Considerations for Creating an Equitable Learning Environment in STEM

MICROMESSAGING TO REACH AND TEACH EVERY STUDENT™ WORKSHOP

Claudia Morrell

Agenda

Topic	Approximate Time
Equity	20 minutes
Spheres of Influence	20 minutes
Strategies and Tools	15 minutes
Wrap-up	5 minutes

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Goal

Create an equitable learning environment
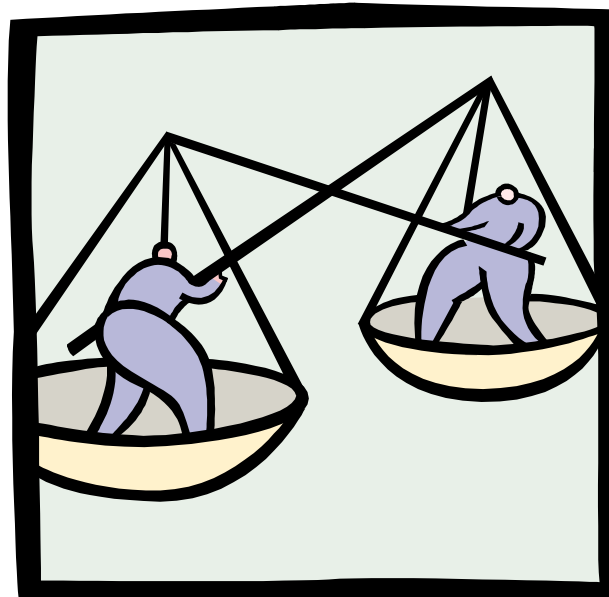in light of larger patterns of socialization in society.

Equity and Equality

Equality

Equality often means that everybody gets the *same thing*, that is, that everybody hypothetically has access to the same classes or the same opportunities.

The Trouble with Equality

The *trouble* with equality is that, if people are not starting on a level playing field, giving them the same thing maintains the inequality that already exists.

An Equity Approach

An *equity* approach considers disparities that exist and gives students what they need to address those disparities.

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Starting Assumptions

Every student deserves access to the inclusive, equitable educational opportunity, regardless of gender, race, class, religion, (dis)ability, sexual orientation, and so on.

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Inequitable Access: An Illustration

Compared with low-poverty U.S. schools, high-poverty U.S. schools have:

- More teachers teaching in areas outside their certification subjects
- More serious teacher turnover problems
- More teacher vacancies
- Larger numbers of substitute teachers
- More limited access to computers and the Internet
- Inadequate facilities (such as science labs)

Inequitable Access: An Illustration

- More dirty or inoperative bathrooms
- More evidence of vermin such as cockroaches and rats
- Insufficient classroom materials
- Less rigorous curricula
- Fewer experienced teachers
- Lower teacher salaries
- Larger class sizes
- Less funding.

An Illustration: Girls, Equality, and Computer Science

- From an equality standpoint, young women have just as much access as young men to computer science or automotive high school classes.

- *However*, this standpoint ignores larger social and educational conditions that might point to the fact that young women do not have the same access as men.

An Illustration: Girls, Equality, and Computer Science (Cont'd.)

- So, young women might have *equal* access, but they certainly do not have *equitable* access.

- An *equity* approach takes these bigger social and educational conditions into account—it's about closing the gaps in access and opportunity.

