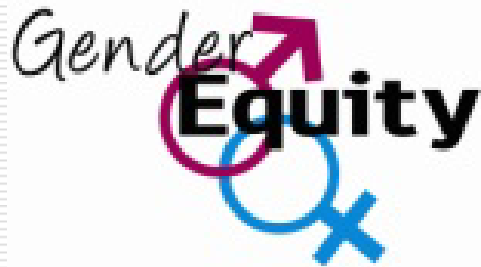


# Increasing the Participation and Completion of Students in Nontraditional CTE

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Mimi Lufkin  
Dallas, Texas  
October 5-6, 2009

# 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

---

- ❑ Children's Defense Fund report on children in poverty in early 1970
  - ❑ 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
-

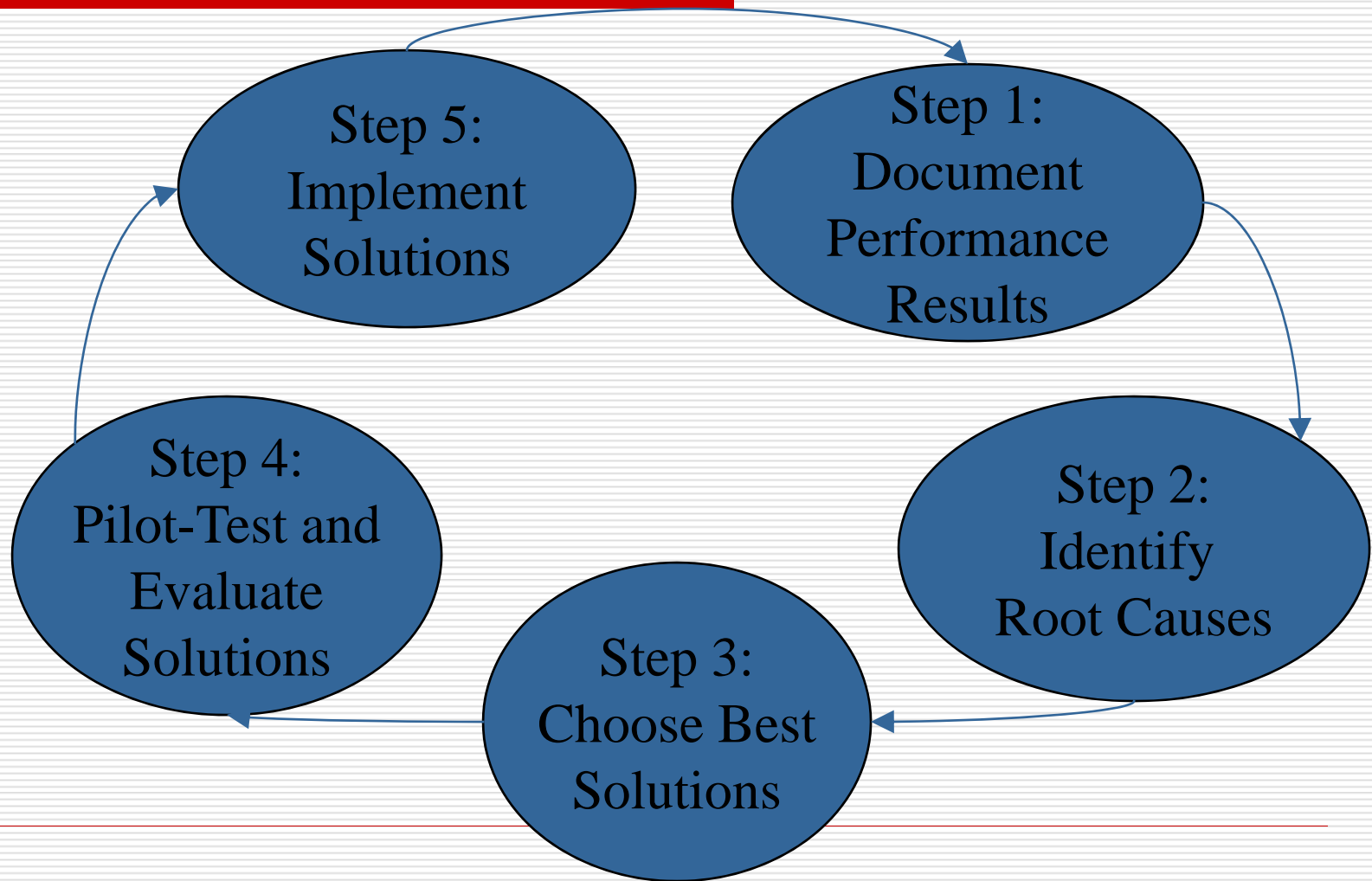
# Startling Statements

---

- 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

