

Using Data to Drive Decision-Making for Program Improvement

STEM Equity Pipeline and Missouri METS Equity Pipeline

Presented at the Data Quality Meeting

December 2, 2009

Baltimore, Maryland



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Overview

- STEM Equity Pipeline goals, model and methods
- Five Step Program Improvement Process
- Missouri METS Equity Pipeline implementation
- How you can get involved



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National Science Foundation

- Research on Gender in Science and Engineering Program - Extension Services Grant
- Awarded to the National Alliance for Partnerships in Equity Education Foundation
- Grant awarded for 5 years



Goals

- Build the capacity of the formal education community to provide high quality professional development on gender equity in STEM education.
- Institutionalize the implemented strategies by connecting the outcomes to existing accountability systems.
- Broaden the commitment to gender equity in STEM education.



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Defining STEM

- Science, Technology, Engineering and Math
- Agriculture, Food and Natural Resources
- Health Sciences
- Information Technology
- Manufacturing
- Transportation, Distribution and Logistics
- Architecture and Construction

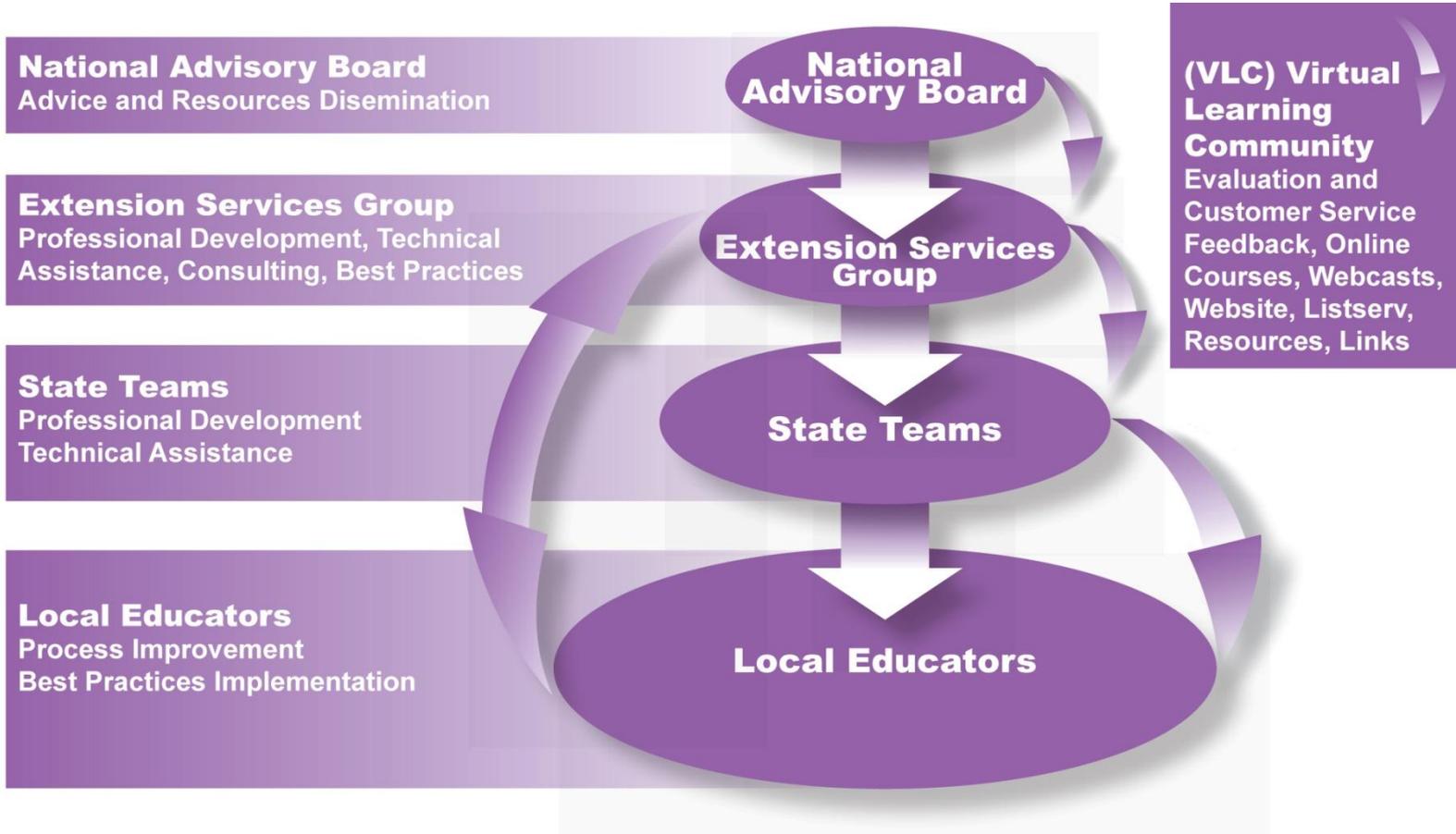


Implementation States

- **5 States in Year One**
 - California
 - Missouri
 - Illinois
 - Oklahoma
 - Wisconsin
- **2 States in Year Two**
 - Iowa
 - Minnesota
- **2 States in Year Three**
 - New Hampshire
 - Ohio
- **3 States to be added in Year Four**



Model



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Professional Development

- Formal Education Community
 - In-school programs
 - Teacher-based