Sphere of Influence

Activity: Sphere of Influence

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Teacher access & opportunity:
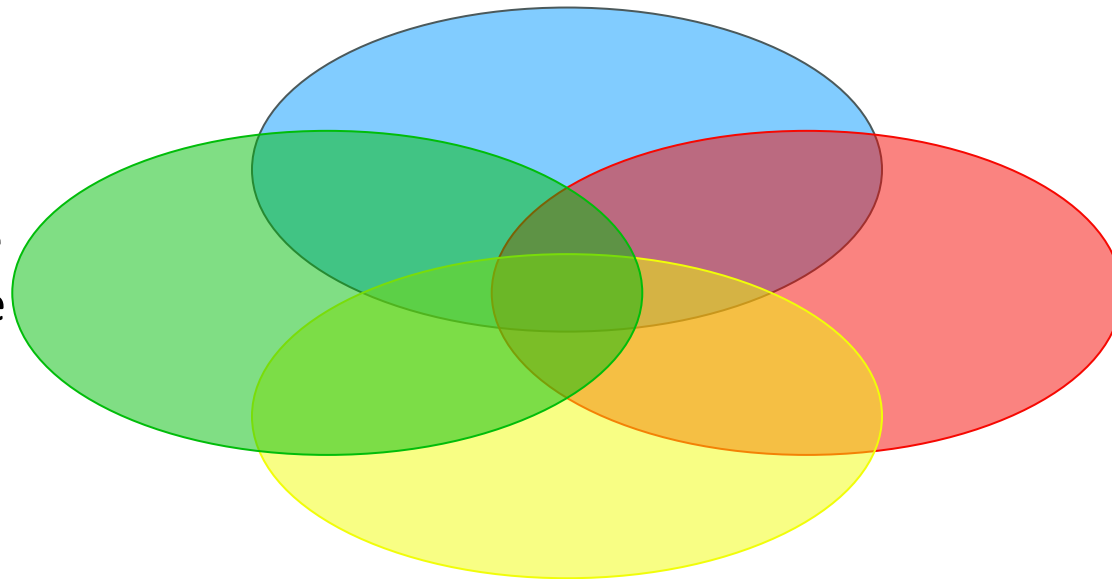**What I *can* control**

Teacher access & opportunity:
What I *can't* control

Dimensions of Equitable Education

1. What our students bring to the classroom

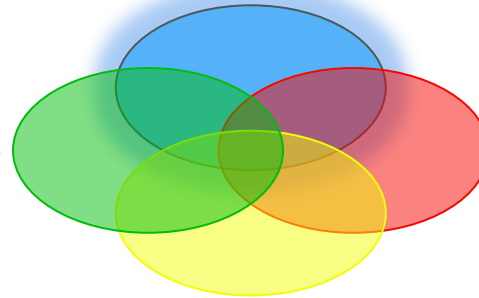2. What we bring to the classroom

4. Pedagogy

3. Curriculum content

Adapted from the work of Maurianne Adams and Barbara J. Love (2006).

Dimensions of Equitable Education

1. What our students bring to the classroom

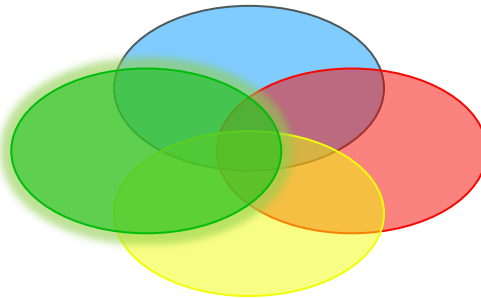2. What we bring to the classroom

4. Pedagogy

3. Curriculum content

- Past educational experiences
  (it's not always all about us)
- Complex identities, prejudices, biases
- Expectations about the roles of students and teachers

Dimensions of Equitable Education

1. What our students bring to the classroom

2. What we bring to the classroom

4. Pedagogy
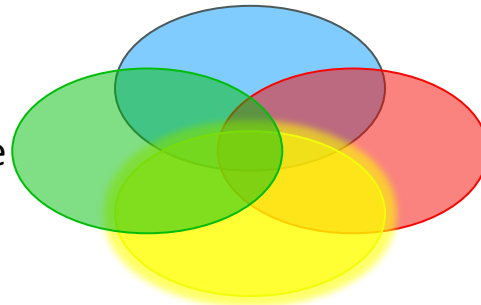
3. Curriculum content

- Complex socializations, identities, biases, and prejudices
- Notions about the purposes of education and our roles as teachers

Dimensions of Equitable Education

1. What our students bring to the classroom

2. What we bring to the classroom

4. Pedagogy

3. Curriculum content

- Course materials: Who is represented in readings, examples, illustrations?
- Perspective and worldview: Whose voices are centered? Whose are "other"ed?
- Is content, whenever possible, made relevant to the lives of the students?
- What is the "hidden curriculum" ?

