:

Toolkit for Educators

MAVCC/NAPE

Strategies for Retention

- Increase competence in diversity and sexual harassment prevention

[Gender Equity Tip Sheets](#)

[Tolerance.org](#)

Southern Poverty Law Center

[Project Implicit](#), Harvard University



Strategies for Recruitment

- Implement and model gender-fair institutional strategies

Checking Your School for Sexism

Destination Success, [MAVCC](#)

[Gender Equity Item Bank](#)

Midwest Equity Assistance Center



Classroom Climate

- Fair treatment
- Sexual harassment not tolerated or ignored
- Supportive learning environment
- Subtle messages
- Classroom location on campus
- Physical environment



Classroom Climate

- Behaviors that communicate lower expectations
- Yielding to the influence of internalized stereotypes
- Treating students differently when their behavior and achievements are the same
- Giving one group less attention and intellectual encouragement



Classroom Climate

- Discouraging through “politeness”
- Singling out
- Defining students by their sexuality
- Overt hostile behavior
- Sexual harassment

Instructional Strategies

- Questioning level and wait time
- Student/teacher interaction and feedback
- Cooperative learning design
- Classroom management
- Expectations and assessment





Strategies for Recruitment

- Conduct professional development with teachers at all levels

Generating Expectations for Student
Achievement, Graymill

STEM Equity Pipeline

Career Technical Education Equity Council



Student Isolation

- Cohort of underrepresented students in a program are more likely to complete than a single individual
- Individuals more likely to
 - Have trouble integrating effectively in to social structure
 - Suffer decreased performance
 - Drop out
- Schedule students in cohorts when possible



Strategies for Retention

- Conduct nontraditional student support groups and peer counseling

Computer Clubhouse

Boston's Museum of Science

NASA Harriett G. Jenkins Pre-Doctoral
Fellowship Program

(Facebook Group)

Curriculum Materials

- Invisibility
- Stereotyping
- Imbalance/Selectivity
- Unreality
- Fragmentation/Isolation
- Linguistic Bias
- Cosmetic Bias
- Relevance





Strategies for Retention

- Evaluate all school and curriculum materials for gender bias and positive nontraditional images
-

[Gender Equity Tip Sheets](#)

[Bias Evaluation Instrument](#)

Nova Scotia Department of Education

[Curricular Detecting Skills](#)

