Creating inclusive learning environments

Harvard Medical School
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Biological Sciences
where discovery comes to life UC San Diego

C A M S E E Center for Advancing **Mathematics, Science & Engineering** Education

Exploring diversity and identities

- A series of statements will be read, each with a direction to either add 1 or subtract 1

- If the statement applies to you, add or subtract as directed

- Keep a running tally

- After all the statements are read, calculate final tally

+1
+1
−1
+1
−1
+1
+1
−1

=2
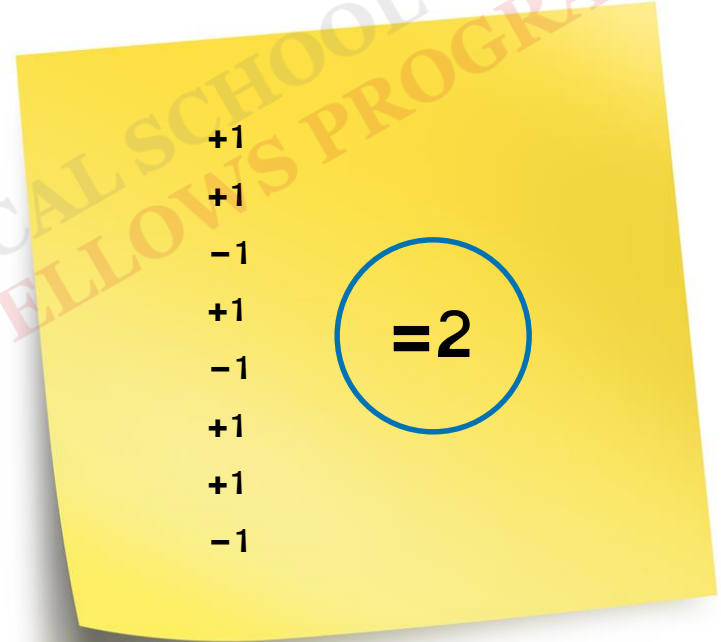
Practice item (do not actually tally):

If you know what time it is now in Auckland, New Zealand, add 1

Exploring diversity and identities

- Additions or subtractions are not positive or negative reflections upon individuals

- Reflect in silence (no discussions)

- Maintain confidentiality and privacy

- If you are uncomfortable, you can opt not to turn in your Post-It when prompted

+1
+1
−1
+1
−1
+1
+1
−1

=2
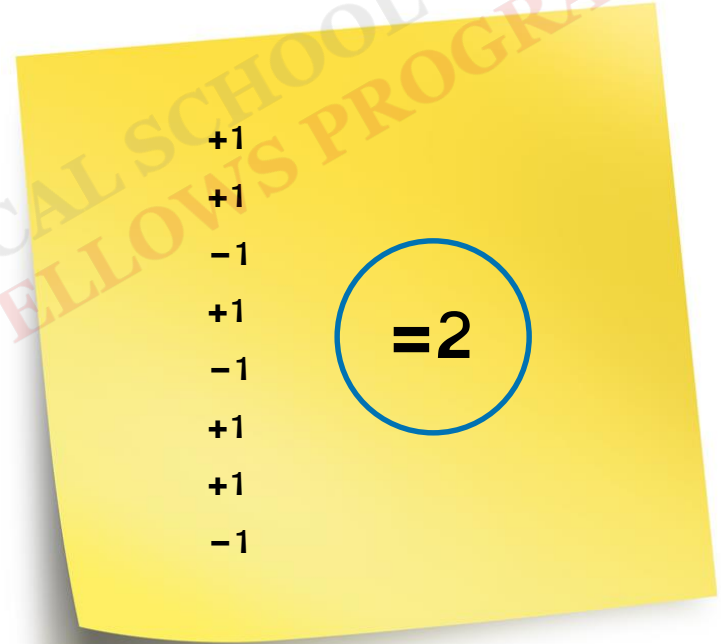
If you can see the full spectrum of visible colors, add 1

If members of your gender, race, or ethnicity are disproportionately portrayed on TV in degrading roles, subtract 1

