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RESEARCH ■ SUPPORT 

STEM Equity Pipeline + MN New Look:
Improving Nontraditional Programs

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Minnesota New Look:
An Introduction

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MN New Look

The MN New Look Project
provides financial and resource support
to secondary and postsecondary Minnesota CTE educators
to identify, develop, and strengthen services for NTO students.



Resources Provided

- Launch and awareness workshop
- Personalized self-study support
- Application process
- Mini-award
- Newsletter
- Liaison for technical assistance
- Showcase workshop
- Final report/Electronic dissemination



Anticipated Impact

- Increased collaboration
- Increased recruitment
- Increased retention
- Greater visibility for nontraditional careers
- Greater visibility for Career and Technical Education
- Information for long-range planning



“The funding was the impetus to address the need we had, but the information was as important as the money.

We probably would not have focused on nontraditional careers if the New Look grant had not been awarded.

It has helped our school as seen in the increased enrollment in upper level math courses among female students.



Our faculty will be made aware of nontraditional occupations and how we, as educators, can make our students aware of and successful in careers they may not have considered because of gender bias."

**—Cathy Flood
Bement High School**



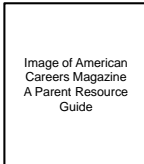
Steps for the Perkins Professional

- Attend program improvement training
- Conduct self-study (Section 2 of Application)
- Complete Application
- Conduct activity
- Analyze results of activity
- Disseminate at Poster Session



Sample Solution

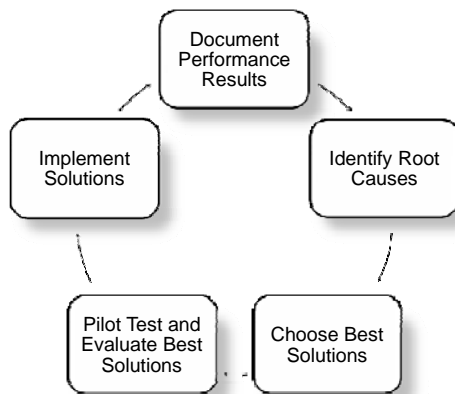
Cluster: Health Science
Pathway: Therapeutic Services Pathway
Root cause: (Family) Family Engagement Engagement of family of origin has a strong influence on career choice.
Question: What opportunities do parents of boys have to understand benefits of nursing for men?
Strategy: Design activities to promote family roles in gender-neutral career guidance
Activity: Distribute information to parents about the advantages of nursing for men.
Sample: American Careers NTO Parent edition



