

ENSURING EQUITY IN STATE INITIATIVES/SUCCESS WITH SUSTAINABILITY: COLORADO AND OHIO

Jennifer Jirous, Adult Partnerships Initiatives Manager
Colorado Department of Education

Ben Williams, PhD, NAPE Director of Special Projects; Former Ohio STEM Equity Pipeline Director
Columbus State Community College

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NAPE Professional Development Institute
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History of STEM in Colorado

- **2006-10**
 - NGA STEM Center grant
 - Colorado STEM Network
- **2011**
 - Colorado sets economic priorities; Colorado Blueprint
- **2012**
 - CDE Race-to-the-Top includes STEM
 - ELC STEM Committee
- **2013**
 - NAPE Grant
 - CLF partners with Gill on a 3 year project to support and develop statewide STEM plan

The Colorado Education Initiative

The Colorado Education Initiative (CEI) is an independent nonprofit working to unlock the unique potential of every student in Colorado by incubating innovation, shining a spotlight on success, and investing in sustainable change that improves outcomes for all students.





In Response to the Governor's Blueprint

Objective V: Educate and Train the Workforce of the Future

Background and STEM Roadmap Implementation

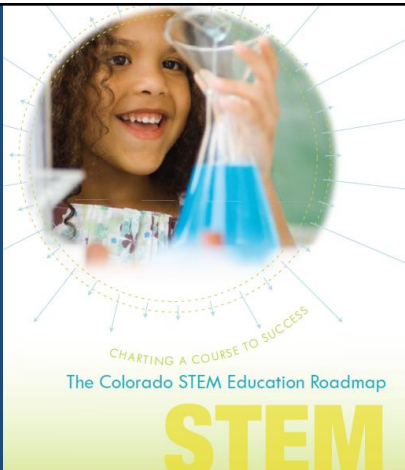
- Colorado Blueprint
 - **2011:** Objective V: Educate and train the workforce of the future
- Education Leadership Council
 - **2012:** ELC STEM Committee and STEM Action Plan
- Colorado Education Initiative
 - **2013:** Colorado Education Initiative and Gill Foundation partnership
- STEM Champions
 - **2014:** Release and implement STEM Roadmap

Setting Priorities

Coordinating and Aligning Efforts

Defining Quality

Measuring Impact



Colorado STEM Education Roadmap

- | | | |
|---|--|--|
| <p>GOAL 1:
Develop a state strategy to sustain and advance STEM education</p> <ul style="list-style-type: none"> → 1.1: Build a coalition of support → 1.2: Define STEM → 1.3: Identify and map existing and effective STEM efforts → 1.4: Measure progress → 1.5: Embed a system of continuous improvement | <p>GOAL 2:
Support all students P-12 in achieving STEM literacy</p> <ul style="list-style-type: none"> → 2.1: Make STEM in the early grades a Colorado priority → 2.2: Align STEM efforts to the development of competencies important in an innovation economy → 2.3: Support STEM-ready educators and learning environments → 2.4: Make access to STEM resources in rural Colorado a priority | <p>GOAL 3:
Build a local STEM-ready talent pipeline</p> <ul style="list-style-type: none"> → 3.1: Focus on dramatically reducing the number of students needing to take remedial math courses → 3.2: Increase the number and diversity of students entering postsecondary STEM pathways → 3.3: Align workforce training resources with in-demand STEM skills → 3.4: Excite and support females to enter STEM fields |
|---|--|--|

NAPE/Colorado PIPE-STEM Project

April 2, 2013
 Stakeholder Kick-off Meeting

Core Values:

1. Use the Collaborative Impact Framework to increase the number of girls and women in the STEM pipeline
2. Embed equity into current STEM initiatives
3. Use data to make the case for equity in STEM