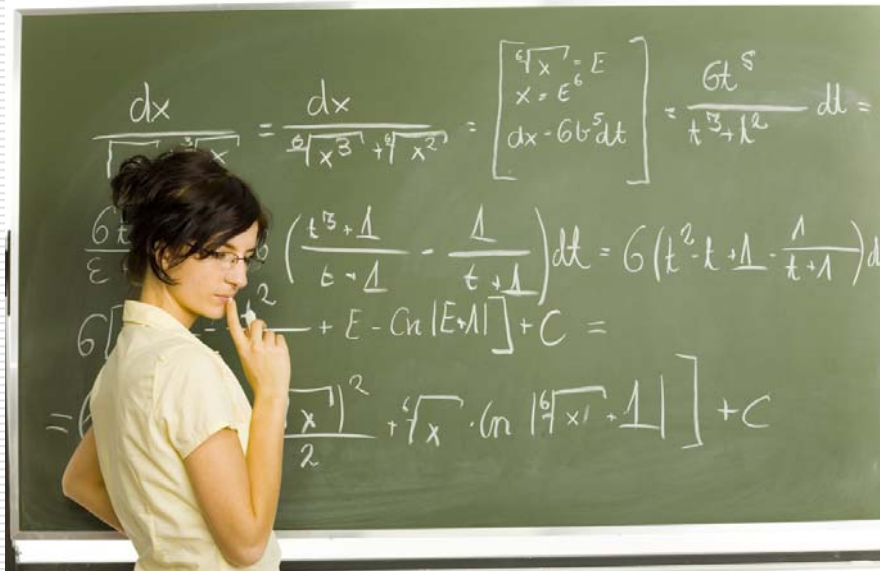
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# STEP ONE

---

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 =

$$\frac{\# \text{ underrepresented students participating in NT CTE}}{\text{all students participating in NT CTE}}$$

OR

$$\frac{\# \text{ of females enrolled in pre-engineering}}{\text{All students (males and females) enrolled in pre-engineering}}$$

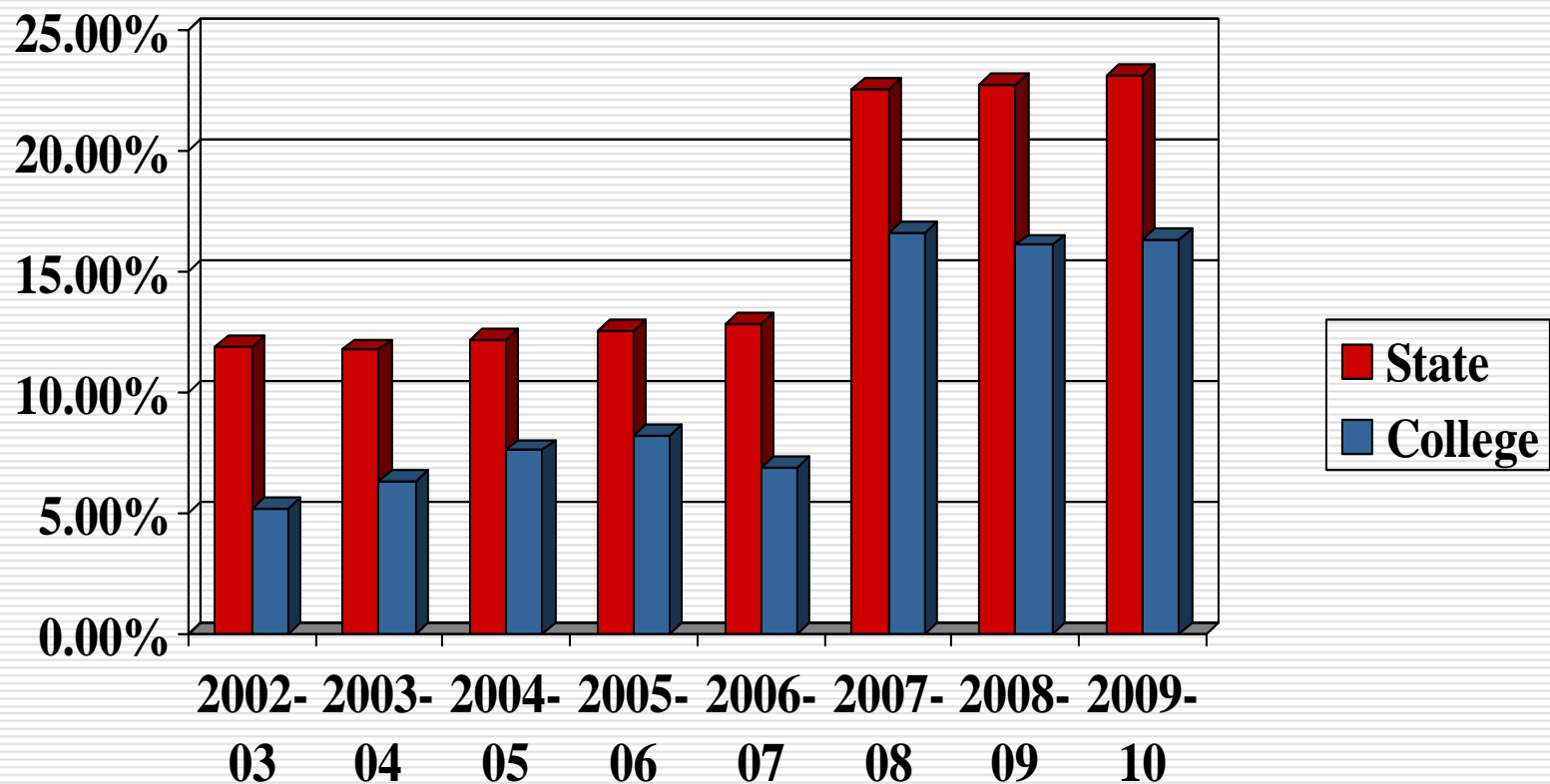
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# Texas Performance Report – 5P1