If there were more than 50 books in your house growing up, add 1

If a family member or friend when you were growing up was in a similar profession as you are now, add 1

If you have been diagnosed with post-traumatic stress disorder, subtract 1

If you have tried to change your speech, appearance, behavior, or mannerisms to gain credibility, subtract 1

If your family automatically expected you to attend college, add 1

If you are one of the few members of your childhood social circle who went to college, subtract 1

If you are reasonably sure you would be hired based on your ability and qualifications, add 1

If you are able to hold a pen and take notes if you choose, add 1

If you were embarrassed about your clothes or house while growing up, subtract 1

If you could reasonably assume you had similar childhood experiences as an advisor or mentor when you were in college, add 1

If you can sit anywhere in any room and are likely to be able to hear the speaker, add 1

If you have been diagnosed with dyslexia or other forms of learning disability, subtract 1

If you have ever experienced or been treated for depression, subtract 1

If you can show affection for your romantic partner in public without fear of ridicule or violence, add 1

If you were ever stopped or questioned by the police because of your race, subtract 1

If you were raised in a single-parent household, subtract 1

If you struggled to schedule study time because you had to work as full time while being a student, subtract 1

If your parents or guardians or childhood best friend's mother attended college, add 1

Exploring diversity and identities

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+1
+1
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=2
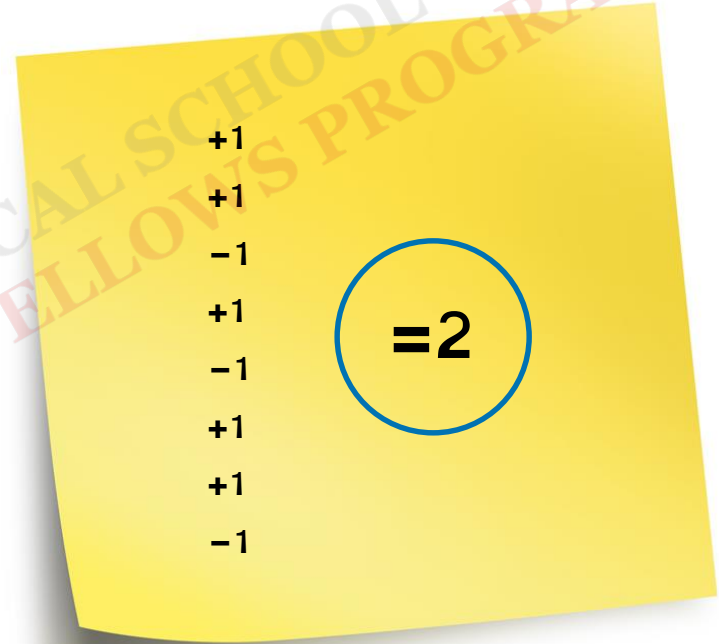
Reflection: Diversity and identities

- **C**ome up with one dimension of diversity from the previous activity that is the most salient or surprising to you

- **W**hip around: We will go around the room and share

- You can repeat what others have said
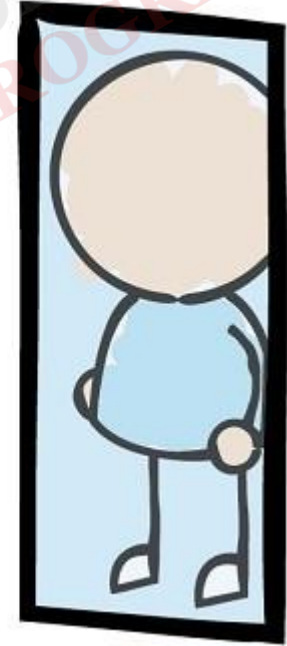
Diversity: Each individual is a unique mixture

Diversity can manifest in both external identities (e.g. race, gender, age) …

"If you were ever stopped or questioned by the police because of your race, subtract 1."

