


Transforming the STEM Classroom through Professional Development for STEM Educators: Micromessaging to Reach and Teach Every Student™

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Goal

Apply knowledge of implicit bias and micromessaging to create strategies that improve access and equity for every student.



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Objectives

After completing this session, you will be able to:

- Describe micromessaging as a form of communicating implicit bias in the classroom and in our culture
- define micromessages, micro-inequities, and micro-affirmations
- Begin to understand and address micro-inequities and apply micro-affirmations in the classroom
- Describe the core ingredients of NAPE's Micromessaging program, the seven units, and the larger framework that supports high- quality professional development




Activity: Welcoming Awareness

Introduce yourself to the group


- Name
- Title
- Organization/unit



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Adapt a Recognized Model: The Educator as Classroom Scientist: PIPE-STEM™



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Micromessages

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Micromessages

Small, subtle, semi-conscious messages we send and receive when we interact with others

<p>Micro-inequities</p> <p>Negative micro-messages that cause people to feel devalued, slighted, discouraged, or excluded</p> 	<p>Micro-affirmations</p> <p>Positive micro-messages that cause people to feel valued, included, or encouraged</p> 
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Lands End Catalog 2012

super light, superhero tough

FeatherLight® reduce their school load by trimming weight off the pack. But what makes them really amazing is they do it without sacrificing durability thanks to strategically placed 400D and 600D pack cloth. Lighter weight. Same awesome durability. Guaranteed. Period!



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Lands End Catalog 2012


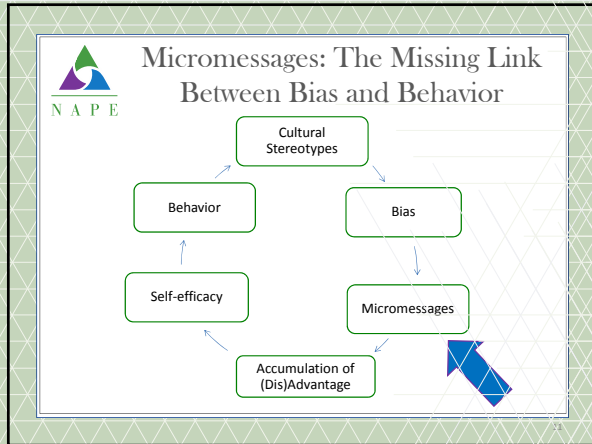
light as a feather, tough as long division

FeatherLight® reduce their school load by trimming weight off the pack. But what makes them really amazing is they do it without sacrificing durability thanks to strategically placed 400D and 600D pack cloth. Lighter weight. Same awesome durability. Guaranteed. Period!



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Micromessages Accumulate

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Activity: Examining the Small

Write about a specific incident when you were being:

- unintentionally discouraged or hurt by something **SMALL** someone said or did
- deeply valued by your colleague or family member in a **SMALL** yet powerful way

How did you know?
What did that person do to communicate your value?

Review: Bias Manifested in STEM Careers

1. Women and minorities remain underrepresented in many scientific and technical careers.
2. Females who pursue technical education and other STEM fields are still stigmatized, and harmful stereotypes persist.
3. Females' academic achievements in STEM still have not translated into workplace parity, particularly for minority females.
4. The culture of STEM career fields too often creates circumstances that isolate and exclude persons with disabilities, as well as other underrepresented populations.

Why Think About Micromessaging?

Teacher Student

Intent → Micromessages → IMPACT Performance & Outcomes

Impact is more important than Intent!

Key Micromessaging Elements

Micromessages

- Verbal
- Para-Verbal
- Non-Verbal
- Contextual
- Omission
- Praise and Criticism

Key Micromessaging Elements

Micromessages

- Verbal: What is said
- Para-Verbal: How it's said
- Non-Verbal: Body language
- Contextual: Who or what else is present: culture, artifacts, etc.
- Omission: What is not said or not done
- Praise and Criticism: Feedback messages

Activity: Guess the Element

Cue	Element
1. Wait longer for boys' answers than girls' answers	Para-verbal
2. Discipline boys more than girls for similar behavior	Criticism
3. Avoid eye contact with female/male student; only look at male/female students	Non-verbal
4. Consistent use of generic "he" or "man" to represent both men and women	Verbal
5. Only use males as examples of scientists	Contextual
6. Does not tolerate girls calling out answers but tolerates that behavior from boys	Omission

WORD BANK

Verbal Omission Para-verbal Contextual Non-verbal Criticism

Super Strategies

- Create a new awareness of micromessages in the classroom and on the campus through discussion with peers, colleagues, and students.
- Evaluate your pedagogy and instructional practices for micromessages using peer observations, student surveys, and climate surveys.
- Take a look at the different ways that the messages in your classroom are conveyed.
- Reflect on the power of micromessages in your life.
- Be cognizant of "little issues;" don't allow them to damage relationships. Speak and spell a person's name correctly, make eye contact when conversing, and always be friendly and attentive. All of these are simple tasks that go a long way in fostering an atmosphere of fairness.