Program Year	College	State
2002-03	5.20%	11.91%
2003-04	6.31%	11.75%
2004-05	7.60%	12.17%
2005-06	8.20%	12.58%
2006-07	6.91%	12.81%
2007-08	16.59%	22.52%
2008-09	16.08%	22.73%
2009-10	16.32%	23.09%

# Texas Performance Report- 5P1

---



# Perkins Accountability Measure

---

5p2 - Completion Rate =

$$\frac{\# \text{ underrepresented students completing NT CTE}}{\text{all students completing NT CTE}}$$

OR

$$\frac{\# \text{ of females completing pre-engineering}}{\text{All students (males and females) completing pre-engineering}}$$

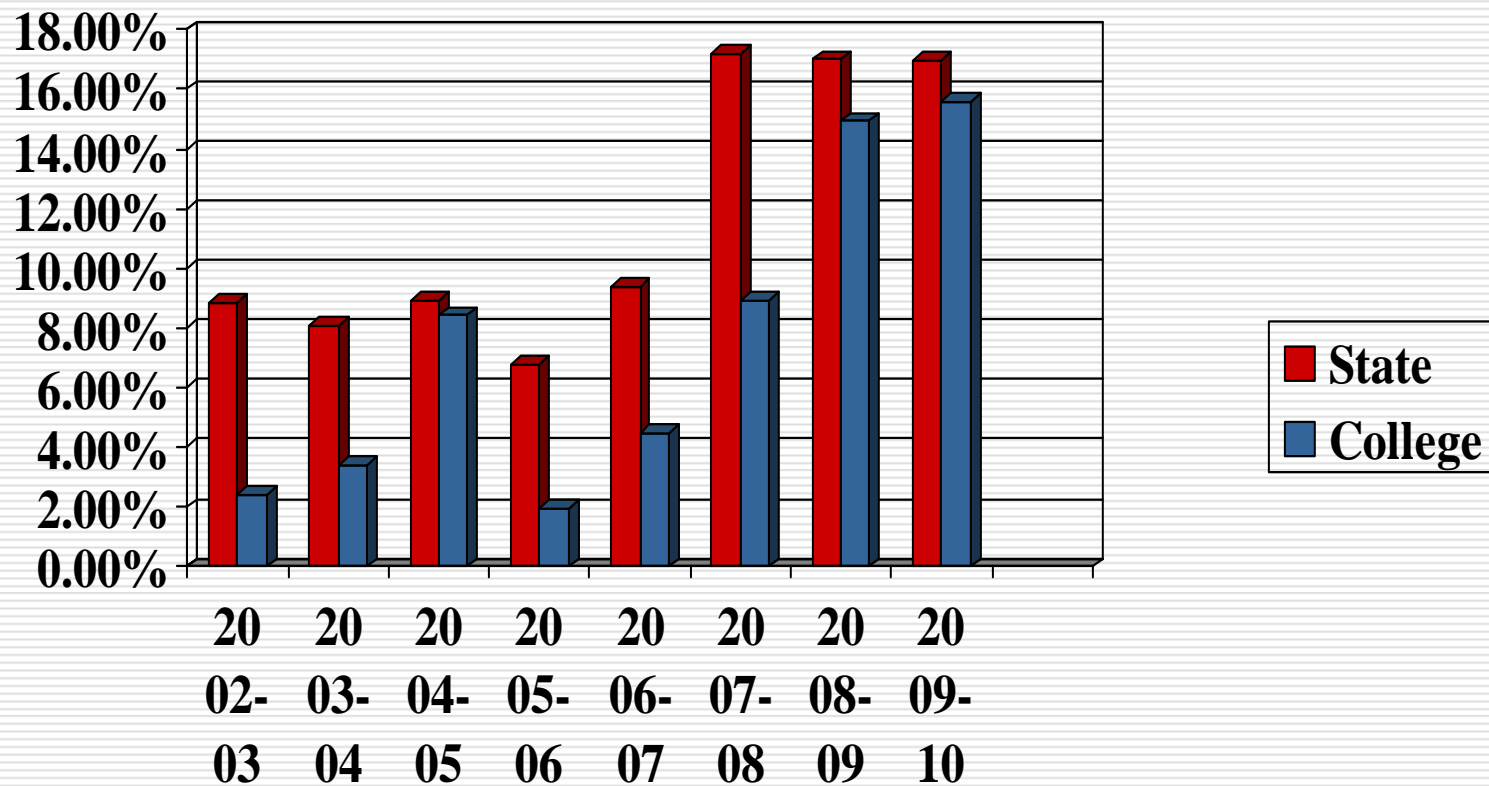
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# Texas Performance Report – 5P2

Program Year	College	State
2002-03	2.41%	8.84%
2003-04	3.41%	8.08%
2004-05	8.42%	8.91%
2005-06	1.96%	6.78%
2006-07	4.50%	9.39%
2007-08	8.91%	17.20%
2008-09	14.93%	16.99%
2009-10	15.58%	16.96%