… and internal identities (e.g. cultural and socioeconomic background, life and educational experiences, motivation)

"If your family automatically expected you to attend college, add 1."
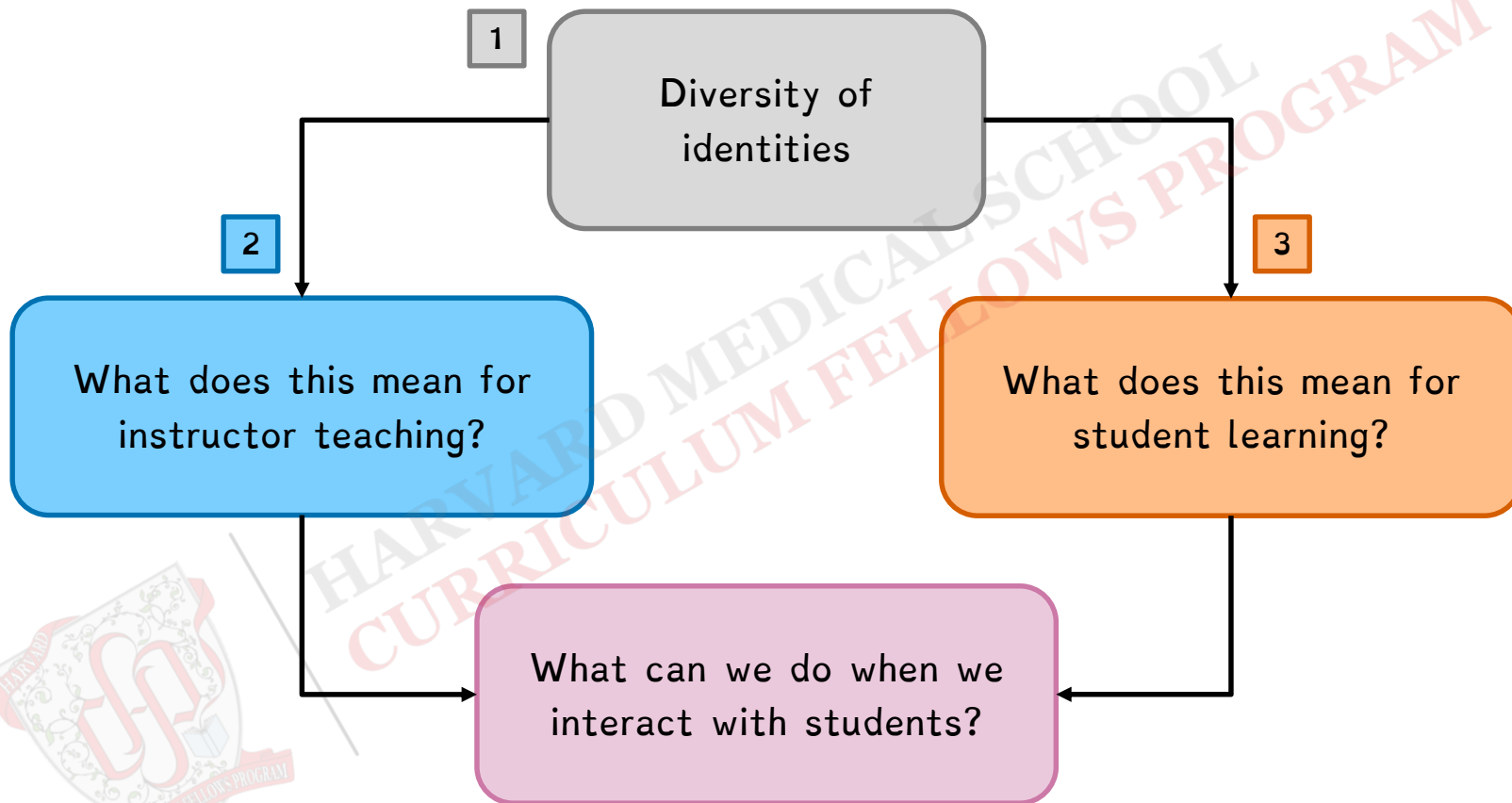
Reflection: Diversity and identities