 - Academic and career and technical education
STEM educators
- Train-the-trainer process
- Embed the knowledge in existing professional development mechanisms



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Accountability

- Use of existing accountability systems to inform program improvement efforts
 - Perkins nontraditional measures for participation and completion in STEM-related Career Cluster Programs of Study
 - Student achievement data in STEM
 - Student course taking behaviors in STEM



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Outreach

- Increase awareness of the need for diversifying the STEM workforce pipeline:
 - Gender
 - Race/Ethnicity
 - Disability
- Create collaborations with others to leverage the impact of the work.



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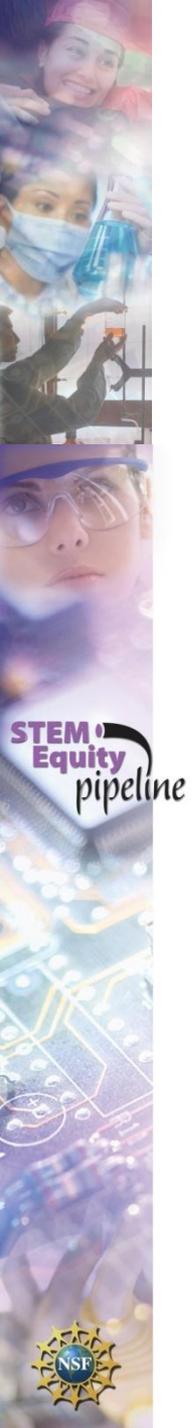


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www.stemequitypipeline.org

- Public portal for the STEM equity community:
 - Listserv
 - Organization links, articles, resources, and reports
 - Upcoming events in STEM
 - Webcasts, webinars, video, and podcasts
 - Training modules
 - Online courses and Tutorials
 - Five Step Program Improvement Process training materials
 - Professional development needs assessment
 - Participating state pages
 - Expert portfolios and online request portal
 - “Extension Agent” report portal





Missouri METS Equity Pipeline

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Pilot Sites Research – Year Two

- Each CEC selected a pilot site that was willing to implement the process regardless of their performance.
- Created a team of Area Career Center (ACC) staff and sending school staff
 - Administrators
 - Counselors
 - Teachers
- Met regularly – at least quarterly