# Texas Performance Report- 5P2

---

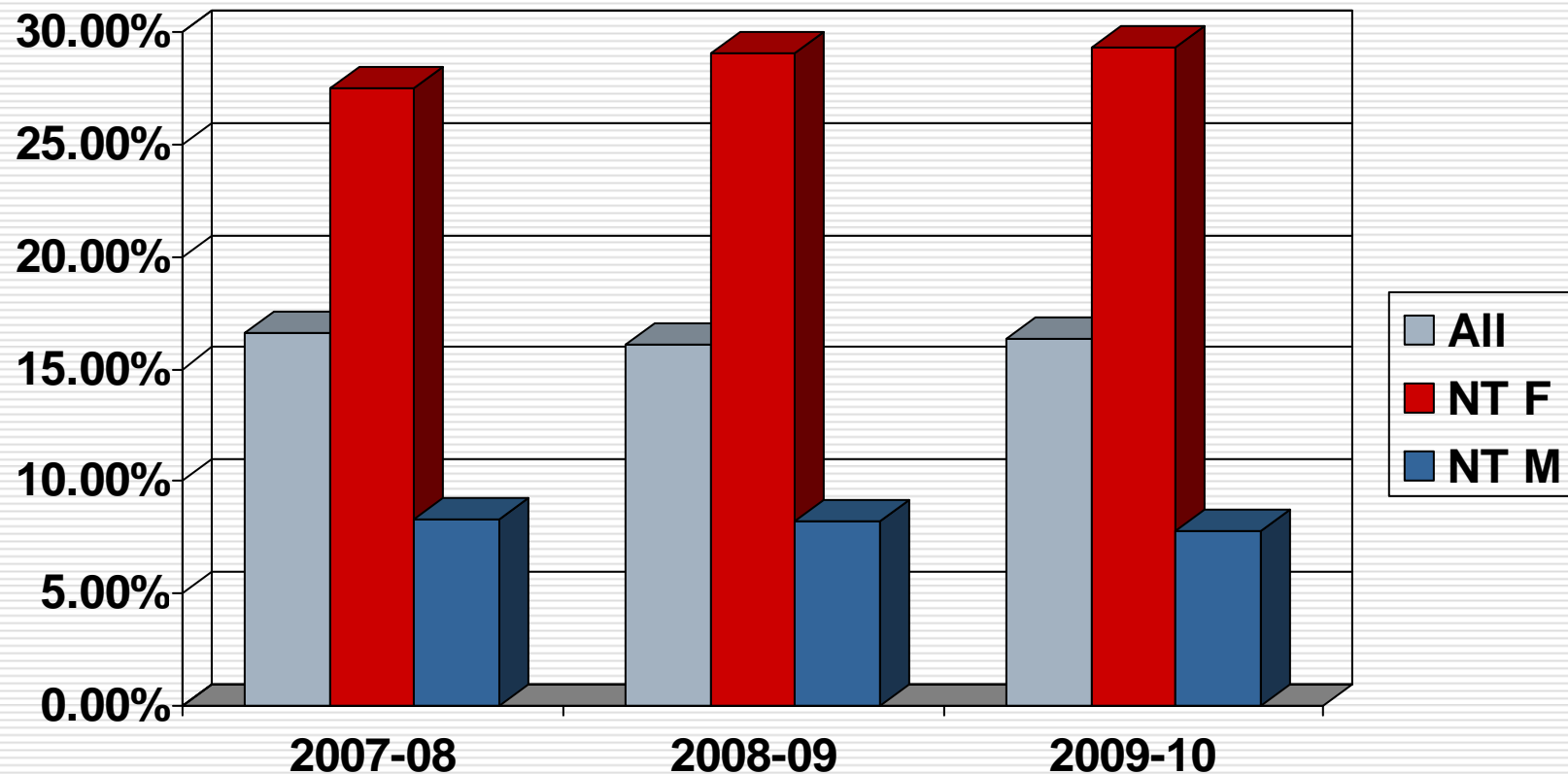


# College Programs Nontraditional by Gender – Participation - 5p1

Program Year	Nontraditional for females	Nontraditional for males
2007-08	106/385 27.53%	42/507 8.28%
2008-09	93/320 29.06%	43/522 8.24%
2009-10	87/297 29.29%	43/554 7.76%

