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 into 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 Lee RN, CNOR
Director of Outpatient
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(We're keeping our fingers crossed, too.)

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MR. GOODWRENCH
ISN'T ALWAYS A MR.

THE FACE OF A GM-TRAINED TECHNICIAN

A GOOD LISTENER

KNOWS GM VEHICLE DIAGNOSTICS LIKE THE BACK OF HER HAND

THIS UNIFORM IS SYNONYMOUS WITH GM EXPERTISE

USES GENUINE GM PARTS

HAS OVER ONE MILLION HOURS OF GM TRAINING UNDER HER BELT

CAN BE FOUND AT OVER 7,000 GM DEALERSHIPS

HAS AN EXCLUSIVE LINK DIRECTLY TO GM
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?

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