Pilot Sites Research – Year Two

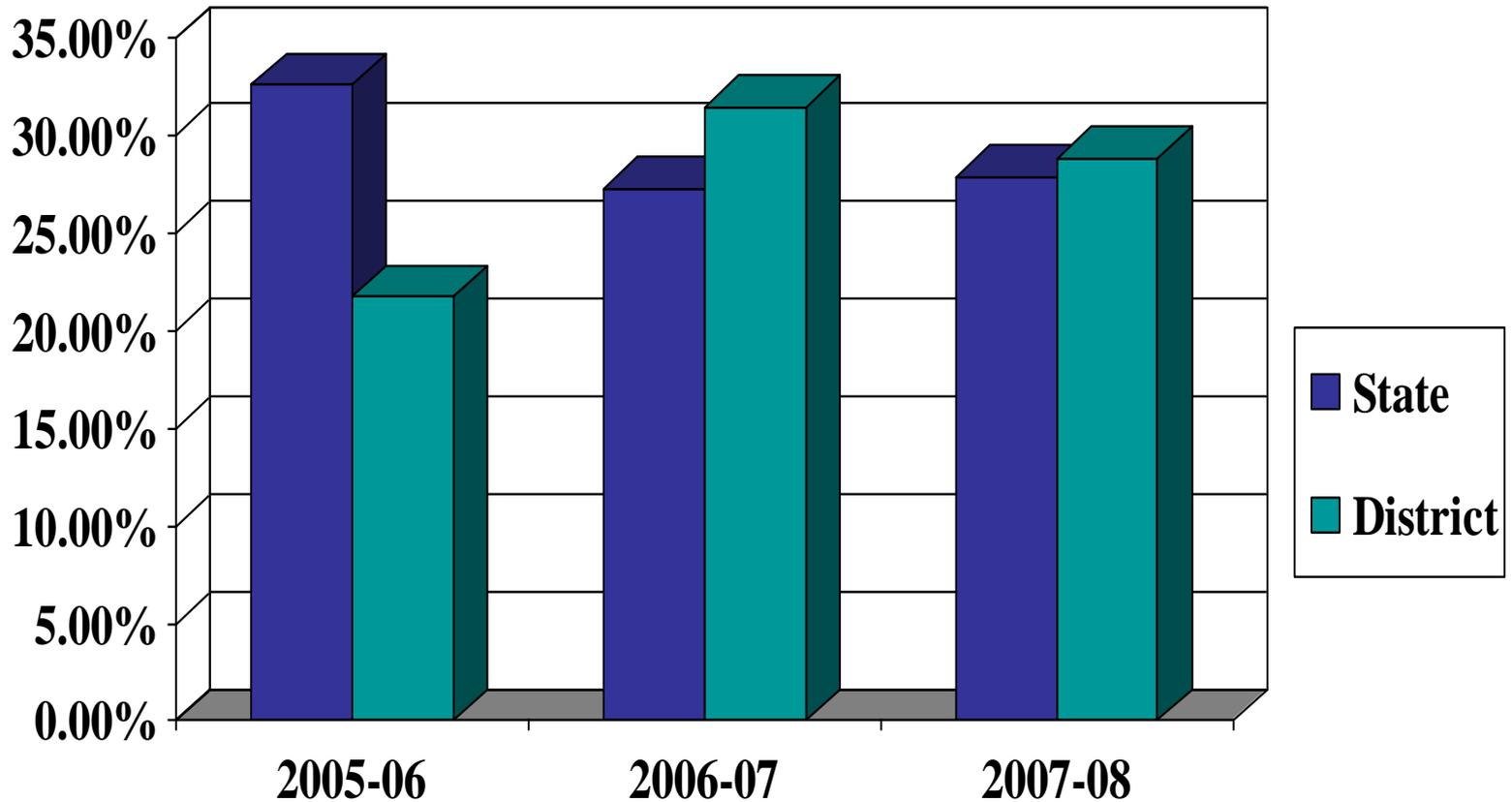
- Completed Steps 1-3 of the Five Step Process
- Analyzed Perkins and other data
- Conducted root cause action research
- Developed strategy implementation plans