Implicit Bias




Unconscious (or Implicit) Bias

- Social stereotypes that we form outside of our own consciousness
- Stem from our brain's adaptations
- Create unconscious barriers in the classroom
- Impact how we relate to people




Effects of Unconscious Bias

- influence how we reach decisions from our gathering, sorting, and filtering of information
- influence our evaluations of people and their value




Physicist - the usual suspects

Someone in this lineup is a physicist...can you tell which one?




Adapted from Women in Science, Engineering and Technology Initiative presentation by E. Haines and A. Maguire




Physicist - the usual suspects

98% of the public couldn't tell which of these people is a physicist...did you get it right?



Adapted from Women in Science, Engineering and Technology Initiative presentation by E. Haines and A. Maguire




Activity: Making the Unconscious Conscious

Recall the small things you identified in the "Examining the Small" activity as you respond to these prompts:

- How could the small things shared that **encourage** or **discourage** us **impact recruitment and retention** in STEM?
- Has a **student ever shared with you anything** that meant a great deal to her/him and that **surprised you**? Was it **encouraging or discouraging for the student**? Did it **change** the way you **treated** the student?
What else might be happening?

Unconscious Gender Bias: Power and Impact



Study

- 360 College Students (1:1 gender split) rated academic articles in politics, psychology of women, or education
- Two names reoccurred but for identical work: John T. McKay or Joan T. McKay


Question

With identical work, should there be any difference in how the students rate John vs. Joan?

Result

- Out of 5 possible points, John scored a **FULL POINT HIGHER** than Joan.
- There was consistent gender bias in favor of a male as an author of academic work.

Unconscious Gender Bias: Power and Impact



Scenario

National study of a psychology faculty candidate. 238 current faculty members (50:50 ratio) evaluated the same resume with male or female name



Question

With identical resumes, should there be any difference in how the faculty vote to hire Ruth vs. Robert?

Result

- 45% voted to hire "Ruth," but 70% vote to hire "Robert." Male and female evaluators equally preferred the male candidate.
- Yet another example of bias influencing sex-based hiring.

Activity: Unconscious Gender Bias: Implicit Association Test





Project Implicit
<https://implicit.harvard.edu/implicit/>

Micro-Inequities



Bias = Micro-Inequities



Unconscious

Unintentional

POWERFUL

PERVASIVE

Subtle

Activity: You Rock!



Inoculate against micro-inequities



Increase micro-affirmations



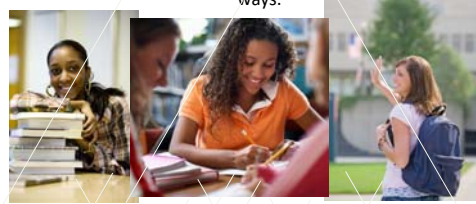
Micro-affirmations

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Positive Micromessages

Micro-affirmations are micromessages we send that validate and recognize other people in positive and supportive ways.



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Activity: Changing Micromessages in Your Classroom

How can you change the micromessages in your classroom today?

1. List examples
2. Share with a partner
3. Share with the group



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Impact of Micro-Affirmations on Girls in Nontraditional Courses

- Increased their willingness to take risks
- Enhanced creativity and innovation
- Increased levels of engagement in complex tasks and open-ended thinking
- Improved caring about learning
- Increased interest in non-trad. field and development of students' self-efficacy.



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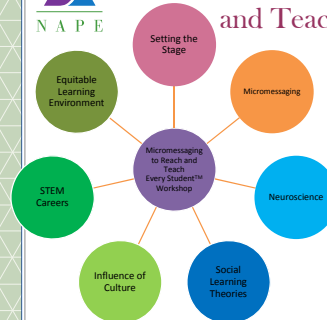
Super Strategies

- Practice recognizing and interrupting a micro-inequity in class.
- Consider that different populations perceive micro-inequities differently and that not all things mean the same to all people.
- Ward off subconscious micro-inequities by sending micro-affirmations. Focus on the strengths of the individual to filter potentially damaging comments or behaviors.
- Don't let micro-inequities go unnoticed. Find a way to acknowledge the occurrence, and address it in a positive way.
- Model behaviors that redirect micro-inequities to micro-affirmations.