# College Programs Nontraditional by Gender – Participation – 5p1

---

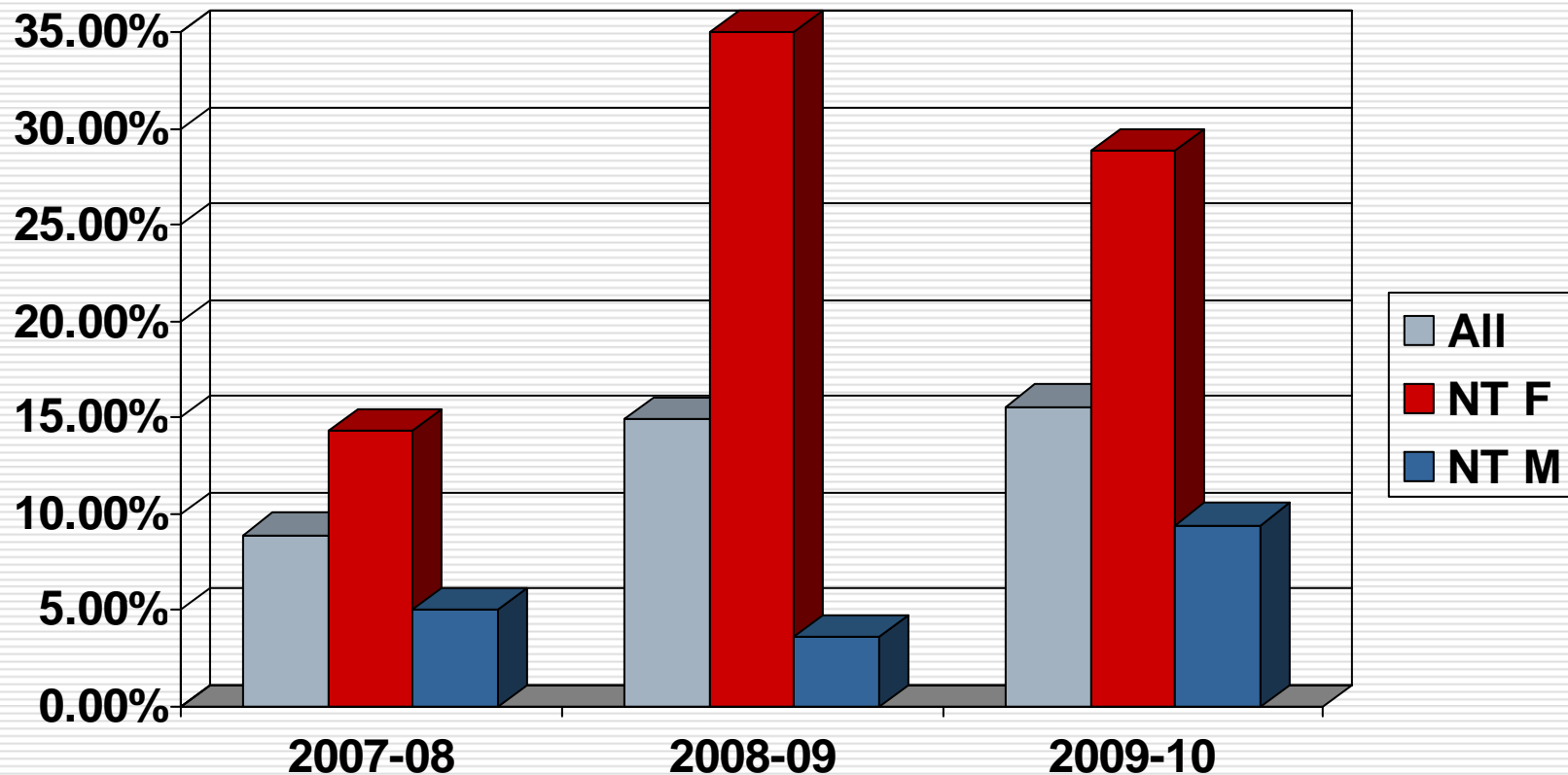


# College Programs Nontraditional by Gender – Completion - 5p2

Program Year	Nontraditional for females	Nontraditional for males
2007-08	6/42 14.29%	3/60 5.00%
2008-09	14/40 35.00%	3/83 3.61%
2009-10	13/45 28.89%	10/106 9.43%