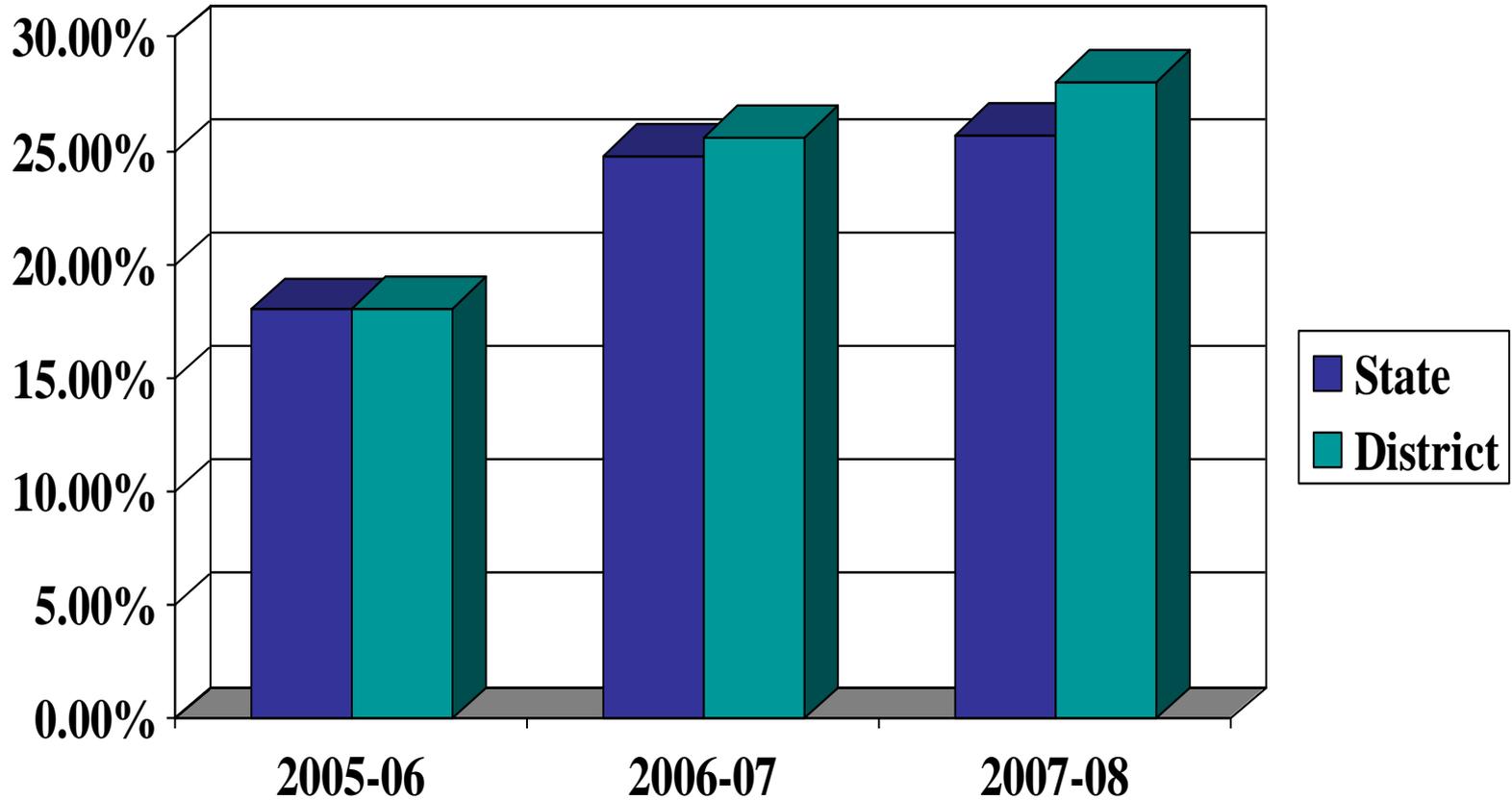
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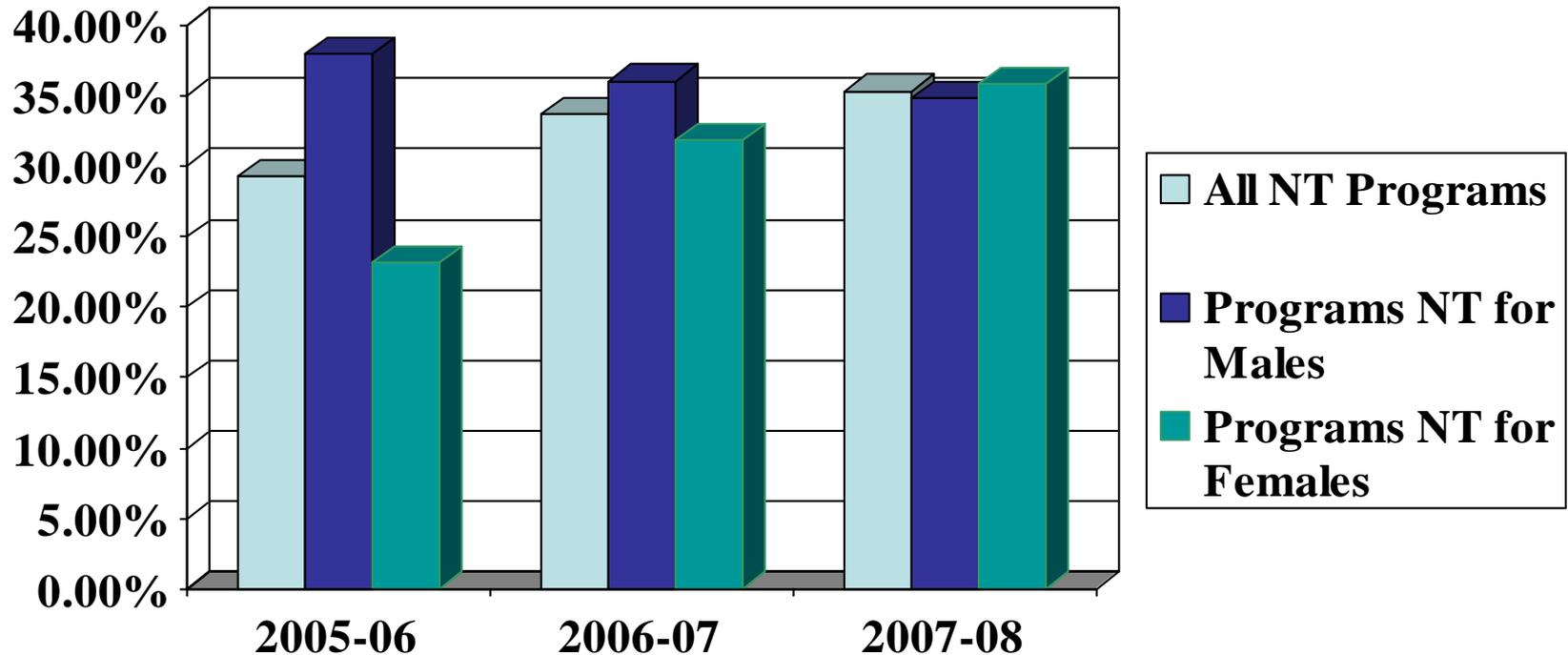
Secondary Participation



