



National, State, and Local Strategies that Work to Increase Nontraditional Participation and Completion under Perkins

PIPESTEM™

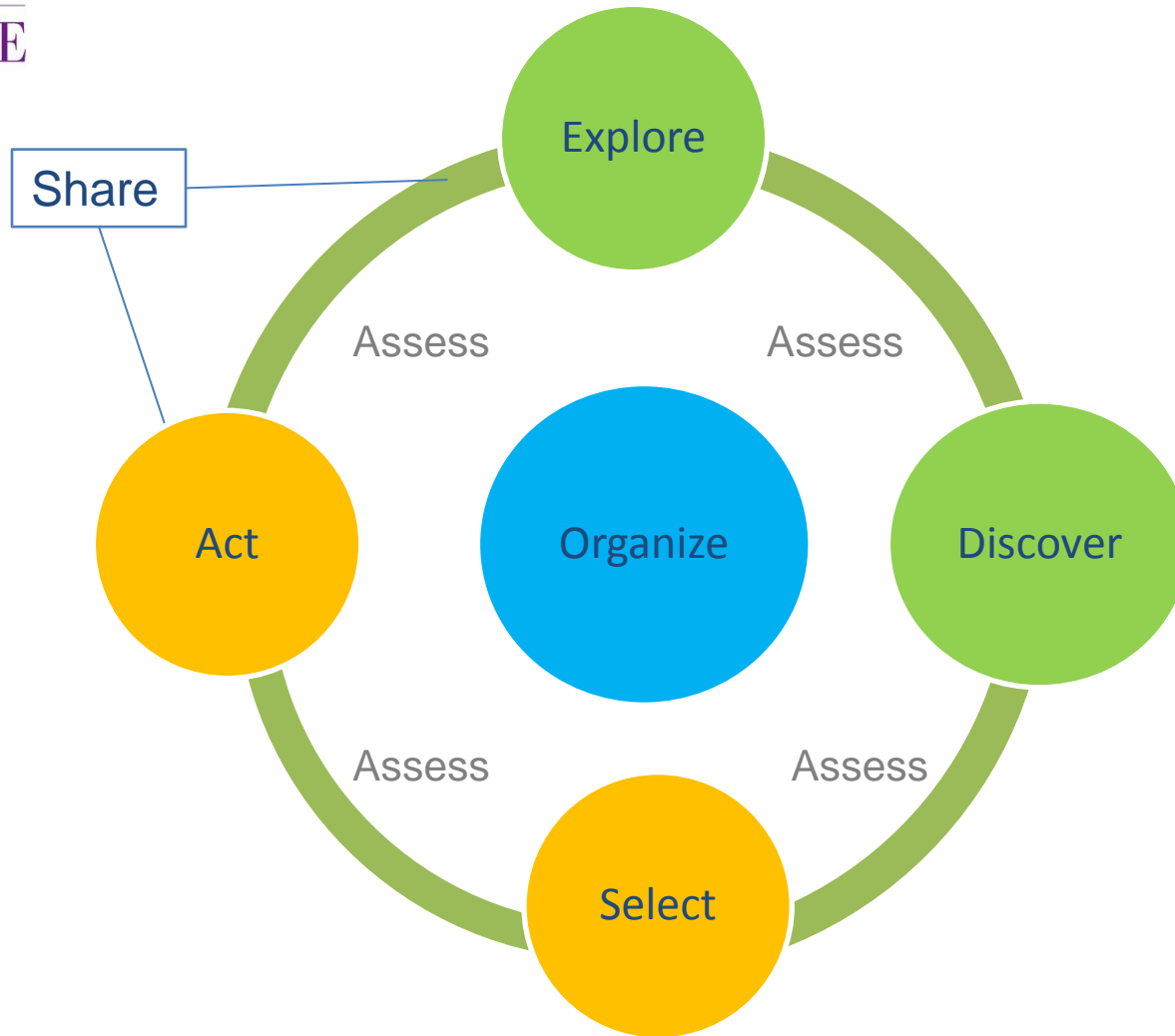
Program Improvement Process for Equity in Science
Technology, Engineering, and Math™

Our guest speakers

- Donna Dutcher, Special Populations/Disabilities Coordinator, Middle Georgia Technical College
- Courtney Reed Jenkins, Director of Professional Development, National Alliance for Partnerships in Equity
- Jeanette Thomas, Consultant, Iowa Department of Education