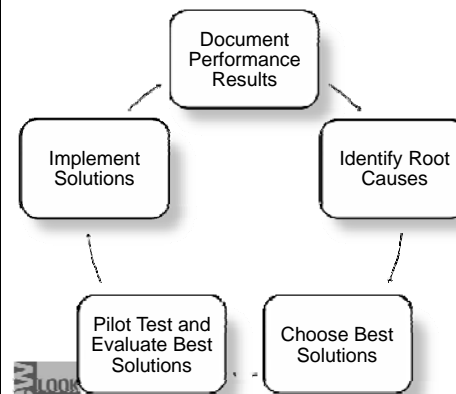
Sample Solution

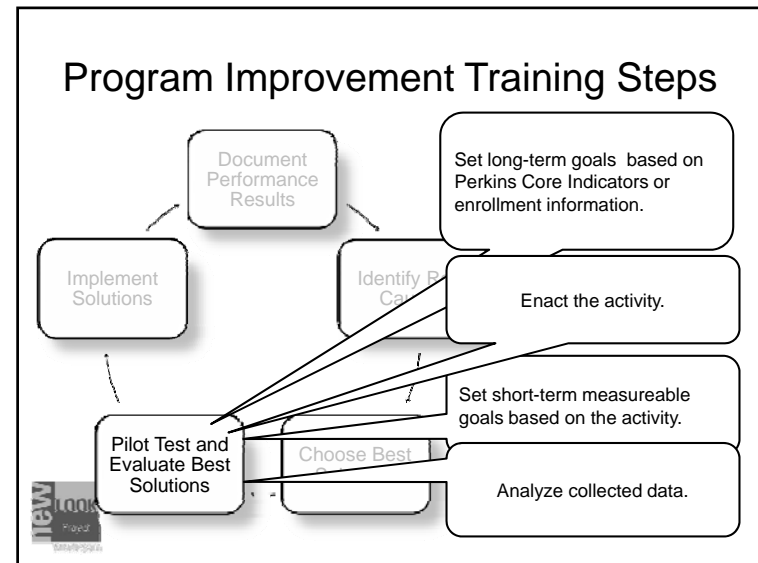
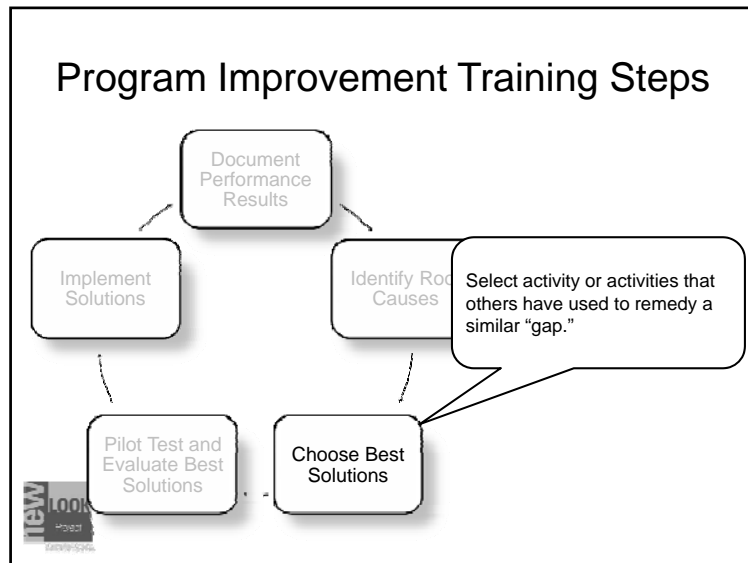
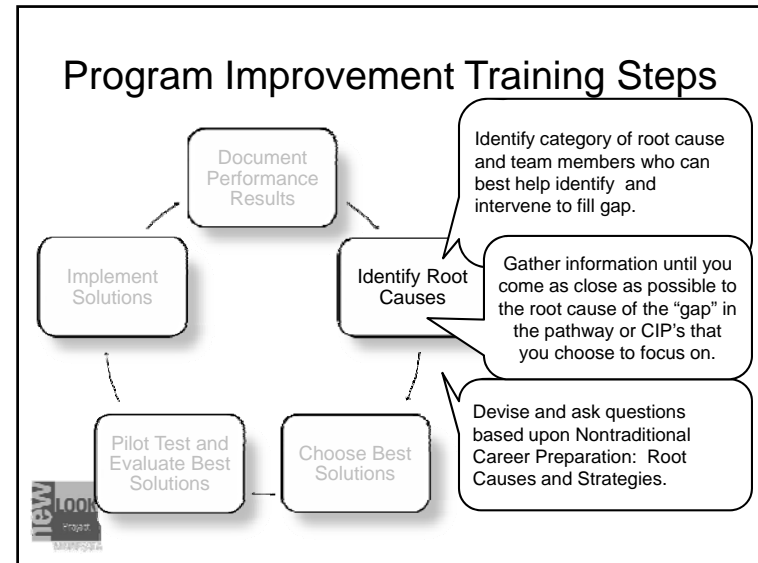
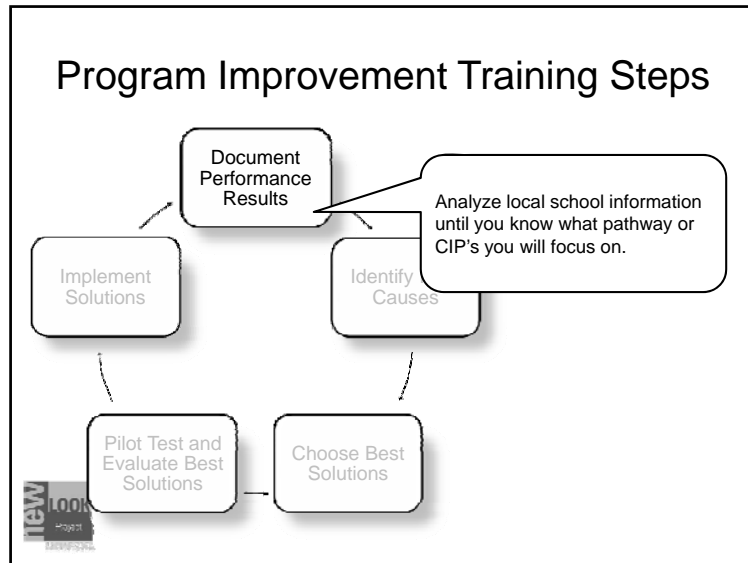
Cluster: Transportation, Distribution and Logistics
Pathway: Facility and Mobile Equipment Maintenance Pathway
Root cause: Internal/Individual (Stereotype Threat) Achievement is positively influenced by the reduction in stereotype threat.
Question: What knowledge about stereotype threat has been offered to instructors?
Strategy: Provide professional development on supportive learning environments
Activity: Conduct comprehensive professional development including tips on reducing stereotype threat
Sample: www.reducingstereotype.org