Secondary Completion (3S1)



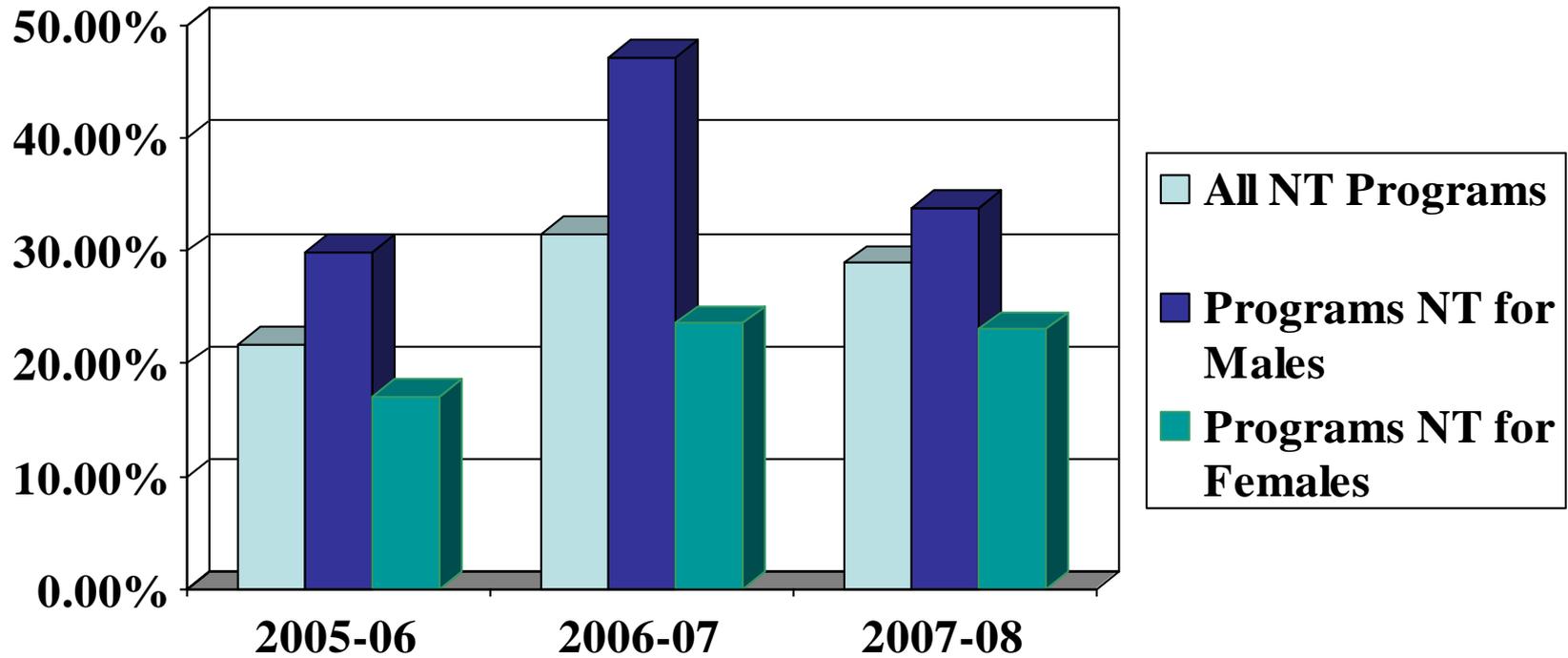
Statewide Participation Nontraditional (NT) Programs by Gender