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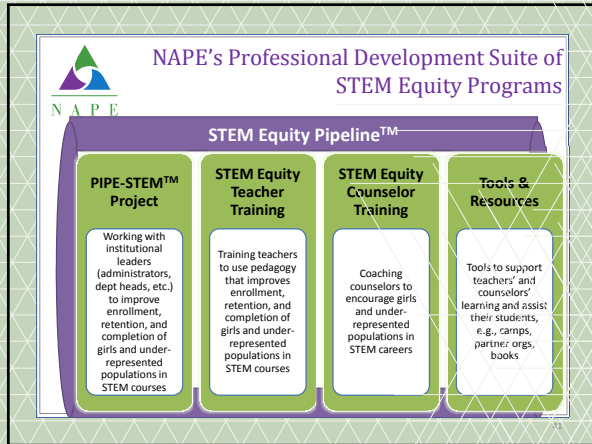
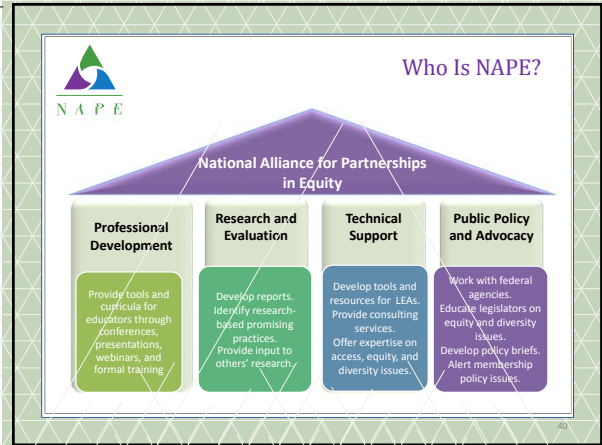
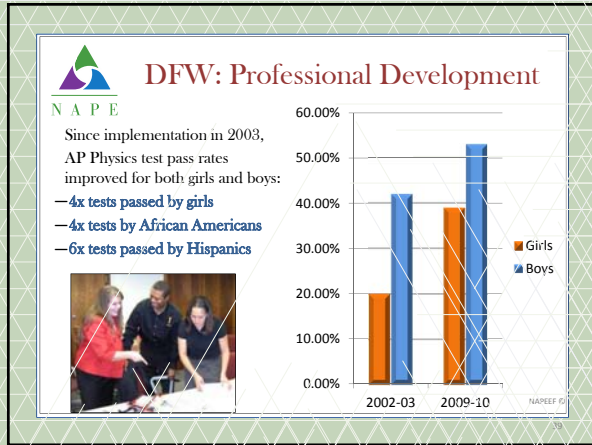
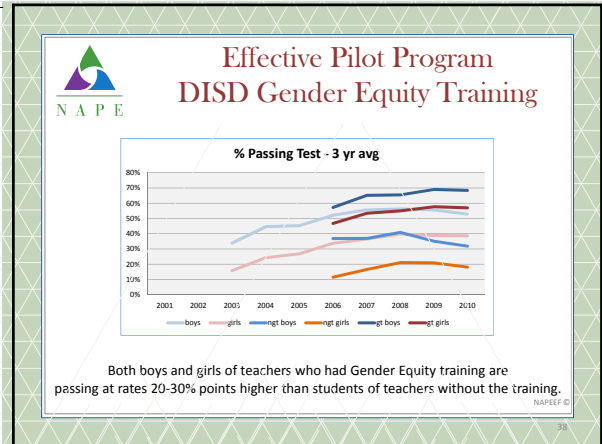
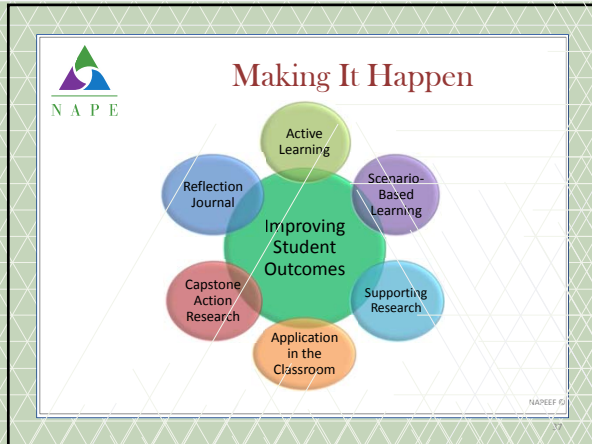


Micromessaging to Reach and Teach Every Student™




Setting the Stage: In this unit participants will learn to apply a data-driven process for program-based continuous improvement.


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- Ohio STEM Equity Pipeline**
- Office of Career-Technical Education (ODE)-funded
 - Equity in STEM secondary (Columbus State Community College)
 - Equity in STEM middle school (Ohio STEM Learning Network, Battelle Education)
 - Micromessaging to Reach and Teach Every Student
 - Collaborative Project: Reynoldsburg School District (Baldwin Road Middle School, eSTEM Academy, and HS2), and Eastland-Fairfield Career Center
 - Maximize success of students in STEM/CTE classrooms in all institutions
 - Broaden perceptions through focus on multiple pathways into a STEM career
 - Share effective practices with other middle school educators
 - Additional Project Planned for 2014-2015: Sandusky High School



Wrap-up and Questions




Moving Forward

- As the **scientist** in your classroom, review your data and begin to formulate a hypothesis for any weaknesses or gaps that exist in student outcomes.
- As a **researcher** in your classroom, think about how your methods might be changed to improve your students' performance.
- As the **coach** in your classroom, consider the key messages you can make to your "team members" to affect their best game.
- As the **educator** in your classroom, recognize and reflect on the power you have to impact the lives of students.



"I am only one, but still I am one. I cannot do everything, but still I can do something; and because I cannot do everything, I will not refuse to do something I can do."

-Edward Everett Hale

Questions? Contact Information

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Thank you for your participation today!