- Reflect on where you are in relation to the histogram and the range

- Do you think that our students will have a different or similar distribution as us? What does this mean for our learning environments?
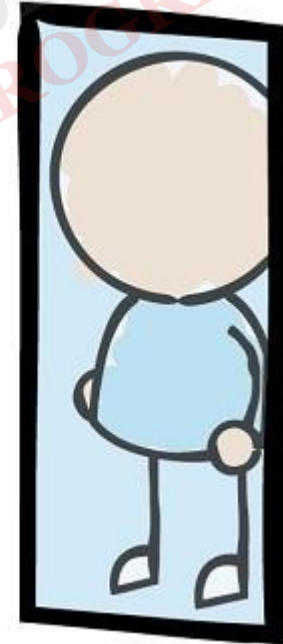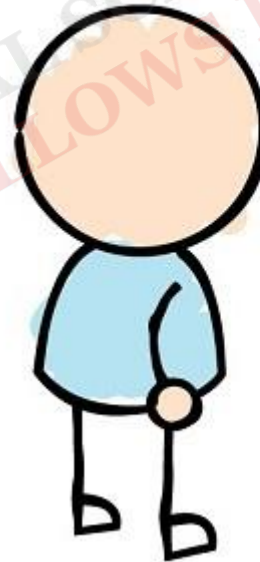
What does this mean for our learning environments?

Inclusive classroom: Plan for this session

1 Diversity of identities

2 What does this mean for instructor teaching?

3 What does this mean for student learning?

What can we do when we interact with students?

A field experiment on 3rd graders in large urban school district

Gifted program screening in Florida school district
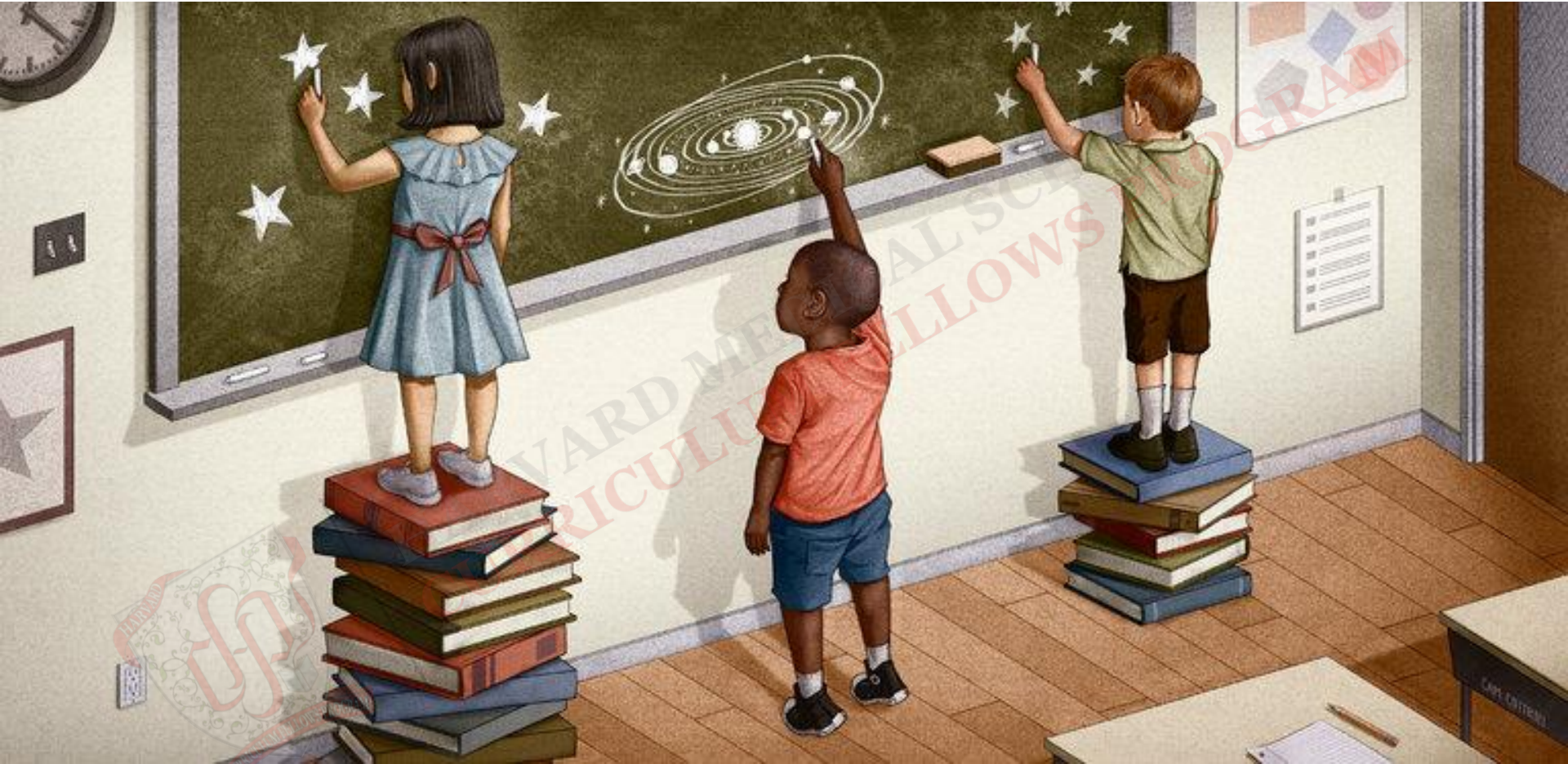
2004–2005
- Recommended screening
- n = 39,933