Colorado STEM Equity Plan

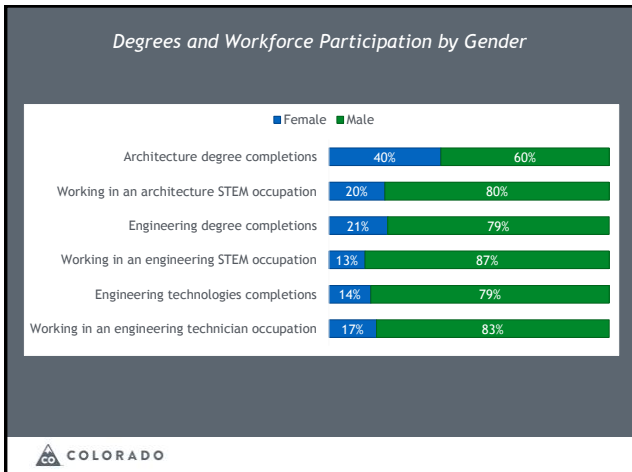
Goals for 2013-14

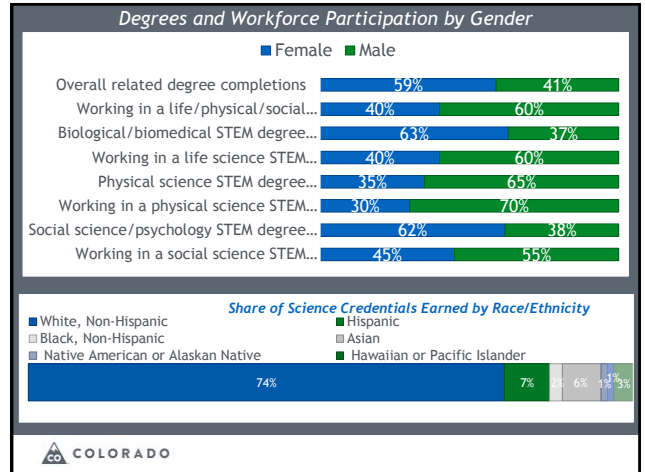
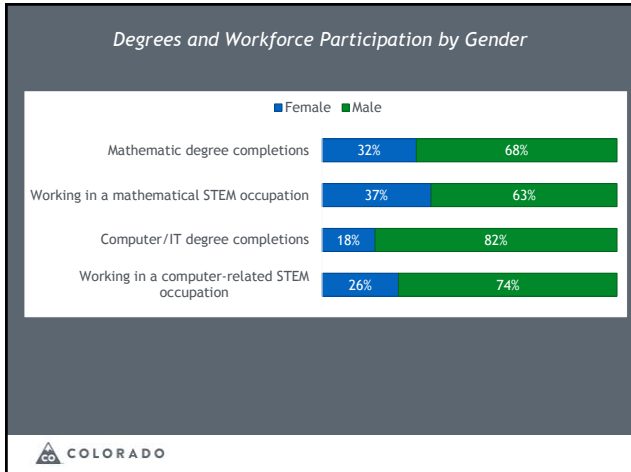
1. Create a data-driven “sense of urgency” for CO stakeholders regarding gender equity in STEM
2. Embed equity principles into prioritized STEM initiatives
3. Identify a team of “champions” for gender equity in STEM
4. Identify three community colleges to implement the SEP 2.0 program in the Spring of 2014

STEM Equity Plan Outcomes (2013-2014)

Goal 1: Data-driven Sense of Urgency

- Convene data committee to work on data collection and analysis of girls/women in CO STEM pipeline
 May 2013 – May 2014
- Identify data needs and request data for CO STEM pipeline (K-labor)
 September 2013 – May 2014
- Draft marketing materials to create sense of urgency and develop marketing strategy.
 December 2013 – May 2014





STEM Equity Plan Outcomes(2013-2014)

Goal 2: Embed into state STEM Initiatives

- Colorado Legacy Foundation – Colorado STEM Roadmap
- K-12 STEM Think Tanks
- Community College STEM Consortium
- Colorado Collaboration for Girls in STEM
- Department of Labor Youth Career Connect Grant

Goal 3: Identify a team of “champions” for gender equity in STEM

- In progress

Goal 4: Identify three community colleges to implement the SEP 2.0 program in the Spring of 2014

STEM Equity Plan Goals (2014-2015)

Goal 1: Data-driven Sense of Urgency

- Use data to identify/engage three colleges to participate in PIPESTEM
- Collaborate with CHAMP grant to create a cohort of CHAMP navigators to participate in PIPESTEM

Goal 2: Embed into state STEM Initiatives

- Colorado Legacy Foundation – Colorado STEM Roadmap
- Sector Partnerships (Manufacturing/Information Technology)

Goal 3: Identify a team of “champions” for gender equity in STEM

- Innovation and Inclusivity in STEM Summit – April 30, 2015
- Build capacity of CHAMP Navigators as regional champions