# 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
-

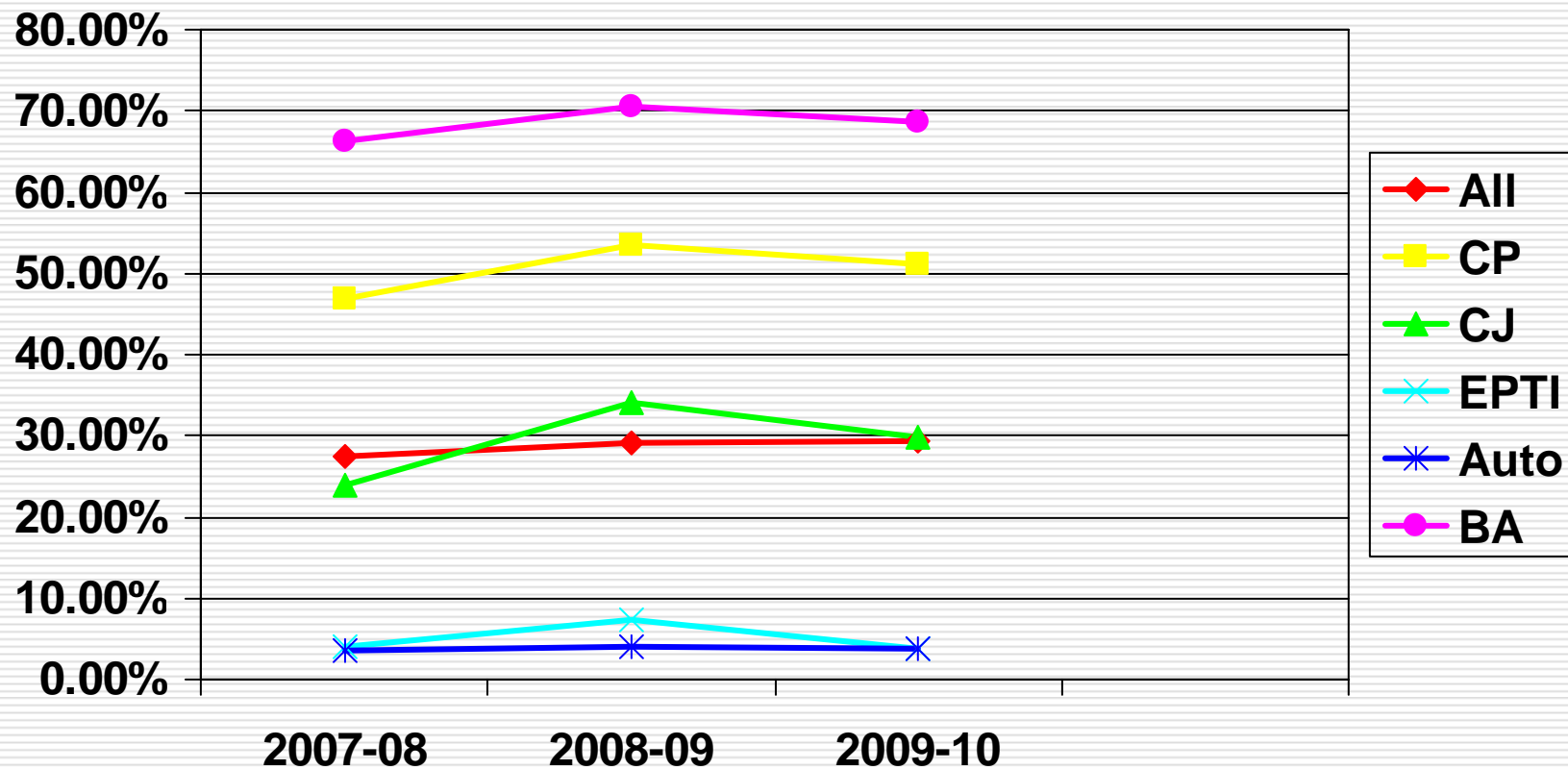
# College Performance Report

## NTO Programs for Females- 5P1

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

# College Programs Nontraditional for Females – Participation – 5p1

---



# College Performance Report

## NTO Programs for Males- 5P1

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

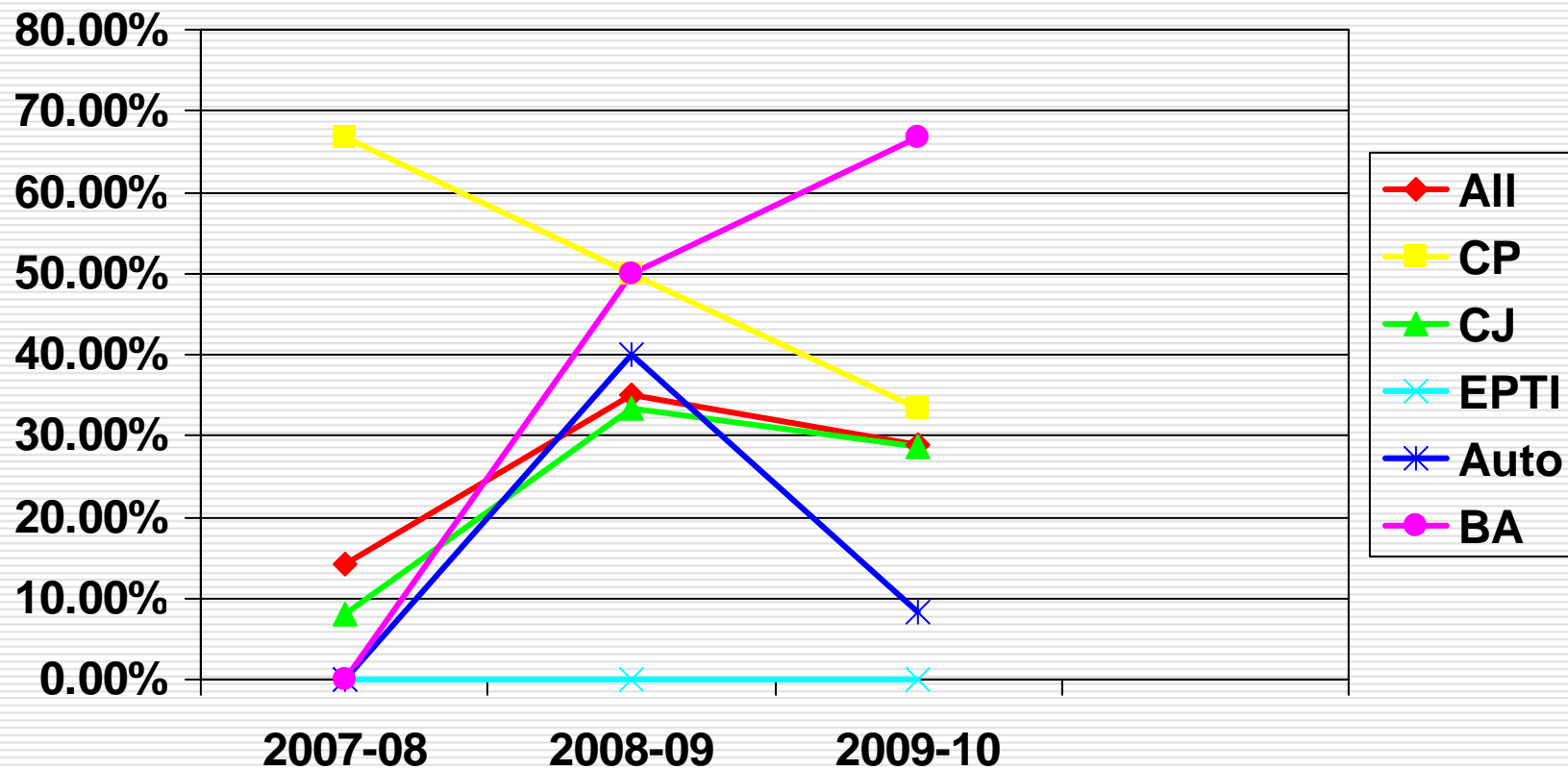
# College Performance Report

## NTO Programs for Females- 5P2

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

# College Programs Nontraditional for Females – Completion – 5p2

---



# College Performance Report

## NTO Programs for Males- 5P2

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