Performance

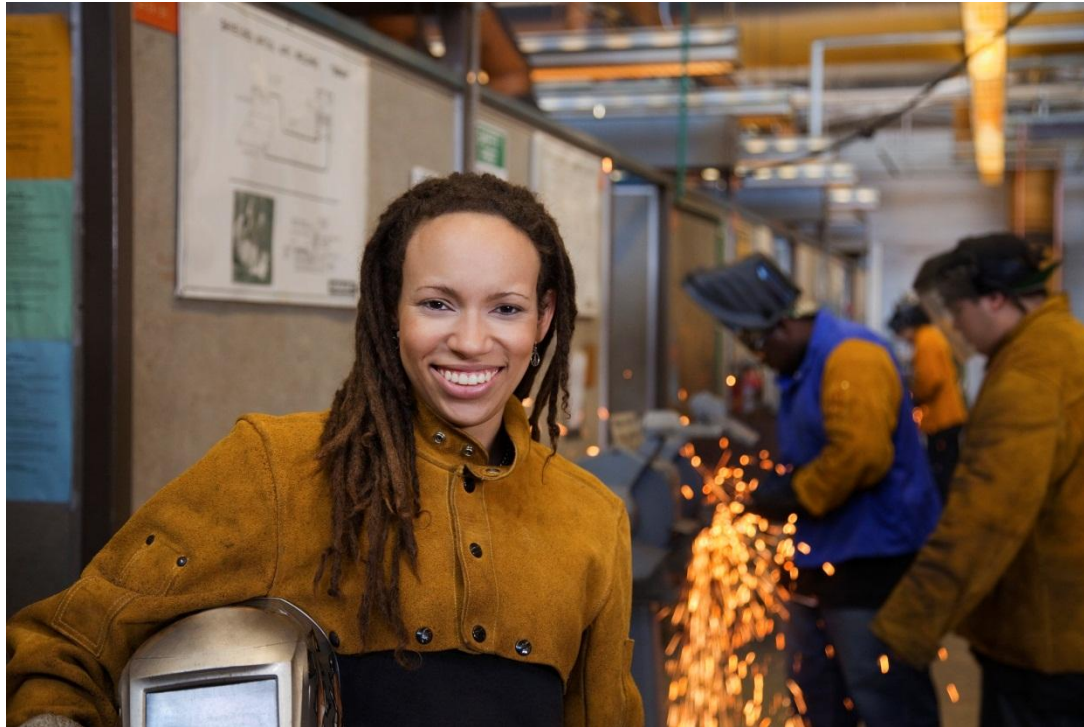


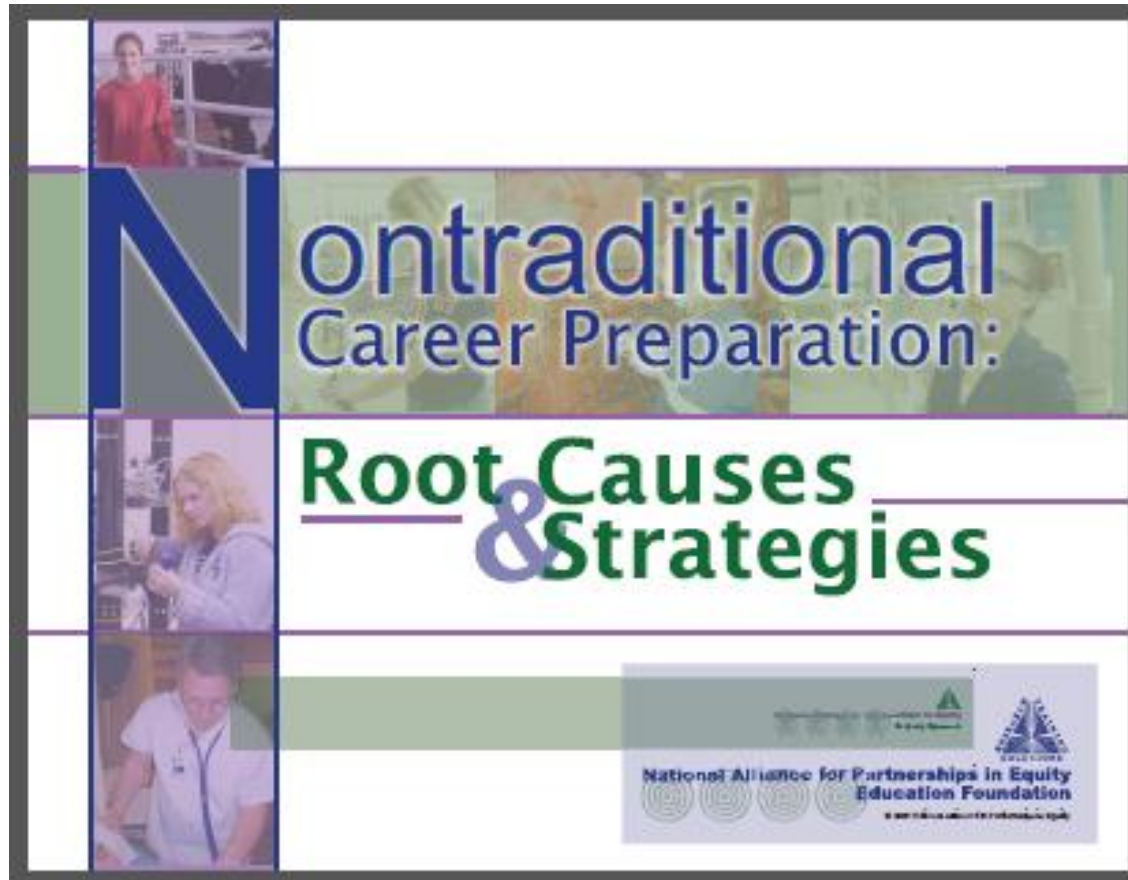
Participation



Pipeline







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



State Perspective



Jeanette Thomas
Iowa Department of Education



LEA Perspective



Donna Dutcher
Special Populations/Disabilities Coordinator
Middle Georgia Technical College