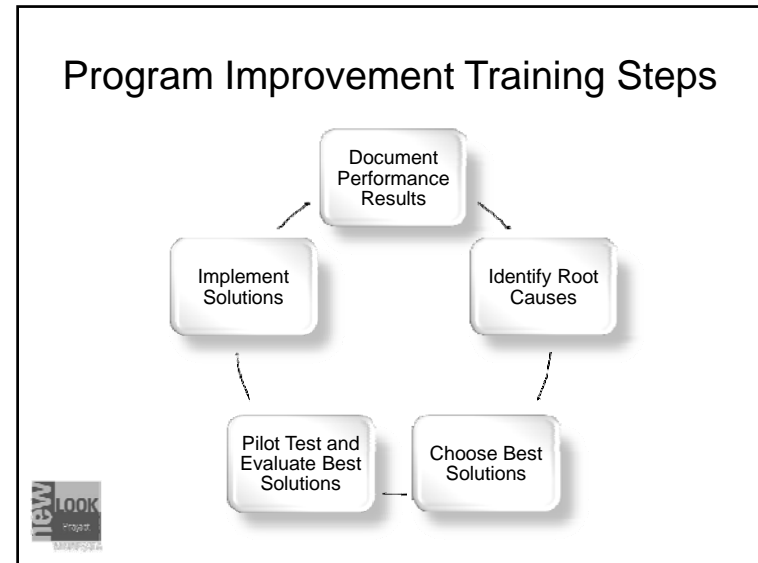
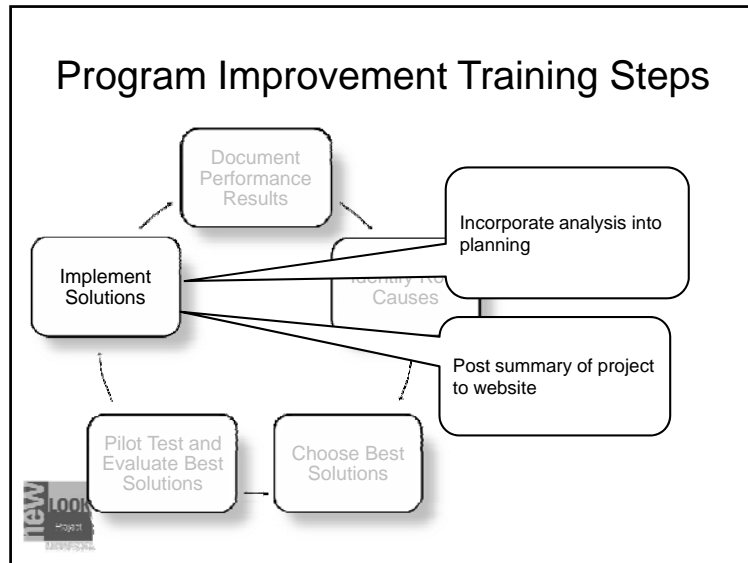
Program Improvement Training Steps