2006–2007
- Universal screening
- n = 38,132

Why do you think recommended vs. universal screening gave such different results?

Recommended screening — Universal screening — Recommended screening

non-FRL non-ELL

All

FRL/ELL

1.5×

3.6×

Plan A · Plan B · All
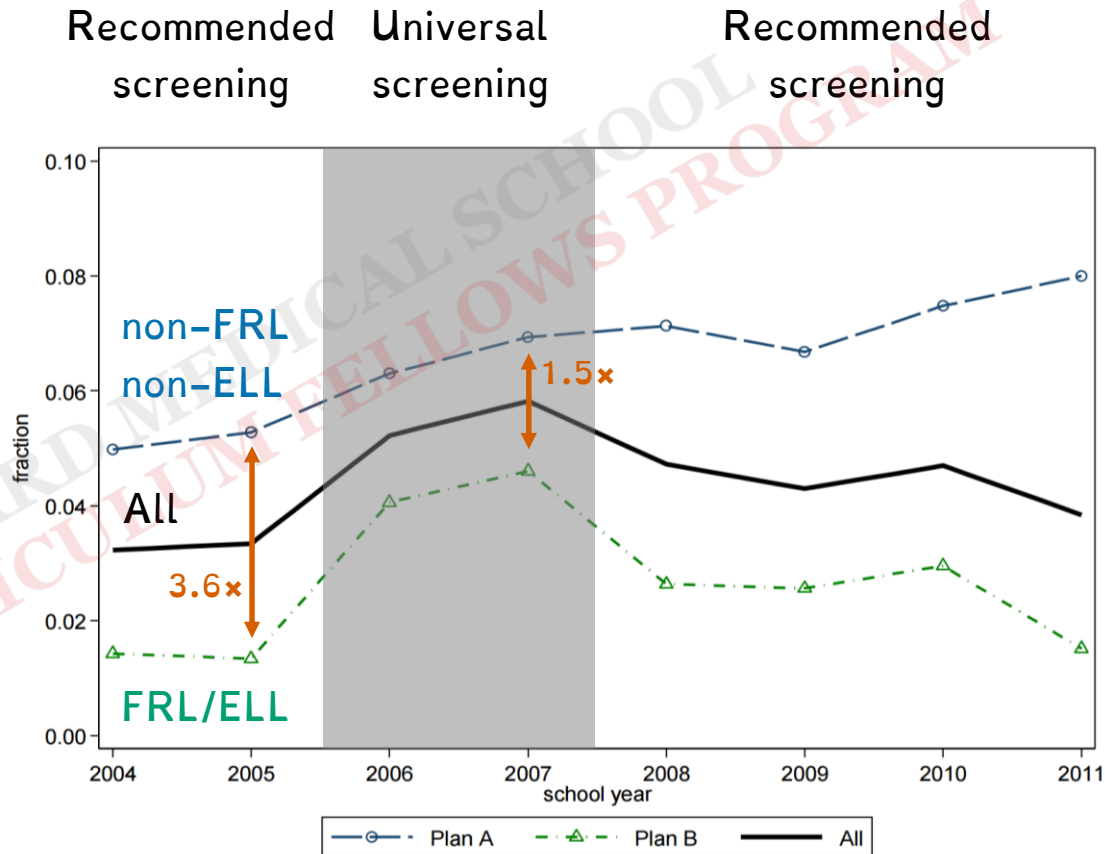
Why talented students can go undiscovered