% of underrepresented secondary career education students enrolled in nontraditional career education programs from CAR report. (% rounded to nearest whole number)



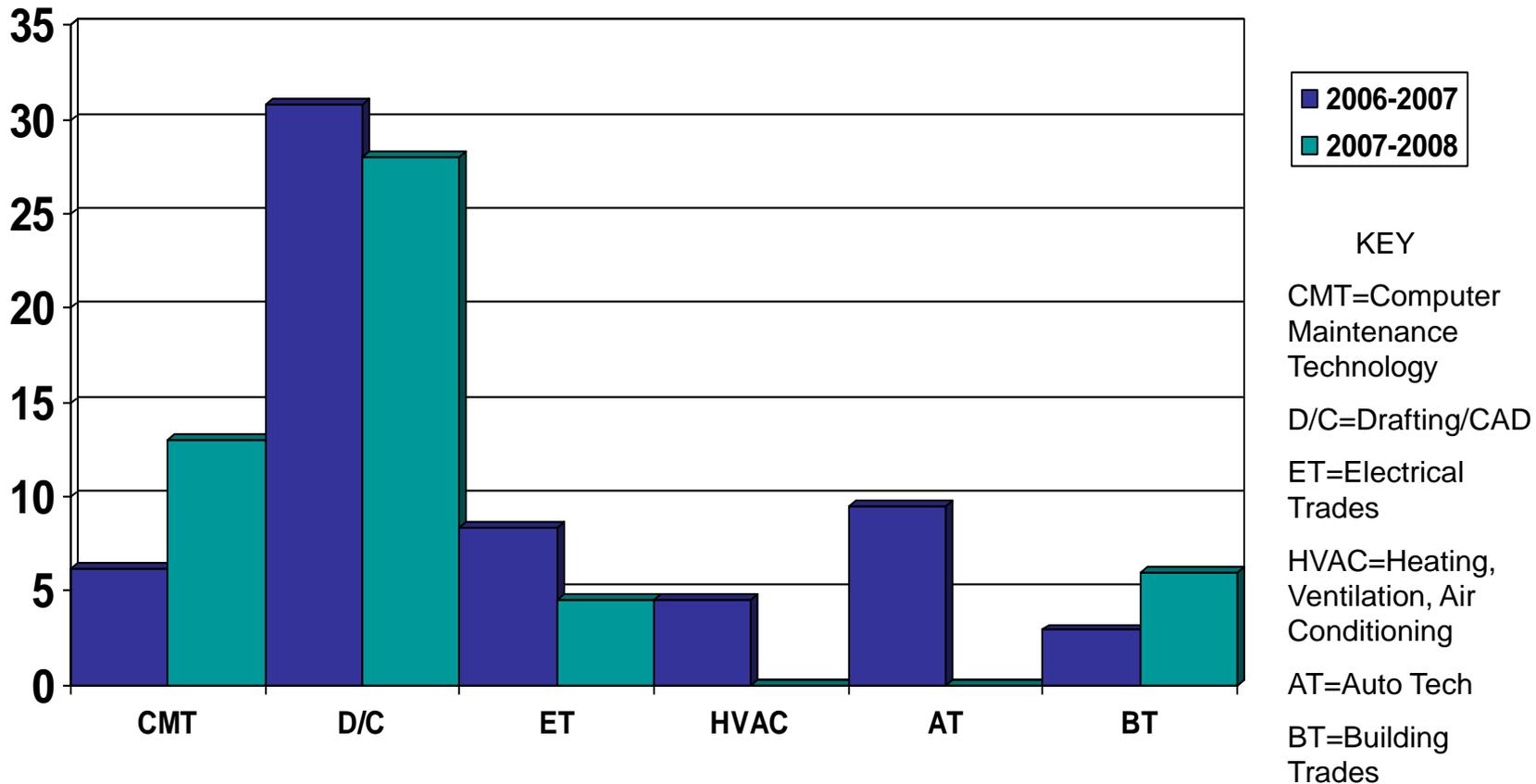
District Participation Nontraditional (NT) Programs by Gender