Dimensions of Equitable Education

1. What our students bring to the classroom

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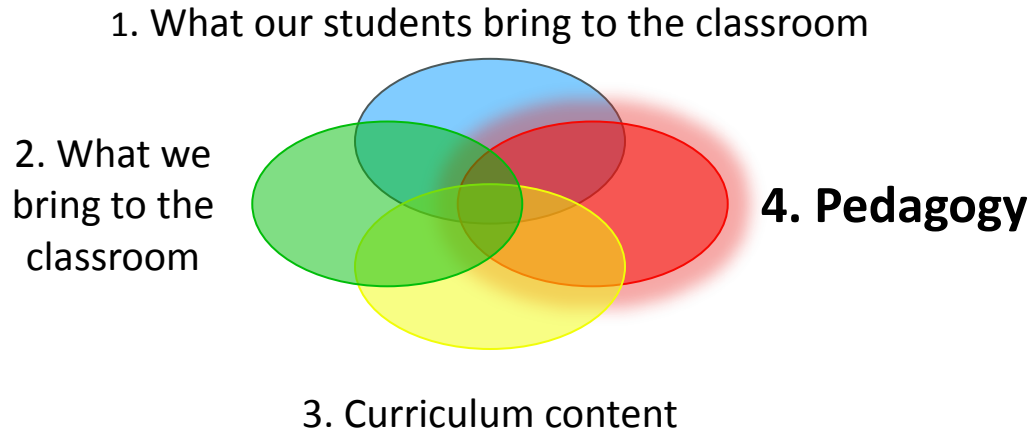
- Paying attention to inequity in classroom *processes*
- Attending to sociopolitical relationships (power and privilege) in the classroom
- Rejecting deficit ideology

Critical Reflection

- The basis for any approach to equity is <u>critical reflection</u>.

- This means that we have to learn to imagine and ask these questions, often against our own socializations.

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Equity

There exists no set of **administrative**, **curricular,** or **pedagogical** strategies that will work for all (or even most) students when we identify those students based on a single dimension of identity.

Your Own Sphere of Influence

However, it is not the responsibility of a single teacher or counselor or administrator to transform the world or even a school district.

But it is our responsibility to define our own spheres of influence and make sure we do whatever we can to make those spheres equitable and just.

Super Strategies

- To create equity, address each student's unique needs so he or she can meet equal academic performance expectations.

- Identify institutional or organizational policies that may unintentionally create inequity. For example, assigning students to mathematics tracks that restrict career choices based on math anxiety not math competence.

- Be thoughtful how you create cooperative teams or small groups – make sure everyone has a role and stereotypes are challenged.

- Perform an environmental scan on your classroom and address climate issues

- Participate in peer observation opportunities as both an observer and being observed.

Pedagogical Tools

Micromessaging:
Changing the Learning Narrative

Dynamic-Learning Frame   **Fixed-Performance Frame**

1.   1.

2.   2.

3.   3.

4.   4.

Source: Peter H. Johnson. Opening Minds: Using Language to Change Lives. Stenhouse
Publishers. 2012. Modifications made by NAPE.

Learning Styles

- Approach to learning that customizes teaching to individual needs
- Multiple models but all assert there are many ways to study and learn
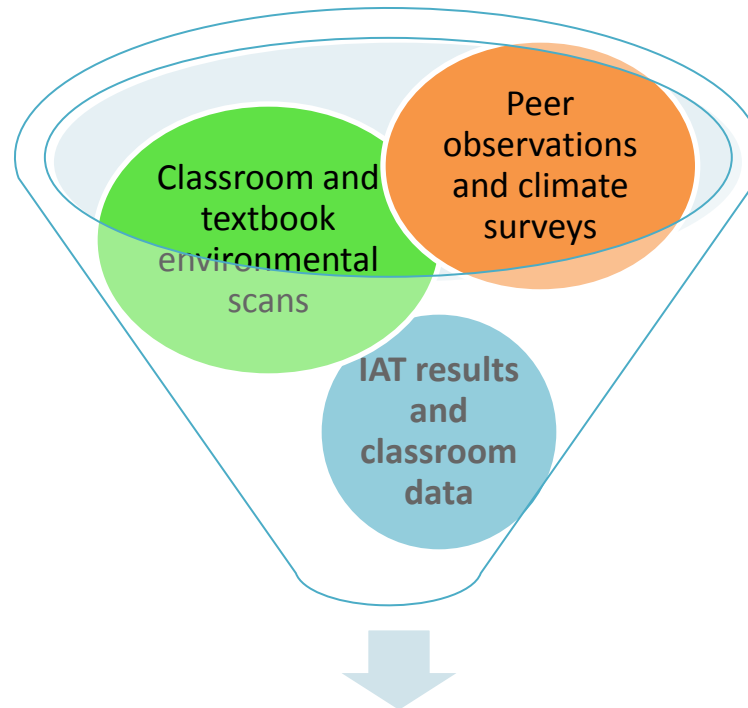- Controversial as to whether this makes a significant difference

Universal Instructional Design

- Teaching process that considers the needs of all learners
- Learning activities that are:
  — Accessible and fair
  — Flexible
  — Explicit
- Environment that is:
  — Supportive
  — Accommodates multiple teaching styles
  — Safe – tolerant of errors
  — Appropriate size and space

Review All the Data!

