Increasing the Participation and Completion of Students in Nontraditional CTE

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Dallas, Texas
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Overview

- Perkins IV – Understand the Legislation
- Why Nontraditional Careers?
- The Five Step Program Improvement Process –
  - STEP One: Document Performance Results
  - STEP Two: Identify Root Causes
- Develop Root Cause Research Plans
Perkins IV

Understand the provisions in Perkins IV that drive accountability for nontraditional career and technical education and special populations.
Special Populations

☐ Individuals with disabilities;
☐ Individuals from economically disadvantaged families, including foster children;
☐ Single parents, including single pregnant women
☐ Displaced homemakers;
☐ Individuals with limited English proficiency; and
☐ Students pursuing nontraditional fields
Nontraditional Fields

- Occupations or fields of work, including careers in computer science, technology, and other emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work.
Perkins IV

- Special Populations Provisions
  - State Leadership Set-aside ($60,000-$150,000) for nontraditional training
  - Disaggregated data requirement
  - Improvement plans and sanctions
  - Language in every section of the Act
  - Required use of local funds
Core Indicator

- Participation in Nontraditional Training and Employment Programs
- Completion of Nontraditional Training and Employment Programs
Accountability

- State and local report requires disaggregated data
  - Gender
  - Race/ethnicity
  - Individuals with disabilities
  - Migrants
  - Individuals with limited English proficiency
  - Individuals from economically disadvantaged families including foster children
  - Single parents, including single pregnant women
  - Displaced homemakers
  - Individual preparing for nontraditional fields
Accountability

☐ State and local report requires
  ■ Identify and quantify any gaps in performance between disaggregated student populations and all CTE students
Improvement Plans (State and Local)

- Does not meet 90% of ANY measure in the first year
- Shows improvement the following year but still does not meet 90% of that or ANY measure in year two
- Plan must address performance gaps between disaggregated populations and all CTE students
Local Plan

- Describe how LEA will provide activities to prepare special populations, including single parents and displaced homemakers, for high skill, high wage, or high demand occupations that will lead to self-sufficiency
Required Use of Local Funds

- provide activities to prepare special populations, including single parents and displaced homemakers, for high skill, high wage, or high demand occupations that will lead to self-sufficiency
Supportive Services

- Named in conference report as transportation, child care, dependent care, tuition, books, and supplies and other services
- May use Perkins funds for this purpose for special populations participating in CTE
- Supplement not supplant
- Address barriers to participation in CTE
References

- Equity analysis of Perkins IV available at
  http://www.napequity.org/pdf/EquityProvisionsPerkins4TableFinal.pdf
Why Nontraditional?

Societal Issues that Led to the Implementation of Public Policy
Societal Issues

- Increasing single parent households headed by women on public assistance
- Women entering the workforce at a faster rate than any other population
- Women hold majority of low paying jobs
- Pay gap and pay equity
Solution

Access for women in poverty to education and job training for occupations providing wages leading to economic self-sufficiency

= Nontraditional occupations
Historical Perspective

□ Gender equity provisions in Perkins
   ■ 1976 Amendments
     □ Full-time Gender Equity Coordinator-
       $50,000
   ■ 1984 Perkins Act
     □ Full-time Gender Equity Coordinator-
       $60,000
     □ Set-asides 3.5% Gender Equity, 8.5%
       SP/DH
Historical Perspective

- Gender equity provisions in Perkins
  - 1990 Perkins Act
    - Full-time Gender Equity Coordinator- $60,000
    - A-F requirements
    - Set-asides 3% Gender Equity, 7% SP/DH, .5% either
    - Special population focus
Historical Perspective

- Gender equity provisions in Perkins
  - 1998 Perkins Act (Perkins III)
    - State Leadership Set-aside ($60,000-$150,000)
    - Language sprinkled throughout the Act
    - Accountability Measure
Historical Perspective

- Gender equity provisions in Perkins
  - 2006 Perkins Act (Perkins IV)
    - State Leadership Set-aside ($60,000-$150,000)
    - Accountability Measure
    - Improvement plans and sanctions
    - Language sprinkled throughout the Act
    - Required use of local funds
Why Continue the Policy?