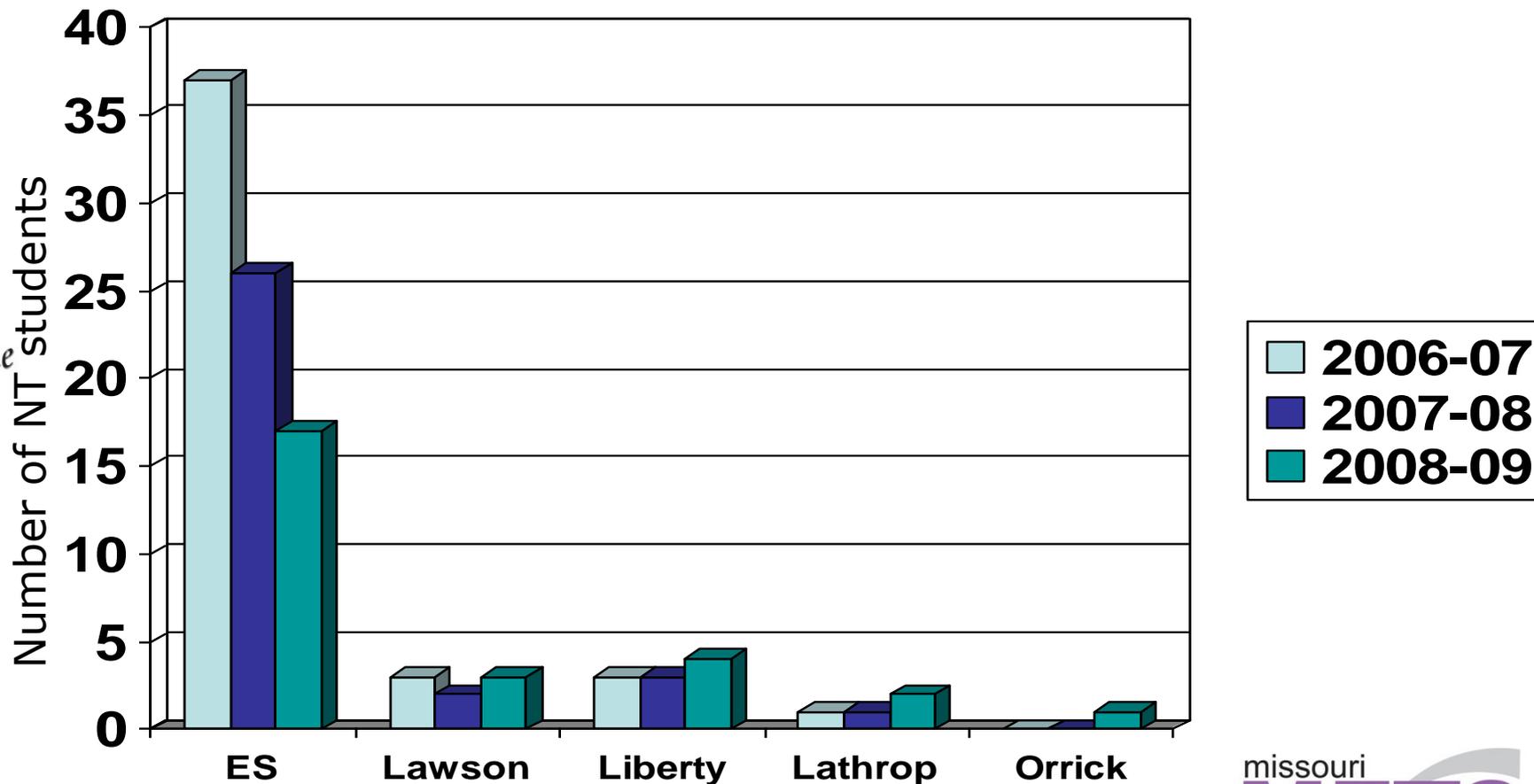
% of underrepresented secondary career education students enrolled in nontraditional career education programs from CAR report. (% rounded to nearest whole number)