Gender in the Classroom, Sadker & Zittleman

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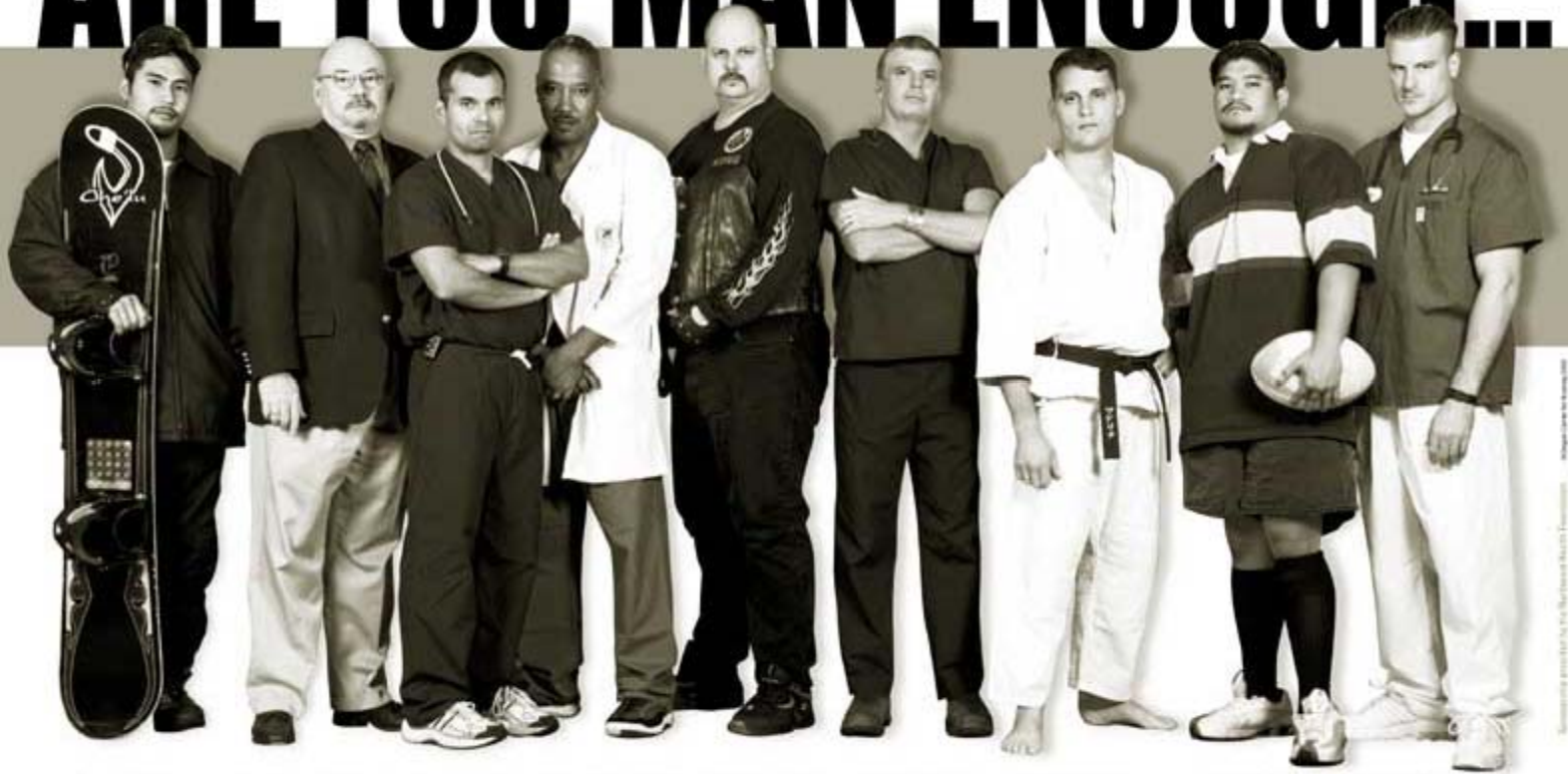
sandra Lea RN, CNOR
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Strategies for Recruitment

- Review career guidance materials and practices for gender bias and nontraditional exposure and support
 - [Guidelines for Identifying Bias in Curriculum and Materials](#)
Safe Schools Coalition
 - [Am I a Fair Counselor](#)
Destination Success, [MAVCC](#)
 - [Could This Be Your Life?](#)
Illinois Center for Specialized Professional Support



Career Guidance Materials and Practices

- Create opportunities to spark student interest
 - Pre-enrollment exploration programs
 - Tours that include hands-on activities
 - Nontraditional program exploration days
 - Targeted recruitment activities
 - Send a personal invitation

Strategies for Recruitment

- Conduct pre-technical training programs

Rosies Girls

Northern New England Tradeswomen

TechBridge

Chabot Space and Science Center

Technical Opportunities Program

Chicago Women in the Trades



Strategies for Recruitment

- Conduct targeted recruitment activities

Summer Camps

Cisco Gender Initiative Strategies

I am an Engineer

Cisco Systems, Inc.