Program Improvement Training Steps







STEM Equity pipeline

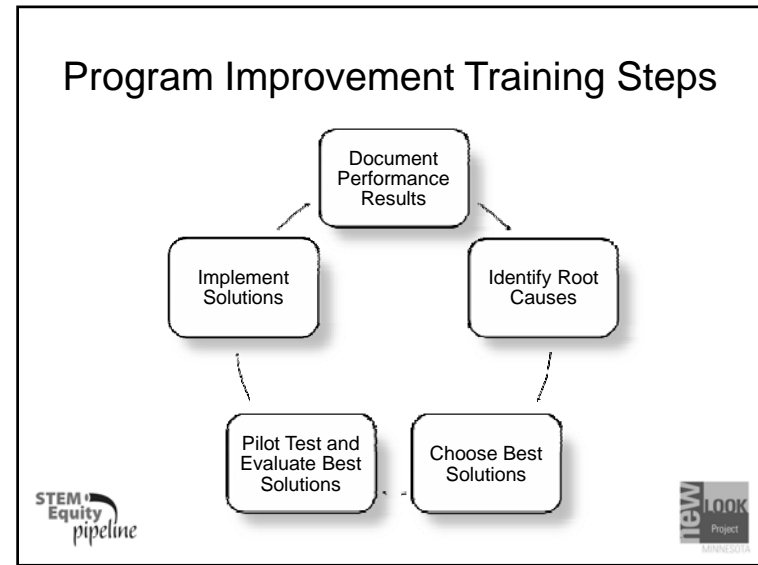
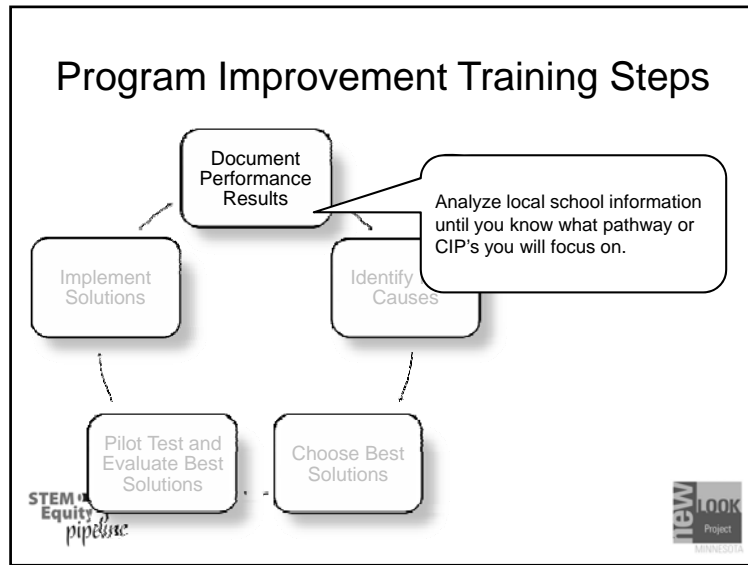
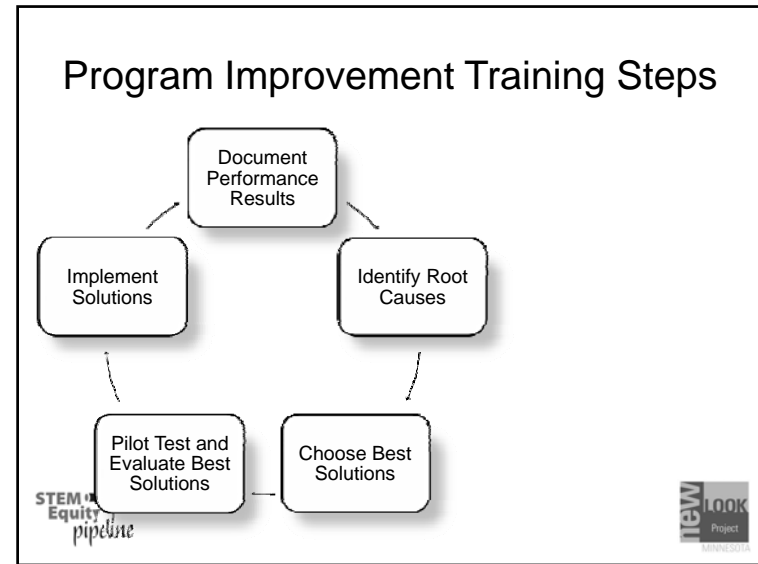
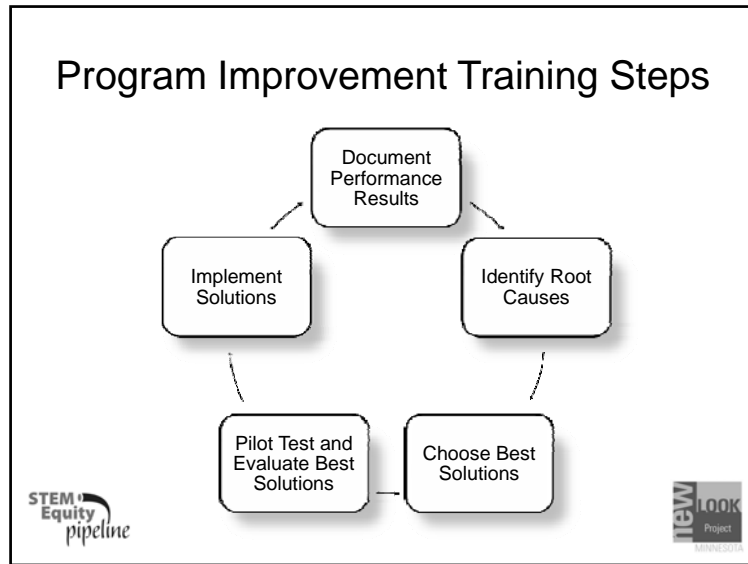
Document Performance Results