STEM Equity in Aviation

Middle Georgia Technical College



MGTC Purpose

- Participation created for us a conduit for addressing a data supported need to keep females in programs through to completion
- Focus initially on student retention and recognized student engagement as the key to retention
- Faculty automatically became the key component
- Change at the classroom level
- Following retention is recruitment



Pilot Participants

- Donna Dutcher, Special Populations/Disabilities Coordinator
- Jim Lane, Dean of Trade and Industry
- Sam Lester, Special Projects Manager
- Brian Snellgrove, Director of Planning and Technology



Program Improvement Process

- Document Performance Results
 - Data revealed that an area where many of our beginning students were struggling was in Learning Support Math so that became our focus.
- Identify Root Causes
 - Students being academically underprepared; lack of perceived Learning Support Math relevancy and student engagement (personal ownership)

Change and emotion are inseparable. Each implicates the other...There is no human change without emotion and there is no emotion that does not embody a momentary or momentous process of change (Hargreaves, 2004).





NAPEE

Implementations

- Student-centered practices (**Co-Horts**)
 - self-empowerment/exploration
 - negating any lack of perceived ability to succeed and or lack of awareness and opportunities in STEM
 - Students are part of a learning community of peers who together take courses, experience college life and provide support and beginning this process for new students as early as orientation helps engage students earlier
- Added a faculty position of a **Success Coach**
 - teaches a Success Course for beginning students
 - Expansive office hours for counseling, support, academic advisement
- **Math Lab redesign**
- Contextualized math **workbook**
 - **with** gender balance

There is plentiful research that ties student engagement in educationally purposeful activities to such desired outcomes as grades and persistence. The energy students invest in social interactions directly influences the degree to which they are socially integrated into college life.



Assessment

- Academic success is seen in Learning Support Math
 - Data reveals students completing the Student Success Course have higher GPA than those who did not
 - an increase in participation in campus resources
- both are factors of student empowerment and ownership of academic success --
- Creating an emotional change!



Population

N A P E

Female and male populations of Aviation Maintenance (AVMT) and Aircraft Sheet Metal (ASST) for four previous Spring terms:

		Spring 2009	Spring 2010	% change	Spring 2011	% change	Spring 2012	% change
AVMT	Female	26	26	0%	23	-12%	19	-21%
	Male	164	190	16%	217	14%	170	-28%
ASST	Female	59	106	80%	113	7%	62	-82%
	Male	255	493	93%	464	-6%	224	-107%



Attainment

Attainment (rate of A/B/C) of Program Ready students compared to Learning Support students for the previous Fall and Spring terms.

		Fall 2011		Spring 2012	
		Females	Males	Females	Males
MATH 1011	Program Ready	53%	50%	57%	50%
	Learning Support	0%	0%	0%	0%
MATH 1012	Program Ready	54%	49%	57.1%	56.6%
	Learning Support	61%	18%	37%	47%
MATH 1013	Program Ready	33%	45%	44%	50%
	Learning Support	n/a	0%	67%	60%
MATH 1111	Program Ready	76%	67%	50%	66%
	Learning Support	71%	0%	20%	0%



COLL 1000 Impact

Subject	Grade	Gender	Race	COLL course taken
MATH 0098	3.00	F	Black or African American	Y
	1.50	M	Black or African American	Y
	1.80	M	Black or African American	N
MATH 0098	3.75	F	White	Y
	2.50	M	White	Y
	2.63	M	White	N
MATH 0099	2.00	F	Black or African American	Y
	2.00	M	Black or African American	N
	3.00	F	White	Y
MATH 0099	1.33	M	White	Y
	1.40	M	White	N
	2.00	F	Black or African American	Y
MATH 1012	2.00	M	Black or African American	Y
	2.27	M	Black or African American	N
	3.50	F	White	Y
MATH 1013	1.67	M	White	Y
	2.40	M	White	N



NAPPE

Attrition/Retention

Attrition is another valuable effort of the COLL 1001 course and is defined as the rate of students who leave and do not return.

Spring 2011	COLL 1000	Graduated	Still Enrolled	Attrition Percentage
Females	73	0	28	61.6%
Males	45	0	17	62.2%

Fall 2011	COLL 1000	Graduated	Still Enrolled	Attrition Percentage
Females	98	0	46	53.06%
Males	98	0	44	55.10%



An area of concern:

Mean Work Ready Math test scores for graduates for all both AVMT and ASST programs combined for the three previous Spring terms:

	Spring 2010	Spring 2011	Spring 2012
Female	4.85	4.56	4.44
Male	5.02	5.12	5.23
Difference	0.17	0.56	0.79



Conclusion

- We will continue toward finding ways to improve access and services for these motivated students
- We will continue to work at finding interventions can break down barriers and allow students to succeed
- Replicated to other programs
 - Welding
 - Automotive
 - Electronics

Join us!

napequity.org



Questions? Our guest speakers

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Thank you to our webinar
host



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