# 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 in to 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

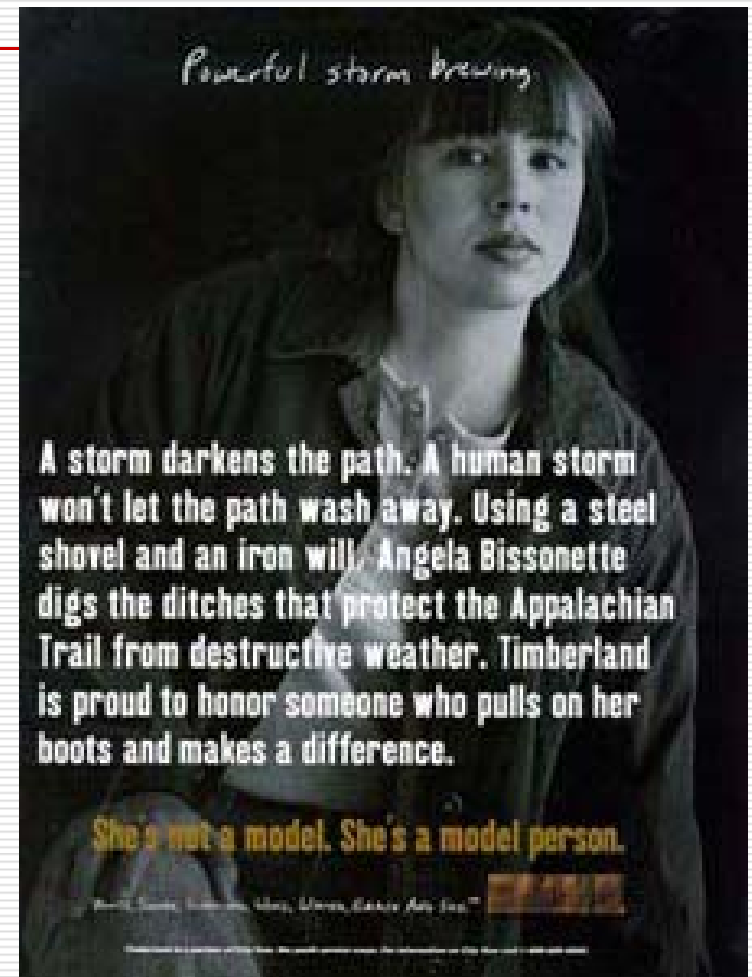
---

- 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



A storm darkens the path. A human storm won't let the path wash away. Using a steel shovel and an iron will, Angela Bissonette digs the ditches that protect the Appalachian Trail from destructive weather. Timberland is proud to honor someone who pulls on her boots and makes a difference.

**She's not a model. She's a model person.**

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# 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](http://www.stemequitypipeline.org)

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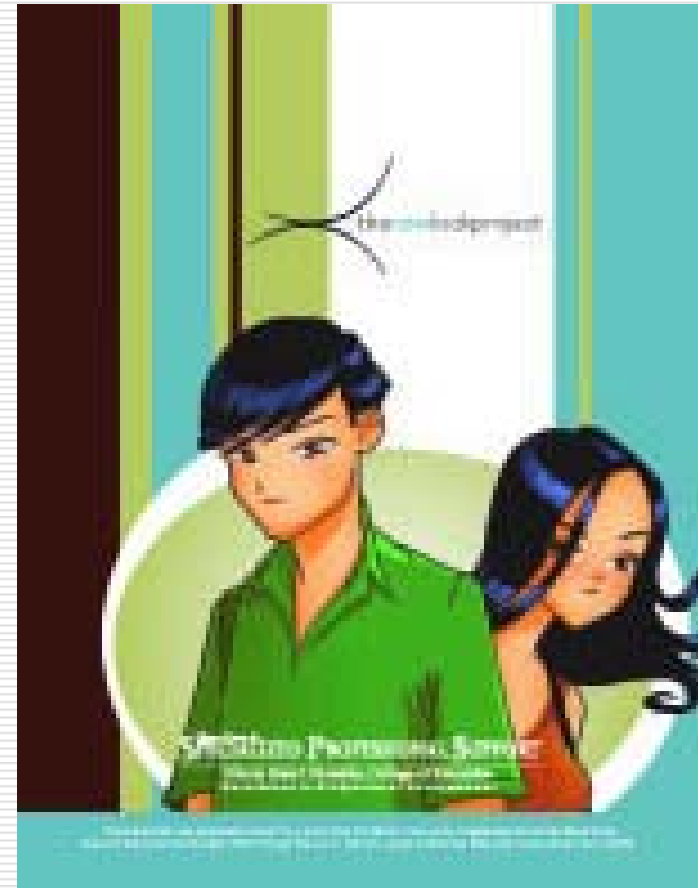
- Survey Instruments
  - How to Conduct Interviews
  - How to Conduct Focus Groups
-