- Children in poverty continue to be living in single parent households headed by women
- Workforce competitiveness, especially in STEM fields, does not allow us to ignore more than 50% of the potential workforce pool
- Making slow progress on increasing the participation and completion of women in nontraditional fields, particularly STEM careers.
Why Continue the Policy?

- Pay gap and pay discrimination continues to be an issue
- Women still clustered in the lowest paying occupations
- Nontraditional careers a path to economic self-sufficiency for women
- Career satisfaction more important to today’s workforce participants
Startling Statements

☐ Conduct your own poll
☐ Survey three other people in the room
☐ Average their answers
☐ Be prepared to report out your polling results
Five-Step Improvement Process

1. **Step 1:** Document Performance
2. **Step 2:** Identify Root Causes
3. **Step 3:** Choose Best Solutions
4. **Step 4:** Pilot-Test and Evaluate Solutions
5. **Step 5:** Implement Solutions

The process is cyclical, with each step leading to the next and returning to the previous step after implementation.
STEP ONE

Document Performance Results
Document Performance Results

Understand the problem completely before you seek solutions

- How do you analyze performance data?
- What questions should be addressed?
- What tools and methods can be used to present and analyze data?
- How should data quality problems be considered in analyzing data?
Unit of Analysis

- Site specific
- Identify nontraditional programs
  - Nontraditional for females
  - Nontraditional for males
- Participation data
  - Enrolled in a course
- Completion data
  - Complete a program
- Disaggregate by demographic groups and special populations
Data Collection

- Gender
  - Male
  - Female

- Race/Ethnicity
  - American Indian or Alaskan Native
  - Asian or Pacific Islander
  - Black, non-Hispanic
  - Hispanic
  - White- non-Hispanic
Data Collection

☐ Special Population
  ■ Underrepresented gender students in a nontraditional CTE program
  ■ Single Parent
  ■ Displaced Homemaker
  ■ Limited English Proficient Students
  ■ Individuals with a Disability
  ■ Economically Disadvantaged
Data Analysis

☐ District Enrollment Data
☐ Texas Consolidated Annual Report
☐ District and Community College Perkins Data
☐ Texas HECB Annual Data Profile
☐ Texas Gap Closing Reports
☐ Other Sources???
Comparisons

☐ State performance level

☐ Best performer in state

☐ Selected peer benchmark

☐ Set your own benchmark
Trends

☐ At least 2 years

☐ Preferred 3-5 years
References

- Texas Perkins Grants Website
  http://www.thecb.state.tx.us/OS/Grants/Perkins

- Texas Perkins Data Resources
  http://www.thecb.state.tx.us/OS/Grants/Perkins/perkdata/

- Texas Closing the Gaps Accountability
  http://www.thecb.state.tx.us/ClosingtheGaps/
Perkins Accountability Measure

5p1 - Participation Rate =

\[
\frac{\text{# underrepresented students participating in NT CTE}}{\text{all students participating in NT CTE}} \quad \text{OR} \quad \frac{\text{# of females enrolled in pre-engineering}}{\text{All students (males and females) enrolled in pre-engineering}}
\]
# Texas Performance Report – 5P1

<table>
<thead>
<tr>
<th>Program Year</th>
<th>College</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>5.20%</td>
<td>11.91%</td>
</tr>
<tr>
<td>2003-04</td>
<td>6.31%</td>
<td>11.75%</td>
</tr>
<tr>
<td>2004-05</td>
<td>7.60%</td>
<td>12.17%</td>
</tr>
<tr>
<td>2005-06</td>
<td>8.20%</td>
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<td>2006-07</td>
<td>6.91%</td>
<td>12.81%</td>
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<tr>
<td>2007-08</td>
<td>16.59%</td>
<td>22.52%</td>
</tr>
<tr>
<td>2008-09</td>
<td>16.08%</td>
<td>22.73%</td>
</tr>
<tr>
<td>2009-10</td>
<td>16.32%</td>
<td>23.09%</td>
</tr>
</tbody>
</table>
Texas Performance Report - 5P1