Howard Glasser

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Determine Root Causes

Lynn Reha



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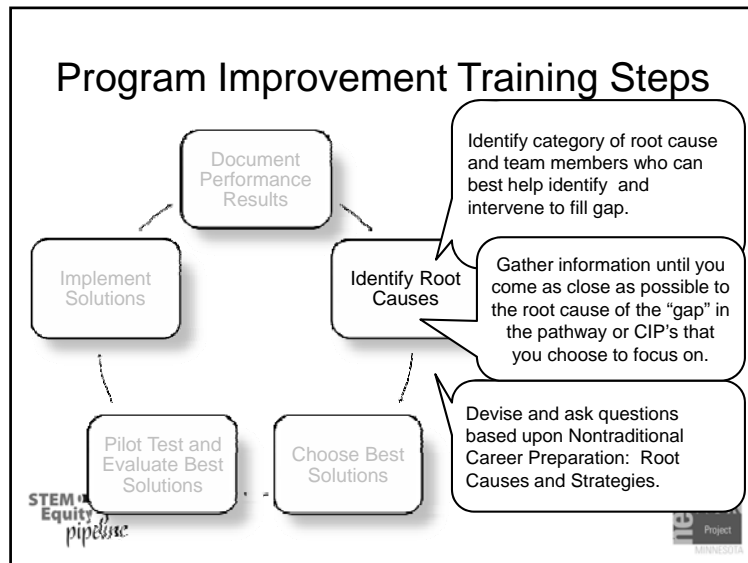
Identifying Root Causes

Leads to research-based root causes about “gaps” within the Pathway/CIP

Identify Root Causes

What information do I need to gather about this pathway/CIP in order to improve it?
 How do the root causes of participation and retention in nontraditional careers interact with this program?

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Building the Pipeline through Collaboration

It takes a village to address career gender fairness.

A team of concerned individuals can strengthen the pipeline.

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Root Causes-Focused Team

*Nontraditional Career Preparation:
Root Causes and Strategies*

organized around which Team Members might have the most influence on a particular root cause.



Categories of Root Causes= Areas of Influence of Team Members

- Education
- Career Information
- Family
- Internal/Individual
- Societal Issues
- Perkins Professionals
- Counselors
- Family
- Counselors/Students
- Community-Based Organizations; Counselors



Team discussion

Are there others you would like to invite to your team?

Do members of your team have strengths in several categories?



Example of Root Cause Research from each Category

(Education) Instructional strategy root cause research:

Females prefer learning experiences which they help design, which are learner-centered and which involve them in a community.

How do the root causes of participation and retention in nontraditional careers interact with this pathway/CIP?

What information do I need to gather about this pathway/CIP in order to improve it?