# Other Resources

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## [The New Look Self-Study](#)

Illinois Center  
for  
Specialized  
Professional  
Support



# Resources

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

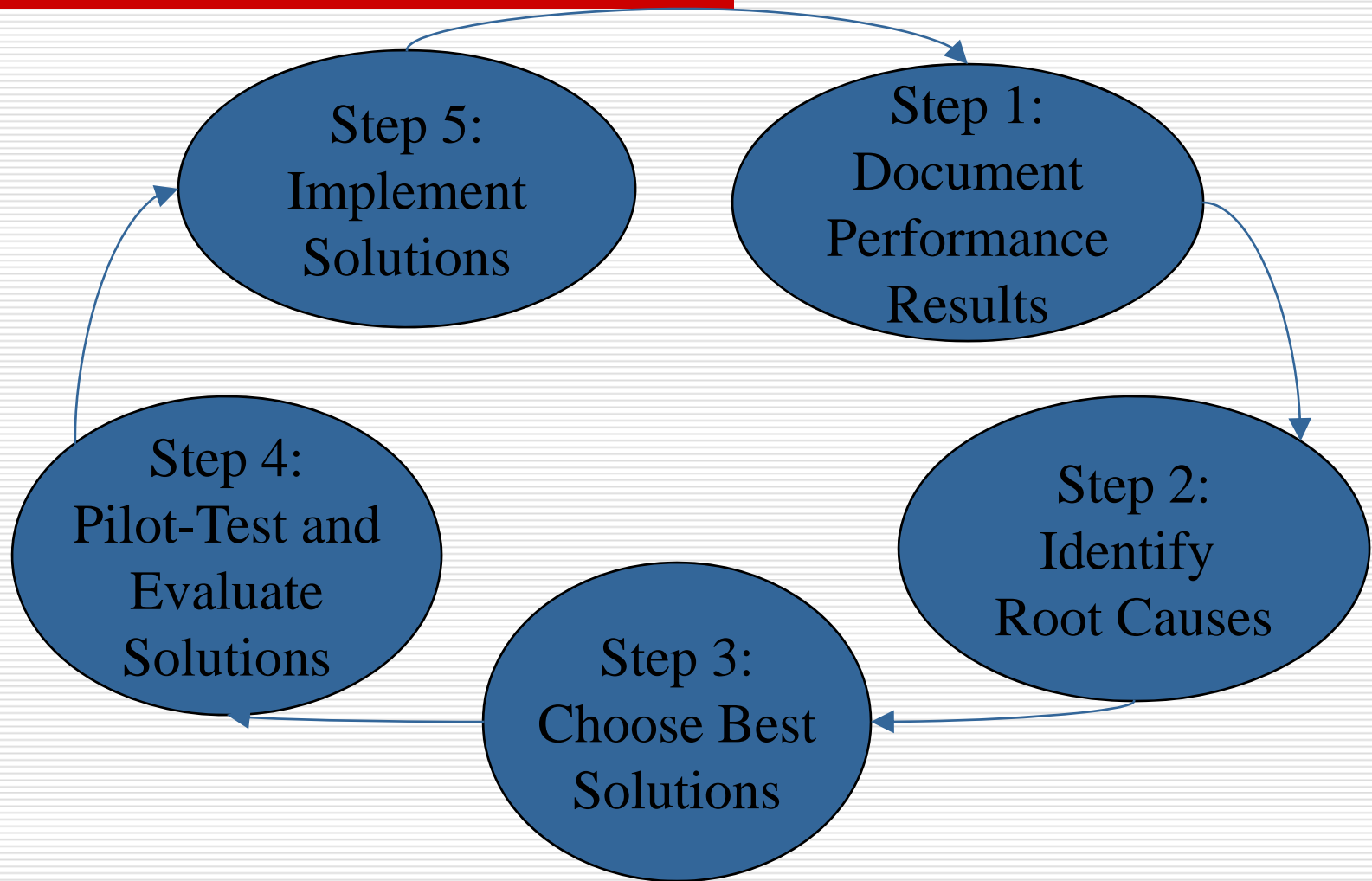
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Action Research Plan

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# Five-Step Improvement Process

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# Questions?

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National Alliance for  
Partnerships in Equity