20.00% 25.00% 10.00% 15.00% 5.00%

State

College


03 04 05 06 07 08 09 10

0.00% 5.00% 10.00% 15.00% 20.00% 25.00%
Perkins Accountability Measure

5p2 - Completion Rate =

\[
\frac{\# \text{ underrepresented students completing NT CTE}}{\text{all students completing NT CTE}} \\
\text{OR} \\
\frac{\# \text{ of females completing pre-engineering}}{\text{All students (males and females) completing pre-engineering}}
\]
<table>
<thead>
<tr>
<th>Program Year</th>
<th>College</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>2.41%</td>
<td>8.84%</td>
</tr>
<tr>
<td>2003-04</td>
<td>3.41%</td>
<td>8.08%</td>
</tr>
<tr>
<td>2004-05</td>
<td>8.42%</td>
<td>8.91%</td>
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<td>2005-06</td>
<td>1.96%</td>
<td>6.78%</td>
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<td>2006-07</td>
<td>4.50%</td>
<td>9.39%</td>
</tr>
<tr>
<td>2007-08</td>
<td>8.91%</td>
<td>17.20%</td>
</tr>
<tr>
<td>2008-09</td>
<td>14.93%</td>
<td>16.99%</td>
</tr>
<tr>
<td>2009-10</td>
<td>15.58%</td>
<td>16.96%</td>
</tr>
</tbody>
</table>
Texas Performance Report- 5P2
## College Programs Nontraditional by Gender – Participation - 5p1

<table>
<thead>
<tr>
<th>Program Year</th>
<th>Nontraditional for females</th>
<th>Nontraditional for males</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>106/385 27.53%</td>
<td>42/507 8.28%</td>
</tr>
<tr>
<td>2008-09</td>
<td>93/320 29.06%</td>
<td>43/522 8.24%</td>
</tr>
<tr>
<td>2009-10</td>
<td>87/297 29.29%</td>
<td>43/554 7.76%</td>
</tr>
</tbody>
</table>
College Programs Nontraditional by Gender – Participation – 5p1
## College Programs Nontraditional by Gender – Completion - 5p2

<table>
<thead>
<tr>
<th>Program Year</th>
<th>Nontraditional for females</th>
<th>Nontraditional for males</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>6/42 14.29%</td>
<td>3/60 5.00%</td>
</tr>
<tr>
<td>2008-09</td>
<td>14/40 35.00%</td>
<td>3/83 3.61%</td>
</tr>
<tr>
<td>2009-10</td>
<td>13/45 28.89%</td>
<td>10/106 9.43%</td>
</tr>
</tbody>
</table>
College Programs Nontraditional by Gender – Completion – 5p2
Worksheet Activity

- Review your Texas Performance Report Data for your college

- Complete Section 1 & 2 of the STEP One Documenting Performance Results Worksheet
## College Performance Report

### NTO Programs for Females - 5P1

<table>
<thead>
<tr>
<th>Program</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total in NTO Programs for Females</strong></td>
<td>106/385</td>
<td>93/320</td>
<td>87/297</td>
</tr>
<tr>
<td></td>
<td>27.53%</td>
<td>29.06%</td>
<td>29.29%</td>
</tr>
<tr>
<td><strong>Computer Programming</strong></td>
<td>37/79</td>
<td>31/58</td>
<td>21/41</td>
</tr>
<tr>
<td></td>
<td>46.84%</td>
<td>53.45%</td>
<td>51.22%</td>
</tr>
<tr>
<td><strong>Criminal Justice</strong></td>
<td>16/67</td>
<td>17/50</td>
<td>14/47</td>
</tr>
<tr>
<td></td>
<td>23.88%</td>
<td>34.00%</td>
<td>29.79%</td>
</tr>
<tr>
<td><strong>Electrical and Power Transmission Installers</strong></td>
<td>1/25</td>
<td>2/27</td>
<td>1/26</td>
</tr>
<tr>
<td></td>
<td>4.00%</td>
<td>7.41%</td>
<td>3.85%</td>
</tr>
<tr>
<td><strong>Auto Technology</strong></td>
<td>5/143</td>
<td>5/128</td>
<td>4/109</td>
</tr>
<tr>
<td></td>
<td>3.50%</td>
<td>3.91%</td>
<td>3.67%</td>
</tr>
<tr>
<td><strong>Business Administration</strong></td>
<td>47/71</td>
<td>36/51</td>
<td>44/64</td>
</tr>
<tr>
<td></td>
<td>66.20%</td>
<td>70.59%</td>
<td>68.75%</td>
</tr>
</tbody>
</table>
College Programs Nontraditional for Females – Participation – 5p1

The diagram shows the participation rates for different college programs over the years 2007-08 to 2009-10. The programs include:

- All
- CP
- CJ
- EPTI
- Auto
- BA

Each program is represented by a different symbol or color, and the participation rates are plotted against the years.