STEM Equity Successes/Challenges

Successes

- Data-Driven sense of urgency
- Partnership Development
- [Innovation and Inclusivity in STEM Summit](#)
 - [April 30, 2015](#)

Challenges

- Changes in state leadership
- Local PIPESTEM Implementation

Next Steps

- Connections to regional sector work
- Continued implementation in community colleges
- Sustainable team of Champions

Sector Partnerships, Career Pathways

Exploring Stage, currently 17 partnerships	Emerging Stage, currently 10 partnerships	Active Stage, currently 12 partnerships
Advanced Manufacturing: 2 Health and Wellness: 1 Energy & Natural Resources: 4 Food & Agriculture: 3 Creative Industries: 1 Tourism & Outdoor Recreation: 4 Construction: 2	Advanced Manufacturing: 1 Health and Wellness: 3 Technology and Information: 1 Energy & Natural Resources: 2 Creative Industries: 1	Advanced Manufacturing: 5 Health and Wellness: 5 Hospitality: 1 Energy & Natural Resources: 1

Sector partnerships—regional, industry-led partnerships of private and public partners, in a specific region, for a specific industry

Career pathway—a series of connected education and training programs, work experiences and student support services that enable individuals to secure a job or advance in an industry or occupation

COLORADO



Thank you!
Have a great day!

*Jennifer Jirus
Adult Partnerships Manager
Colorado Department of Education
Jirus_j@cde.state.co.us*



SUCCESS WITH SUSTAINABILITY: THE OHIO STEM EQUITY PIPELINE PROJECT



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Ohio: STEM Equity Pipeline 1.00

- November 2009-September 2013
- State Leadership Team
- Participation in PDI 2010 and 2011
- Critical involvement from Ohio Department of Education
- Three pilots at community colleges
- State lead – built relationships and connections
- Annual Ohio STEM Equity Pipeline Workshop



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STEM Equity Pipeline™ Goals

Build formal education capacity

- high quality professional development
- gender equity in STEM education

Institutionalize implemented strategies

- connect outcomes to existing accountability systems

Broaden commitment –

- gender equity in STEM education



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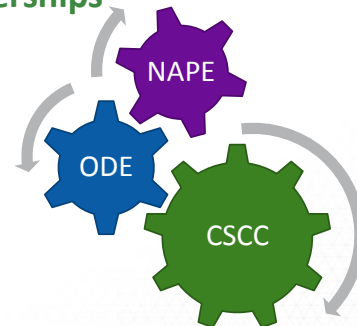
Ohio Department of Education Phase One: FY12-FY13

- Provide mechanism to address low accountability measures (6S1 and/or 6S2)
- Contracted with Columbus State CC
- Eight PIPESTEM™ Projects (4 in FY12; 4 in FY13)
- Train the Trainer Program September 2011
- State Conferences (two presentations a year)
- Technical Assistance



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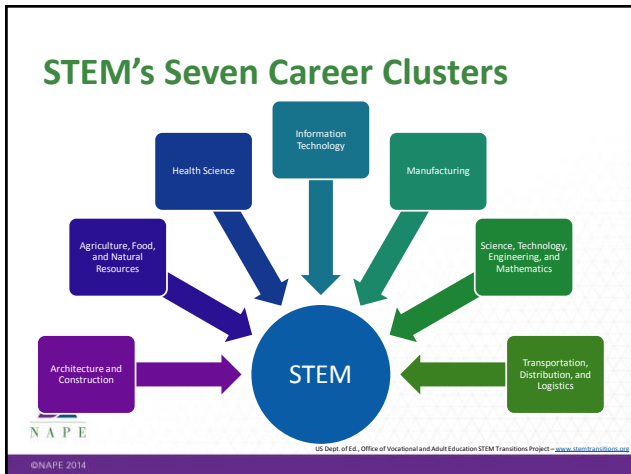
Partnerships



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- ### Who is at the table?
- Career Center/CTE Director
 - CTE instructors
 - High School Guidance Counselor(s)
 - College partner(s): Community College with articulated pathways; four year partner(s)
 - Middle School counselor
 - Business & Industry representative
 - Co-facilitator (in some cases)
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- ### Perkins Act Accountability
- Core indicators on Nontraditional CTE
 - Participation in CTE programs preparing students for nontraditional fields (6S1/5P1)
 - Completion of CTE programs preparing students for nontraditional fields (6S2/5P2)
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Data Collection