Classroom and textbook environmental scans

Peer observations and climate surveys

IAT results and classroom data

Create a more equitable learning environment!

Super Strategies

- Utilize either virtual or hands-on activities.
- Avoid over-using worksheets as a teaching tool.
- Utilize real-life teaching strategies relevant to your students.
- Incorporate student experiences and culture in the instructional process.
- Provide students with periodic opportunities to share anonymous feedback.
- A diversity of learners will benefit from the diversity of strategies for conveying information in the classroom. For instance, consider how you might deliver a lesson using the following:
  - Collaborative learning
  - Problem-based learning
  - Direct instruction
  - Inquiry training
  - Non-directive (facilitative) teaching and self-esteem building
  - Synectics or creative thought whereby students "break boundaries" in problem solving and writing
  - Group investigation
  - Role playing

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Scenario

As your racially diverse students enter your classroom you overhear them talking about the sports game they attended the previous night at a nearby private school. They are talking about the "rich kids" and the inequities they experienced in terms of playing fields, uniforms, bathroom facilities, and even parents' cars. As you bring your class to order, one female asks why they have to pay attention to math as they will all end up working at a fast food restaurant anyway. The rest of the class nods, smiles, and affirms the position. They then look at you for a response. You have a lot of content material to cover.

- How do you handle this situation?
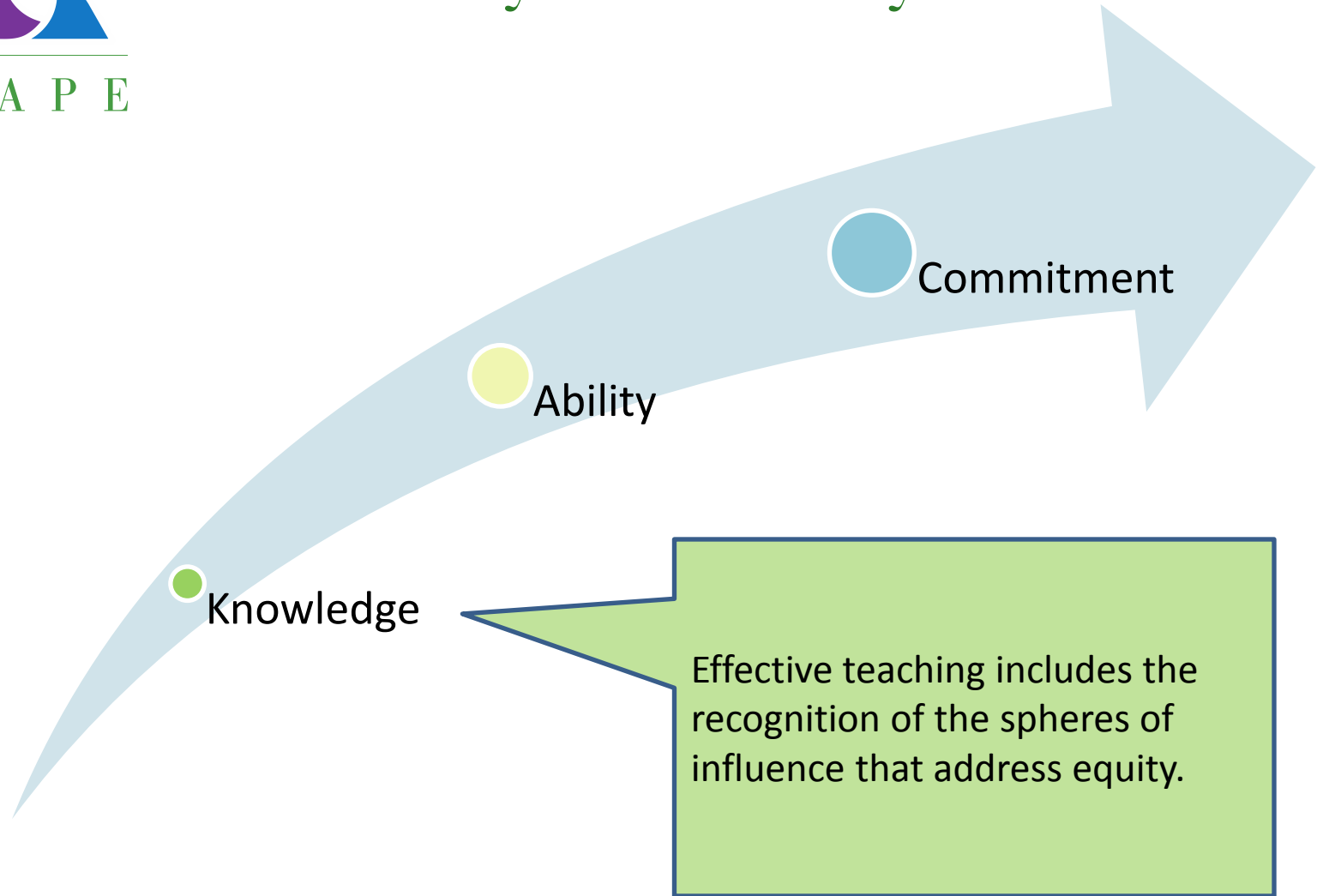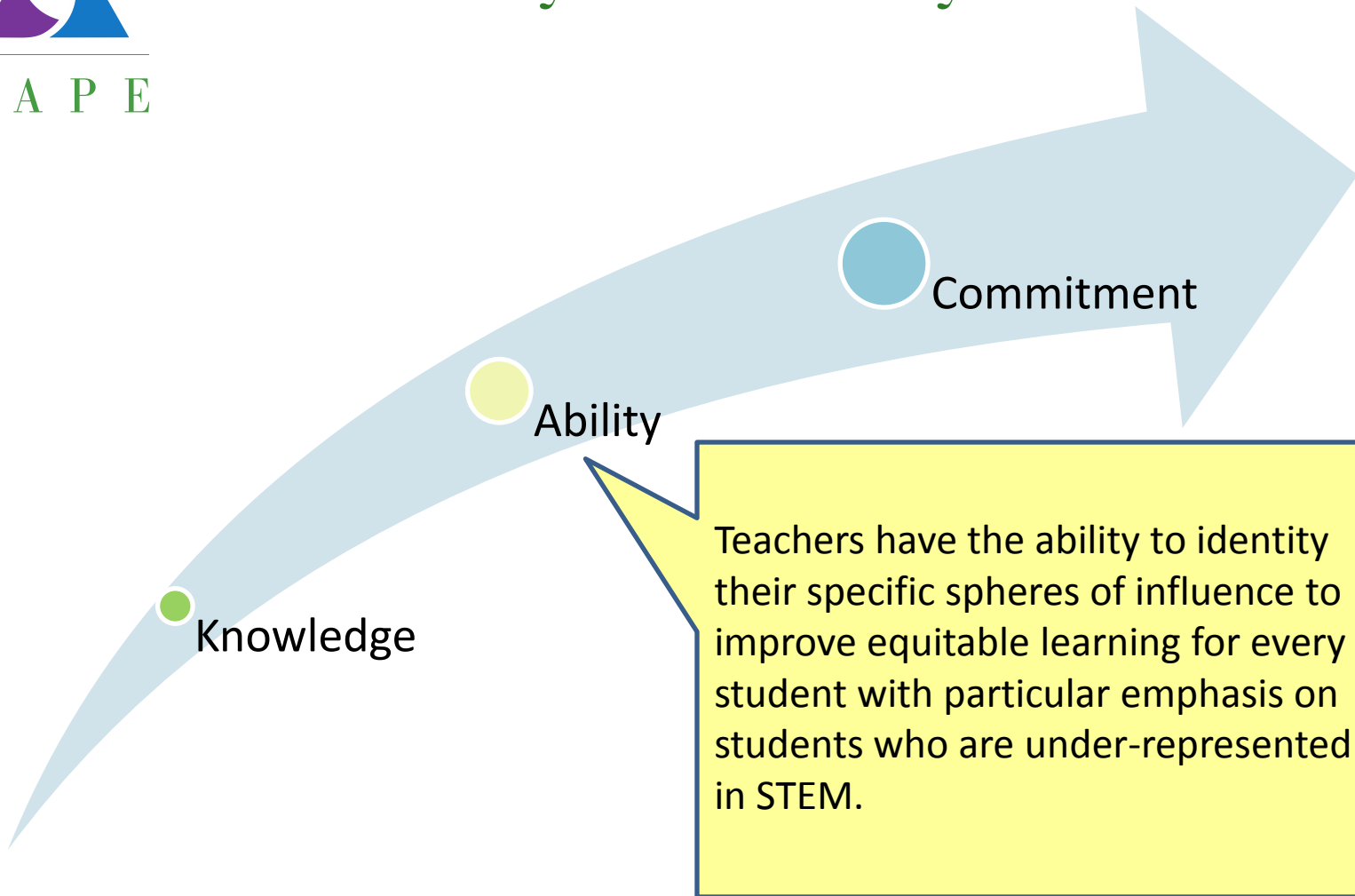- Might your perspective change as you take an equity approach?