- All: The participation rate appears to be around 40% in 2007-08, increasing to around 60% in 2009-10.
- CP: The participation rate is around 50% in 2007-08, increasing slightly to about 60% in 2009-10.
- CJ: The participation rate is around 30% in 2007-08, decreasing slightly to about 20% in 2009-10.
- EPTI: The participation rate is around 10% in 2007-08, remaining consistent at around 10% in 2008-09 and 2009-10.
- Auto: The participation rate is around 0% in 2007-08, remaining consistent at around 0% in 2008-09 and 2009-10.
- BA: The participation rate is around 0% in 2007-08, remaining consistent at around 0% in 2008-09 and 2009-10.
# College Performance Report

## NTO Programs for Males- 5P1

<table>
<thead>
<tr>
<th>Program</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total in NTO Programs for Males</strong></td>
<td>42/507</td>
<td>43/522</td>
<td>43/554</td>
</tr>
<tr>
<td></td>
<td>8.28%</td>
<td>8.24%</td>
<td>7.76%</td>
</tr>
<tr>
<td><strong>Cosmetology</strong></td>
<td>1/19</td>
<td>0/21</td>
<td>0/20</td>
</tr>
<tr>
<td></td>
<td>5.26%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Health and Medical Administrative Services</strong></td>
<td>1/21</td>
<td>0/19</td>
<td>0/28</td>
</tr>
<tr>
<td></td>
<td>4.76%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Physical Therapist Assistant</strong></td>
<td>2/13</td>
<td>11/52</td>
<td>14/63</td>
</tr>
<tr>
<td></td>
<td>15.38%</td>
<td>21.15%</td>
<td>22.22%</td>
</tr>
<tr>
<td><strong>Nursing</strong></td>
<td>29/340</td>
<td>24/298</td>
<td>17/283</td>
</tr>
<tr>
<td></td>
<td>8.53%</td>
<td>8.05%</td>
<td>6.01%</td>
</tr>
<tr>
<td><strong>LPN/LVN</strong></td>
<td>6/65</td>
<td>3/66</td>
<td>5/61</td>
</tr>
<tr>
<td></td>
<td>9.23%</td>
<td>4.55%</td>
<td>8.20%</td>
</tr>
<tr>
<td><strong>Business Support and Assistant</strong></td>
<td>3/47</td>
<td>5/66</td>
<td>6/61</td>
</tr>
<tr>
<td></td>
<td>6.38%</td>
<td>7.58%</td>
<td>9.84%</td>
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## College Performance Report
### NTO Programs for Females- 5P2

<table>
<thead>
<tr>
<th>Program</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total in NTO Programs for Females</strong></td>
<td>6/42</td>
<td>14/40</td>
<td>13/45</td>
</tr>
<tr>
<td></td>
<td>14.29%</td>
<td>35.00%</td>
<td>28.89%</td>
</tr>
<tr>
<td><strong>Computer Programming</strong></td>
<td>4/6</td>
<td>1/2</td>
<td>1/3</td>
</tr>
<tr>
<td></td>
<td>66.67%</td>
<td>50.00%</td>
<td>33.33%</td>
</tr>
<tr>
<td><strong>Criminal Justice</strong></td>
<td>2/25</td>
<td>8/24</td>
<td>6/21</td>
</tr>
<tr>
<td></td>
<td>8.00%</td>
<td>33.33%</td>
<td>28.57%</td>
</tr>
<tr>
<td><strong>Electrical and Power Transmission Installers</strong></td>
<td>0/5</td>
<td>0/2</td>
<td>0/1</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Auto Technology</strong></td>
<td>0/5</td>
<td>2/5</td>
<td>1/12</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>40.00%</td>
<td>8.33%</td>
</tr>
<tr>
<td><strong>Business Administration</strong></td>
<td>0/1</td>
<td>3/6</td>
<td>4/6</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>50.00%</td>
<td>66.67%</td>
</tr>
</tbody>
</table>
College Programs Nontraditional for Females – Completion – 5p2