Disaggregation required in Perkins IV

Gender	Race/Ethnicity	Special Populations
<ul style="list-style-type: none"> Male Female 	<ul style="list-style-type: none"> American Indian or Alaskan Native Asian or Pacific Islander Black, non-Hispanic Hispanic White/non-Hispanic 	<ul style="list-style-type: none"> Underrepresented gender students in a nontraditional CTE program Single parent Displaced homemaker Limited English proficiency Individuals with a disability Economically disadvantaged



When are the intersections of equity important?

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Data Collection

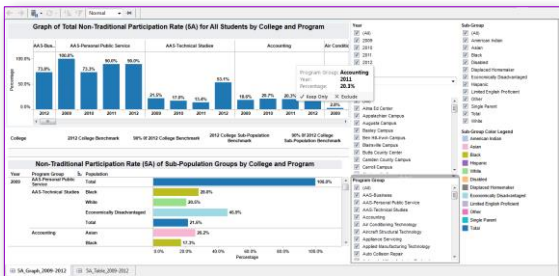
Recommended Analysis

Current Context	Site Specific	Trends
<ul style="list-style-type: none"> National level data State level Best performer in state Selected peer benchmark Set your own benchmark 	<ul style="list-style-type: none"> District School/College Programs 	<ul style="list-style-type: none"> At least 2 years Prefer 3-5 years



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Data Dashboard



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Review Research Summary

Nontraditional Career Preparation ROOT CAUSES & STRATEGIES

The goal of Nontraditional Career Preparation is to assist you in recruiting and enrolling more students into nontraditional careers through the most effective means possible. This data provides a "big picture" for the research and is intended as a summary. Data and downloadable versions of the complete document are available on the NAPS website at www.nape.org/naps.

	ROOT CAUSE	THEORY	STRATEGIES
EDUCATION	Academic Proficiency	Students with lower academic proficiency have lower likelihood of success in nontraditional careers, which requires more complex technical skills.	<ul style="list-style-type: none"> Identify students for additional support Provide additional academic support Identify students who are struggling in core classes Provide additional support for students who are struggling in core classes Identify students who are struggling in core classes Provide additional support for students who are struggling in core classes
	Access to and Participation in "Soft" Skills and "Hard" Technology	Students with lower academic proficiency and lower participation in soft skills and hard technology courses are less likely to be successful in nontraditional careers.	<ul style="list-style-type: none"> Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses
	Curriculum	Students with lower academic proficiency and lower participation in soft skills and hard technology courses are less likely to be successful in nontraditional careers.	<ul style="list-style-type: none"> Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses
PRACTICE	Industry Connections	Students with lower academic proficiency and lower participation in soft skills and hard technology courses are less likely to be successful in nontraditional careers.	<ul style="list-style-type: none"> Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses
	Faculty Capacity	Students with lower academic proficiency and lower participation in soft skills and hard technology courses are less likely to be successful in nontraditional careers.	<ul style="list-style-type: none"> Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses Identify students who are struggling in soft skills and hard technology courses Provide additional support for students who are struggling in soft skills and hard technology courses



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Root Cause Analysis Through Action Research



- Surveys
- Equity Audits
- Interviews
- Focus Groups



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PIPE-STEM™ Implementation Plan

National Alliance for Partnerships in Equity Education Foundation

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PIPESTEM Implementation Plan: _____

Institution: _____

Academic Year: _____

Team members: _____

Team coordinator: _____

Explore Results	These classes/program(s) will be the focus to increase the number of nontraditional (under-represented gender) students.
Program(s)	
Underrepresented gender, race/ethnicity or special population sub-group(s)	
Baseline data	✓ Implement Solutions
(e.g., female students in Engineering Technology)	
SMART Goal	✓ Document Performance Results
(e.g., female students in first-year Electronic Engineering Technology from the current 5% to 25% by the next academic year)	

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Virtual Learning Community

www.stemequitypipeline.org



Upcoming Events

For more events go to the [STEM Equity Pipeline Calendar](#)

October 27-30, 2013 **Summit for Courageous Conversations about Race, St. Louis, MO** (Mini LuKin attending)

April 7-11, 2014 **NAPE 2014 Professional Development Institute**

Past Events

July 17-19, 2013 **STEM Think Tank and Conference GEMs STEM: Developing the next generation of professionals** (Show More Information...)