Wrap-up

Key Takeaway Points

Commitment
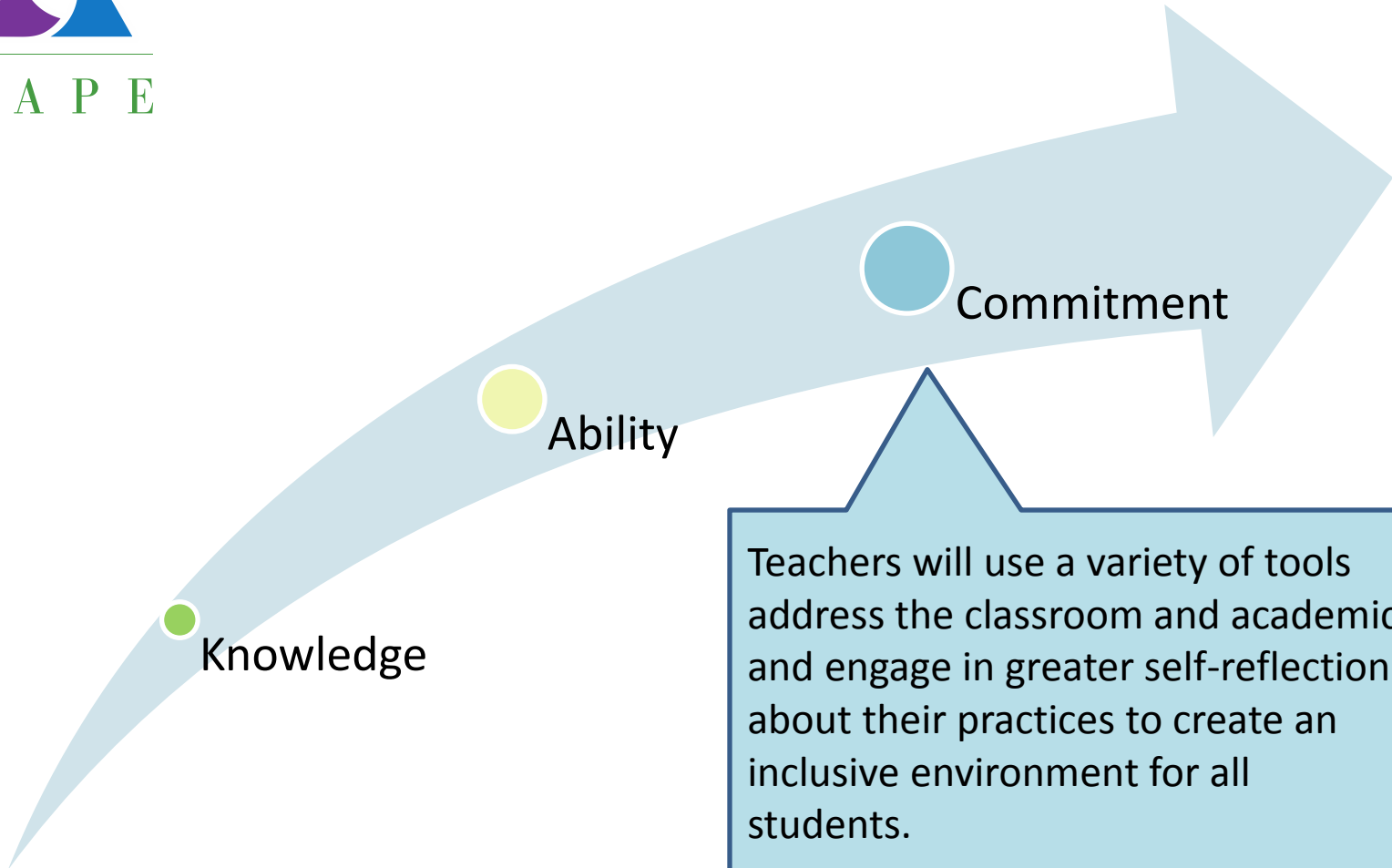
Ability

Knowledge

Effective teaching includes the recognition of the spheres of influence that address equity.