Gathering Information Based on Root Causes Research

(Education) Instructional strategy root cause research:

Females prefer learning experiences which they help design, which are learner-centered and which involve them in a community.

What opportunities do females in _____ CIP or _____ pathway have to do learner-centered, service-oriented designing projects?



Gathering Information Based on Root Causes Research

(Career Information) Wage potential

Women will participate in nontraditional occupations at a higher rate because many nontraditional occupations are high-wage, high-skill occupations.

How are women in _____ educational entity made aware of the high wages of the _____ CIP or _____ pathway?



Gathering Information Based upon Root Causes Research

(Family) Family Engagement

Characteristics and engagement of family of origin have a strong influence on career choice.

What opportunities do families relating to _____ educational entity have to learn about the benefits of a career in _____ pathway/CIP?



Gathering Information Based upon Root Causes Research

(Internal/Individual) Stereotype Threat

Achievement is positively influenced by the reduction in stereotype threat

What comprehensive professional development is offered to instructors regarding stereotype threat?



Gathering Information Based upon Root Causes Research

(Societal) Support services, such as the provision of career-related role models and mentors, aids participation and completion of education leading to nontraditional careers.

Who are the role models/mentors available and working with the students enrolled in this pathway?



Sample Questions

- As a team, select a focus: CIP, group of CIP's, pathway or cluster.
- As pairs or individuals, address as many categories as you have expertise.
- Within the category, select a root cause.
- Create questions that will get you information about the way that root cause is addressed in that focus at your school.
- Repeat with another root cause as you have time.
- Discuss how you will collect that information if you have time.



Sample Solution

Cluster: Health Science

Pathway: Therapeutic Services Pathway

Root cause: (Family) Family Engagement Engagement of family of origin has a strong influence on career choice.

Question: What opportunities do parents of boys have to understand benefits of nursing for men?

Strategy: Design activities to promote family roles in gender-neutral career guidance

Activity: Distribute information to parents about the advantages of nursing for men.

Sample: American Careers NTO Parent edition

Image of American Careers Magazine A Parent Resource Guide

Sample Solution

Cluster: Transportation, Distribution and Logistics

Pathway: Facility and Mobile Equipment Maintenance Pathway

CIP: 47.0603, 47.0604, 47.0606

Root cause: Internal/Individual Achievement is positively influenced by the reduction in stereotype threat.

Question: What knowledge about stereotype threat has been offered to instructors?

Strategy: Provide professional development on supportive learning environments

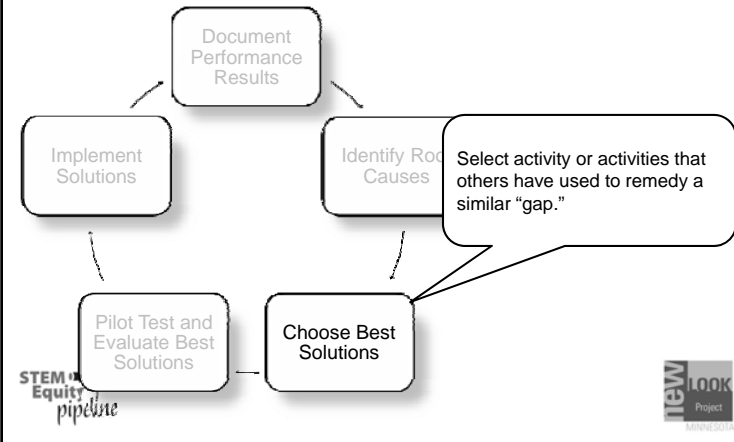
Activity: Conduct comprehensive professional development including tips on reducing stereotype threat

Sample: www.reducingstereotype.org

Sample Solution

Pathway: Maintenance, Installation and Repair Pathway
CIP: 15.0613 Manufacturing Technology/Technician
Root cause: (Societal) Role Model/Mentoring A mentoring relationship with a NT role model, especially one who blends career and non-career activities well, is a significant factor in a student's decision to pursue a nontraditional career
Question: What mentoring opportunities do females in manufacturing tech have?
Strategy: Provide training and support for mentors and mentees
Activity: Create informal learning situations with technology mentors
Sample: High Tech Girls Society