![Graph showing completion rates for different programs from 2007-08 to 2009-10. The graph has a y-axis ranging from 0.00% to 80.00% and an x-axis with years 2007-08, 2008-09, and 2009-10. Different lines represent different programs: All, CP, CJ, EPTI, Auto, and BA. The completion rates show fluctuations across the years for each program.]
### College Performance Report
#### NTO Programs for Males- 5P2

<table>
<thead>
<tr>
<th>Program</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total in NTO Programs for Males</strong></td>
<td>3/60</td>
<td>3/83</td>
<td>10/106</td>
</tr>
<tr>
<td></td>
<td>5.00%</td>
<td>3.61%</td>
<td>9.43%</td>
</tr>
<tr>
<td><strong>Cosmetology</strong></td>
<td>0/11</td>
<td>0/19</td>
<td>0/14</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Health and Medical Administrative Services</strong></td>
<td>0/4</td>
<td>0/3</td>
<td>0/8</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Physical Therapist Assistant</strong></td>
<td>0/0</td>
<td>0/0</td>
<td>3/11</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>0.00%</td>
<td>27.27%</td>
</tr>
<tr>
<td><strong>Nursing</strong></td>
<td>0/15</td>
<td>2/24</td>
<td>5/30</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>8.33%</td>
<td>16.67%</td>
</tr>
<tr>
<td><strong>LPN/LVN</strong></td>
<td>3/27</td>
<td>1/21</td>
<td>2/22</td>
</tr>
<tr>
<td></td>
<td>11.11%</td>
<td>4.76%</td>
<td>9.09%</td>
</tr>
<tr>
<td><strong>Business Support and Assistant</strong></td>
<td>0/3</td>
<td>0/8</td>
<td>0/13</td>
</tr>
<tr>
<td></td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
Worksheet Activity

☐ Review your Texas Performance Report Data for your program
☐ Complete Sections 3, 4 & 5
☐ Identify other data sources you could review
Documenting Performance Results

- Action Research Plan
STEP TWO

Identify Root Causes
Why Search for Root Causes?

- Keep from fixating on the “silver bullet” strategy
- Identify the conditions or factors that cause or permit a performance gap to occur
- Direct cause (i.e. instructional practice)
- Indirect cause (i.e. teacher training)
How to Identify Root Causes

- Search for most direct and highest impact causes
- Employ a systematic evidence-based process
- Formulate and test theories or hypotheses
- Draw on current research and evaluation
- Use multiple methods and data sources
- Likely to find multiple causes
Phase 1: Identify Potential Causes

- Review Research Literature
- Review Program/Institutional Evaluations and Effectiveness Reviews
- Conduct Focus Groups
- Peer Benchmarking
- Interviews & Surveys
- Brainstorm
Review Research Summary

☐ “Nontraditional Career Preparation: Root Causes and Strategies”

☐ Authors: Lynn Reha, ICSPS; Mimi Lufkin, NAPE; Laurie Harrison, Foothill Associates
Academic Proficiency

- Very predictive for women
- Not as predictive for men
- Societal stereotypes about women’s lack of ability in math and science negatively affect performance – stereotype threat
- Women may have poorly developed spatial and visualization skills
Spatial and Visualization Activity
Access to and Participation in STEM

- Shrinking gender gap in performance on national assessments in math and science between boys and girls
- Still significant gaps when looking at gender AND race/ethnicity or socio-economic status
- Girls not translating their academic success in STEM to careers in STEM
Curriculum Materials

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

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

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

- Nontraditional faculty and staff
- Acceptable behavior in hallways, cafeteria, school events, busses, etc.
- Administration and staff support and encouragement
- Extracurricular activities
  - Clubs, After School Program
  - Competitions
  - Summer Camp
Support Services