July 16-22, 2013 **GSE Training with PAGE Science Museum, Wisconsin** (Mini LuKin and Claudia Morrell attending)

[Check the Archived Paid Events page.](#)

News

July 21, 2013 **Community College Plays Key Role in STEM Careers for Women** (Show More Information...)

July 17, 2013 **Women Don't Realize Just How Good They Are, Survey Reveals**

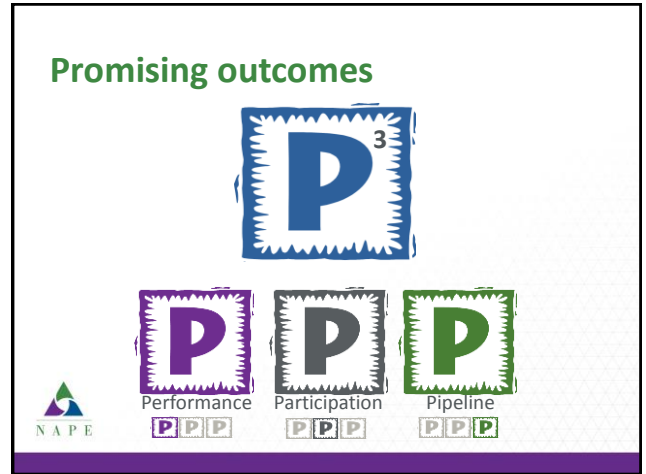
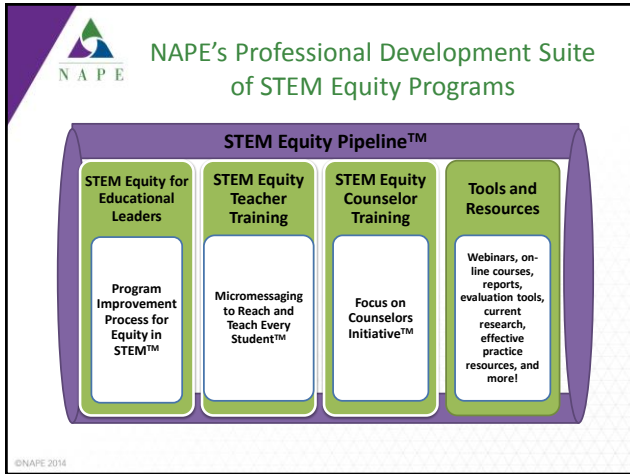
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Ohio Department of Education Phase Two: FY14-FY15

- Six additional PIPESTEM Projects
- TA for original eight projects and new ones
- Conference Presentations
- Two Micromessaging Projects
- Counselor Training Initiative (+\$12,000)
- Additional Contract for Equity in STEM Grades 7-8 (Battelle Education Foundation)

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- Promising Outcomes**
- Project Lead the Way, Mansfield Senior High School: First year 40% girls; 30% African American students
 - Vantage Career Center Lunch and Learn Series – an effective retention strategy for girls in NT
 - Maplewood Career Center: More than doubled female enrollment in targeted programs (IT, CAD, and Electronics) and brought welding up to 20% girls
 - Girls Exploring Math and Science (GEMS) at Whitmer Career & Technology Center (7th & 8th Grade Program for girls to promote PLTW and STEM)
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Publications on Ohio Work

March 2015 Techniques STEM Models of Success (2014)

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Budget

- Perkins Nontraditional Set-asides
- FY12-FY13: Approximately \$40,000/year
- FY14: \$45,000 (HS) + \$30,000 (MS)
- FY15: \$57,000 (HS) + \$30,000 (MS)

Total = \$240,000



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Recommendations

- NAPE State Membership
- State Sustainability Focus
- State Agency and Perkins or PD funds
- RFP with focus on community college or other partner (or contract directly with NAPE)
- Connect with NAPE
- Affiliate Membership



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Questions? Contact us at:

Jennifer Jirous
 Manager of Adult Partnership Initiatives
 Colorado Department of Education
Jirous_J@cde.state.co.us

Ben Williams, PhD
 Director of Special Projects, NAPE
bwilliams@napequity.org



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