Program Improvement Training Steps




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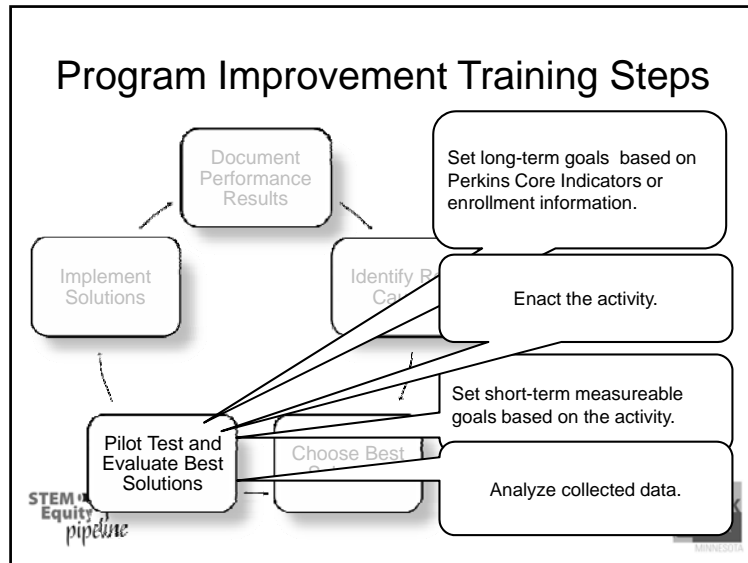
Select Best Solution

Mimi Lufkin


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Set Goals

Long-term and short-term goals



Pathway
Focus
Root Causes
Effective Practices

Goals

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Long-term goals

Start with long-term goals because . . .

- . . . impacting enrollment and completion takes time.
- . . . it builds the pipeline.
- . . . it supports partnering
- . . . it usually uses established measurement like performance indicators or institution-collected data.

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Long-term Goals

Essential Elements of a Good Long-Term Goal

- Specific what
- When (beginning and ending)
- Specific increase
- How measured

Long-term goal example:
From FY09 to FY11, female enrollment in Ag 010101 will increase by 5% as measured by Overton Banner Data Collection System.

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Short-term Goals

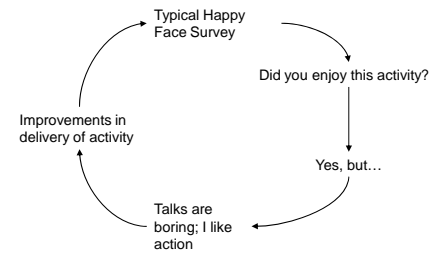
- Align and support achievement of long-term goals.
- May be tied to a specific activity.
- Generated through research on effective methods to reach long-term goal.
- Measured through activity-specific tools.
- Contain same elements as good long-term goals.

Short-term goal example:

80% of participants in Female Farm Today workshop will increase amount of information about farm business practices as measured in pre-and post-workshop survey.



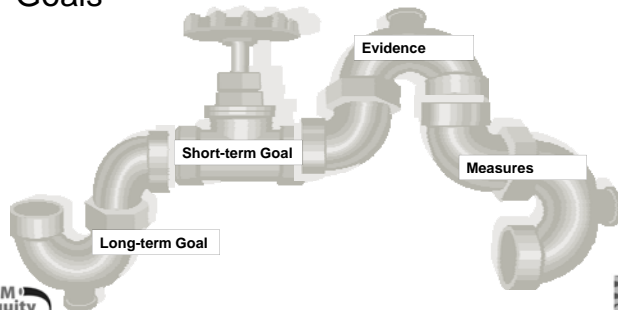
Danger: Closed Feedback Loop



An important component is missing: Information on whether objectives of activity have been met.



Alignment of Long-term and Short-term Goals



Short-term goals

How can the short-term goal be made measurable?