% of Females in District Nontraditional Programs for Females



Number of Non-Traditional Students by Sending School

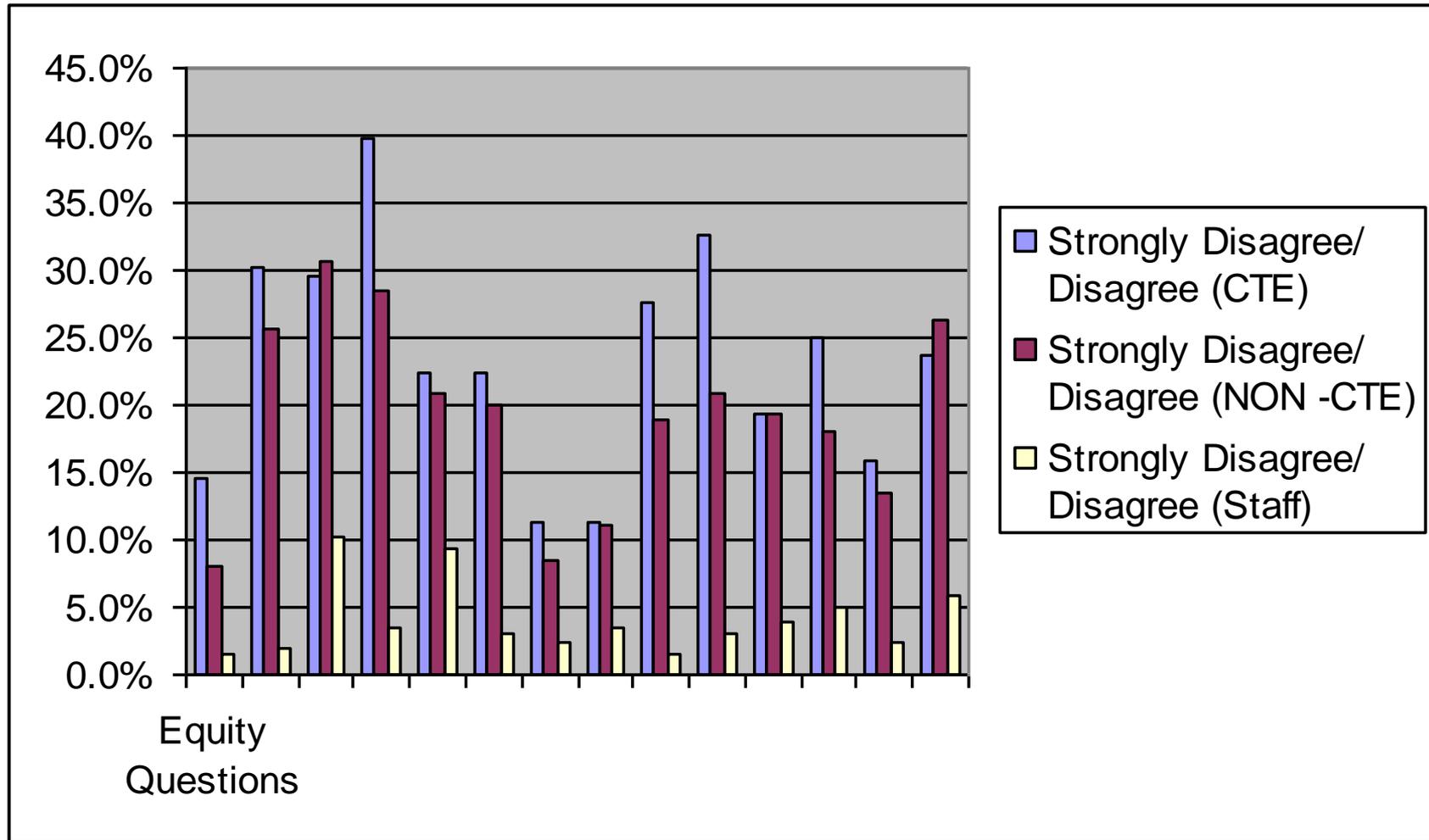


Root Cause Action Research

- Survey regarding perceptions and knowledge of the ACC and equitable classroom practices:
 - Surveyed faculty at ACC and all sending schools (205 responses)
 - Disaggregated by sending school
 - Surveyed students at ACC and all sending schools (1214 responses)
 - Disaggregated by gender and sending school
- Conducted focus groups with students in programs nontraditional for their gender.



Gender Equity Perception



Pilot Site Strategies Implementation - Year Three



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The cover of the '5-Step Process Facilitator's Toolkit' features a purple background with a green outline of Missouri and a white star. Below this are four small images: a person in a lab coat, a person in a hard hat, a person in safety glasses, and a person in a lab coat. The text '5-Step Process Facilitator's Toolkit' is centered in a large, bold, black font. At the bottom, there are logos for Missouri Career Education, Missouri METS, and MCCE. Below the logos, it says 'Developed by Pamela Green, Missouri Career Education, Missouri Career Education' and 'T. J. Green, Missouri Career Education, Missouri Career Education'.

Available at MCCE.org



Race To The Top

- Priority 2: Competitive Preference Priority – Emphasis on STEM
 - Prepare more students for advanced study and careers in STEM, including addressing the needs of underrepresented groups and women and girls in the areas of STEM.
 - (15 points – All or nothing)



How can you get involved?

- Register for the listserv to receive the monthly *Pipeline Press*.
- Access resources from the Web site.
- Share the listserv and Web site with teachers in your state.
- Apply to participate in the project in 2010
- Participate in online professional development.



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Questions?

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