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

- More than just brochures and posters
- Get beyond the images
- Beware of subtle messages
- Use of interest inventories
  - For men, interest precedes self-confidence, but for women self-confidence precedes interest
- Lack of understanding of careers
- Wage earnings information
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.
Techno Bag Exercise
Occupational Perception

- Job Satisfaction
- Career Family Balance
- Wage Potential
- Career Purpose
Family Characteristics and Engagement

- Parents are the #1 influence of student college major and career choice
- Negative messages from people with emotional influence difficult to overcome
- Family role models
- Lower socioeconomic males more likely to chose nontraditional careers
- Upper socioeconomic females more likely to chose nontraditional careers
Self-efficacy

- Attribution Theory
  - Girls more likely to attribute success to external factors and failure to internal factors

- Stereotype Threat
  - Being at risk of confirming a negative stereotype

- Locus of Control
  - When students feel they are in control of their lives and their futures they are more likely to select nontraditional options
Social Attitudes

- Bias and Discrimination
  - Gender schema
    - Assumptions about gender from birth on
  - Accumulative Advantage
    - Members of a disadvantaged group have to accumulate more than 1% advantage to be considered the same as the advantaged group
  - Implicit bias
    - Unconscious associations
Media Representation

- About-face.org
Student Attitudes/Peer Influence

- Adolescent social norms
- Fear of “looking dumb”
- Girls more concerned about appearances than boys
- Men more reference group independent
- Peer harassment or support
- Critical mass
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
Review Research Summary

- “Nontraditional Career Preparation: Root Causes and Strategies”

- Authors: Lynn Reha, ICSPS; Mimi Lufkin, NAPE; Laurie Harrison, Foothill Associates
Questions?
Phase 1: Identify Potential Causes

- Review Research Literature
- Review Program/Institutional Evaluations and Effectiveness Reviews
- Conduct Focus Groups
- Peer Benchmarking
- Interviews & Surveys
- Environmental Scan
- Brainstorm
Group Root Causes Activity

In groups of 5

☐ Review the root causes cards

☐ Arrange the root causes by your group’s sense of their impact and relationship to students in programs nontraditional by gender

☐ Post the cards on the wall in whatever arrangement best fits your group’s thinking
Individual Root Causes Activity

- Place a sticker on the poster identifying the two most significant root causes that you have observed for students entering programs nontraditional for their gender.

- Write any additional root causes that have not been identified and place it on the “other root causes” poster.
Understand the Problem Before Seeking the Solution

- Conduct a root cause analysis
  - Conduct regular climate assessments
  - Interview students
    - Who drop out of nontraditional programs
    - Who stay in nontraditional programs
    - Who never choose
  - Conduct focus groups with
    - Teachers of nontraditional programs
    - Parents
    - Business/Industry/Advisory committee members
Resources available at www.stemequitypipeline.org

- Survey Instruments
- How to Conduct Interviews
- How to Conduct Focus Groups
Other Resources

The New Look
Self-Study

Illinois Center for Specialized Professional Support
Resources

- Assessing Women and Men in Engineering [www.aweonline.org](http://www.aweonline.org)

- Implicit Association Test [https://implicit.harvard.edu/implicit/](https://implicit.harvard.edu/implicit/)
Phase 2: Analyze and Evaluate Potential Causes

Group Causes Into Two Categories:

- **Group 1: Causes Within Your Control**
  - School scheduling
  - Classroom climate
  - Faculty awareness and capacity

- **Group 2: Causes Outside Your Control**
  - Media representation
  - Family demographics
Phase 3: Test and Evaluate Potential Causes Within Your Control

Select root causes that:

- Have the strongest theory and evidence to support them
- Focus on direct causes of performance gaps
- Address the most critical needs
- Provide the best opportunity to have high impact on performance
- Are supported by stakeholders who will help develop and implement solutions

(See page 17 of the OVAE Guidebook)
Worksheet Activity

☐ Review Sections 1-5
☐ Revisit your why statements
☐ Complete Section 6
Documenting Performance Results

- Action Research Plan
Five-Step Improvement Process

- **Step 1:** Document Performance Results
- **Step 2:** Identify Root Causes
- **Step 3:** Choose Best Solutions
- **Step 4:** Pilot-Test and Evaluate Solutions
- **Step 5:** Implement Solutions
Questions?

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