Objective: increase participation in mentoring for nontraditional careers

Evidence: mentoring program participants will complete program activities

Measures: Attendance sheets at mentoring launch workshop;
of e-mail reported by each mentor



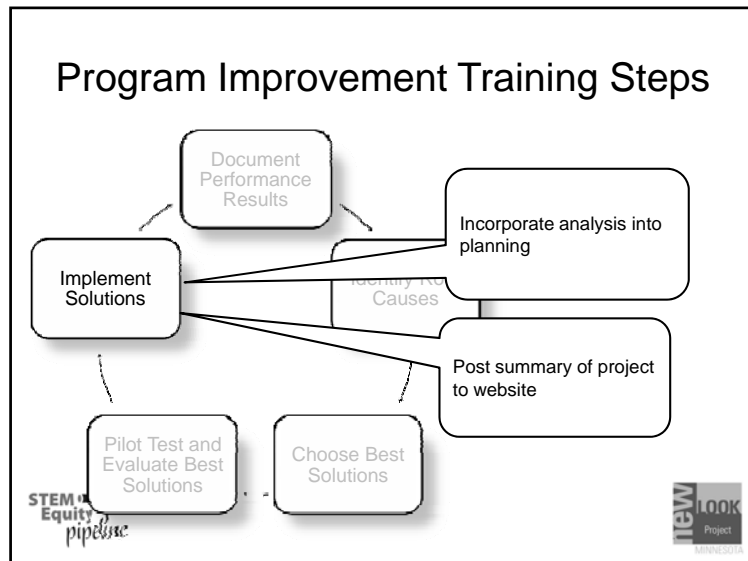
Short-term goal: 90% of mentoring program participants will participate in 80% of program activities as measured by attendance at launch workshop and # of e-mail reported by mentors.

- Align short term goals with long term goals
- Tie long term goals to existing data collection systems
- Tie short term goals to activities
- Check for any required data
- Determine types of data needed—
quantitative, qualitative, or both?
- Decide on a data collection instrument
 - [Assessing Women in Engineering](#)
 - [ICSPS New Look Showcase](#)
- Avoid closed feedback loop



Conduct Activity

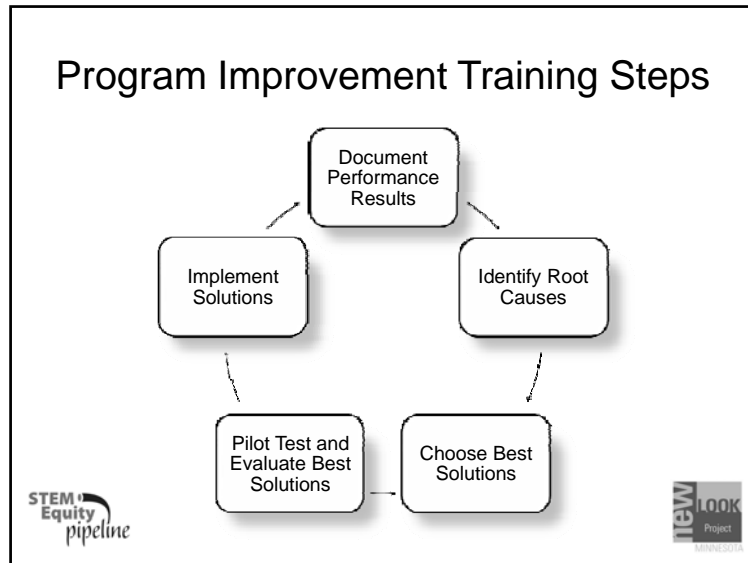
- Utilize audience knowledge to prepare excellent marketing
- Align pre-and post surveys to objectives
- Record through pictures and video
- Publicize event through local media

Final Steps

- Analyze results
 - Compare to objectives
 - Adjust activity for next year based upon findings
 - Address new/related root causes
- Disseminate
 - Send summary for posting
 - Send lots of pictures!








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Minnesota New Look: Next Steps

Lynn Reha

- ### Steps for the Perkins Professional
- Attend program improvement training
 - Conduct self-study
 - Complete application
 - Conduct activity
 - Analyze results of activity
 - Disseminate
- 

- ### Self-Study Choices
- New Look Online
 - Based upon research 2001 and prior
 - Final product is one page summary
 - Minnesota New Look Self-Study Summary
 - Based upon research 2001-2008
 - Features Programs of Study
 - Final product is one page summary
- 

Application

- Complete required sections
- Substitute Summary for Section 2
- Prepare budget according to acceptable uses of funds guidelines
- Submit by December 4 to
 - eva.scates-winston@so.mnscu.edu or
 - brenda.lyseng@so.mnscu.edu.



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Improving Nontraditional
Programs