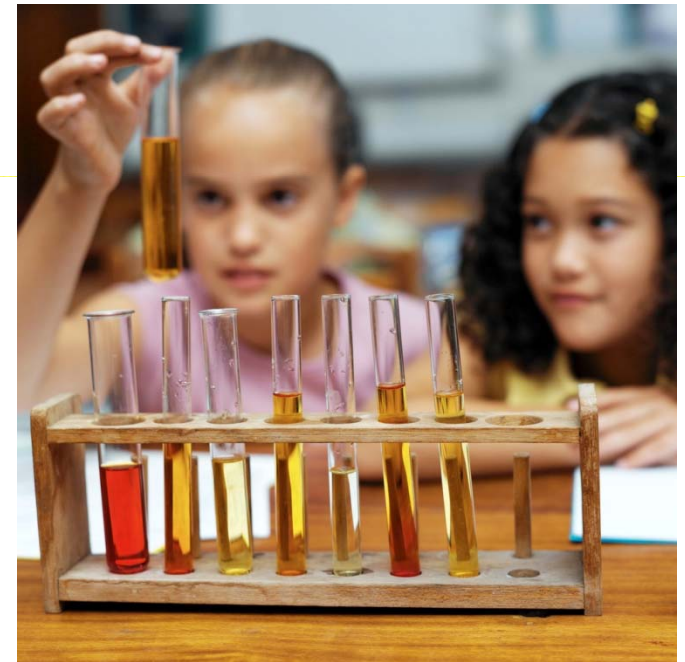
Support Services

- Tutoring
- Child care
- Transportation
- Financial Aid
- Books, Equipment, Tools, Clothing
- Tuition
- Modification of Curriculum, Equipment
- Student/Teacher Aides
- More



Early Exposure

- Most students pursuing a nontraditional career have had a friend or family member influence them
- Spark an interest that would otherwise not be evident
- Informal experiences supported by formal experiences
- The earlier the better





Strategies for Recruitment

- Conduct middle school programs

Minot Public Schools

Minot, North Dakota

Programs and Practices That Work

2005 Award Winner

Parental Support

- Parents are the #1 influence of student college major and career choice
- Negative messages from people with emotional influence difficult to overcome
- Educate parents
 - Newsletter articles
 - Website information
 - Parent night program
 - Open House demonstrations
 - Student award programs





Strategies for Recruitment

- Invite, involve and educate parents

Talented Girls Bright Futures

Publication by Project Lead the Way

- American Careers Magazine

Nontraditional Careers Issue

Career Communications, Inc.



Self-efficacy

- Attribution Theory
 - Girls more likely to attribute success to external factors and failure to internal factors
- Stereotype Threat
 - Stereotype that girls are not as capable as boys in math affects their performance
- Locus of Control
 - When students feel they are in control of their lives and their futures they are more likely to select nontraditional options

Nontraditional Role Models

- Strongest evidence in the research
- Need to see someone that looks like them in the career
- Family members are significant
- Teachers
- Mentors



Strategies for Recruitment

- Provide role models and mentors

Girls E-Mentoring in Science, Engineering
and Technology GEM-SET

Univ. of Illinois, Chicago

Engineer Girl

National Academy of Engineering

Engineer Your Life

Nontraditional Role Models

- Career speakers
- Job shadowing
- Internships
- Field trips
- Mentoring
- Online career exploration
- Print images
- Video selection



Strategies for Retention

- Provide nontraditional role models, mentors, and job shadowing
IGNITE, Seattle Public School System
-

MentorNet

How to Plan and Facilitate a Job Shadowing Experience

Destination Success, MAVCC



Strategies for Recruitment

- Collaborate with community-based organizations

Operation SMART, Girls, Inc.

Expanding Your Horizons

Girl Scouts

National Girls Collaborative Project

Exposure and Relevance

- Invite, involve, and educate business

Men in Childcare

California Association for the Education of Young
Children

Men in Childcare Committee

Men Teach



Strategies for Retention

- Invite, involve, and educate business

Cisco Systems, Inc. Gender Initiative

Cisco Systems, Inc.

Society of Women Engineers



Exposure and Relevance

- Invite, involve, and educate business

American Assembly for Men in Nursing

Male Nurse Magazine



Exposure and Relevance

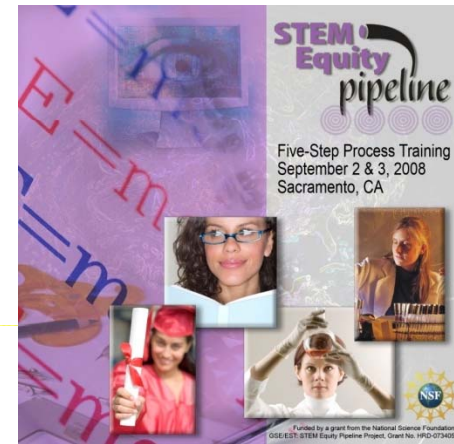
- Invite, involve, and educate business

Women Chefs and Restaurateurs

Top Women Chefs Talk

Resources on
www.stemequitypipeline.org

Don't Forget These
Additional Teacher
Focused Resources!



- Gender Equity Tip Sheets
- Teacher Resources Folder

Questions?

Mimi Lufkin



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