Key Takeaway Points

Commitment

Ability

Knowledge

Teachers have the ability to identity their specific spheres of influence to improve equitable learning for every student with particular emphasis on students who are under-represented in STEM.

Key Takeaway Points

Knowledge

Ability

Commitment

Teachers will use a variety of tools address the classroom and academic and engage in greater self-reflection about their practices to create an inclusive environment for all students.
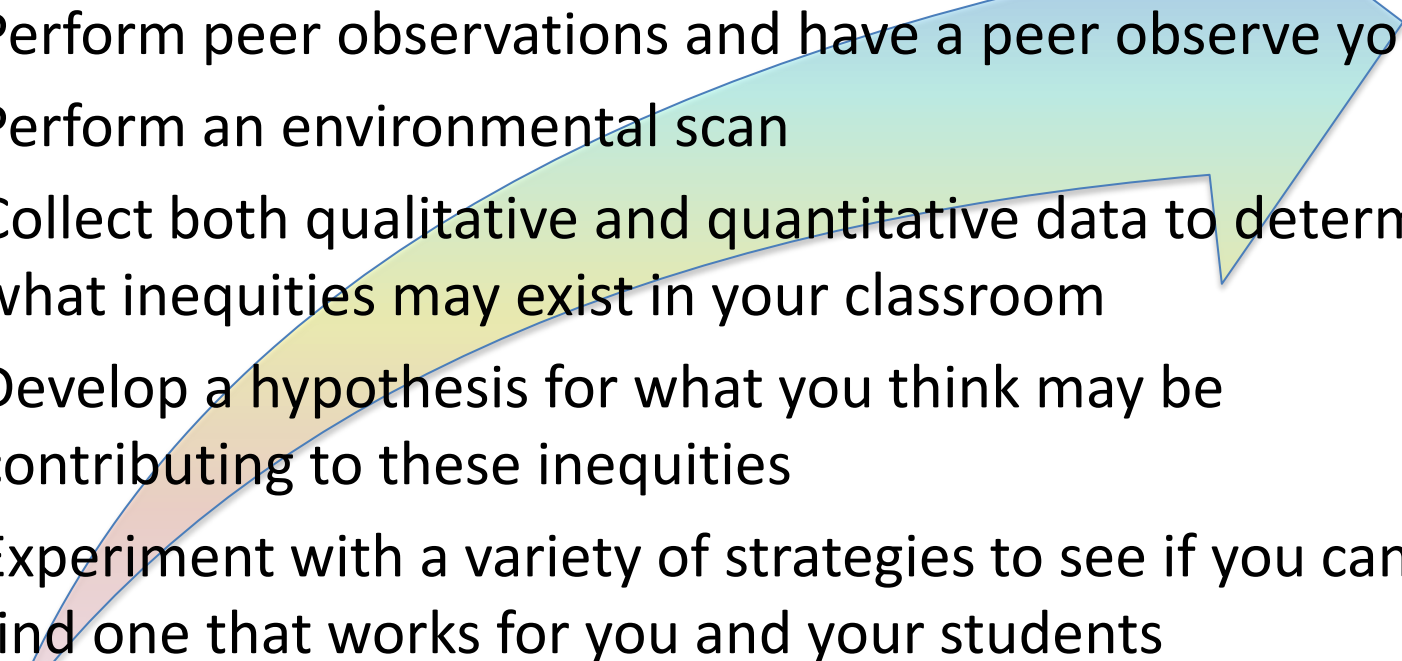
Moving Forward

- Perform peer observations and have a peer observe you

- Perform an environmental scan

- Collect both qualitative and quantitative data to determine what inequities may exist in your classroom

- Develop a hypothesis for what you think may be contributing to these inequities

- Experiment with a variety of strategies to see if you can find one that works for you and your students

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"Never doubt
that a small group of
thoughtful committed
people can change
the world.

Indeed,
it is the only thing
that ever has."

Margaret Mead