Cultural capital: Knowing how to navigate college

Odds Ratios of Logistic Regression Models of the Relative Effects of Best Friend's Economic and Cultural Resources on Adolescents' Subsequent College-Completion

	(1)	(2)	(3)
Best friend			
Mother has 4-year college degree	2.316***		1.969***
	(0.311)		(0.258)
Parents' income		1.014***	1.011**
		(0.003)	(0.003)
Observations	3,309	3,309	3,309

"This positive effect of best friends' cultural resources is not explained fully by school achievement or by the expectations of respondents, best friends, or parents."

A controlled experiment with science faculty

DEMOGRAPHICS
Participant ID #: 149
Name: Jennifer ███
Gender: Female
Ethnic Background: Caucasian
Age: 22
Degree: Bachelors of Science, obtained May 2011 from ███ University

BACKGROUND
GPA: 3.2
GRE score: 650 verbal, 780 quant
Awards/honors: President's Service Award, Rotary Club College Scholarship
Previous research experience: 2 years as a research assistant working with 2 different faculty mentors
Academic standing: appears from Jennifer's transcript that she was in good standing upon graduation, but withdrew from 1 class prior to final
Letters of recommendation: 3 (2 from former faculty research supervisors, 1 from an intro science course professor), all supportive
Future plans: apply to doctoral programs
Extracurricular activities: student government, college learning center tutor
Position sought: Lab Manager
Position duration: 2 years, with possibility of renewal pending satisfactory performance

STATEMENTS/LETTERS
Excerpt from student statement: "I am a motivated student and would make the most of the opportunity to serve as your lab manager. After spending a semester working in Dr. ███'s lab and another year doing research with Dr. ███, I have gained valuable technical skills, co-authored a journal article, and am now committed to an academic research career…as someone focused on improving my standing and enhancing my research experience, this lab manager position would provide the perfect opportunity to hone the necessary skills to make me competitive for graduate school applications… additionally, the fascinating research taking place in your lab is directly in line with my interests and experiences…in short, I am focused, motivated, organized and dedicated to improving my research skills. I am enthusiastic about the opportunity to fill the lab manager position and collaborate with you on future research."

Excerpt from faculty recommendation letter: "…although Jennifer admittedly took a bit longer than some students to get serious about her studies early in college, she has impressed me by improving over the last two years of her science coursework and has made every effort to make up for lost ground…she has been a strong research assistant in my lab, and I know she is capable of serving as a dedicated lab manager."

- Identical applications for a hypothetical lab manager position
- Experimental conditions (name): Jennifer vs. John
- Faculty (female and male) asked to rate competence, hireability, mentoring (amount to be provided when hired), and salary

Science faculty's subtle gender biases favor male students

| | Male target student | | | | Female target student | | | | |
| | Male faculty | | Female faculty | | Male faculty | | Female faculty | | |
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	d
Competence	4.01_a	(0.92)	4.1_a	(1.19)	3.33_b	(1.07)	3.32_b	(1.10)	0.71
Hireability	3.74_a	(1.24)	3.92_a	(1.27)	2.96_b	(1.13)	2.84_b	(0.84)	0.75
Mentoring	4.74_a	(1.11)	4.73_a	(1.31)	4.00_b	(1.21)	3.91_b	(0.91)	0.67
Salary	$30{,}520.83_a$	(5,764.86)	$29{,}333.33_a$	(4,952.15)	$27{,}111{,}11_b$	(6,948.58)	$25{,}000.00_b$	(7,965.56)	0.60

Competence

ß = −0.37***

ß = +0.69***

Gender

ß = −0.10 (n.s.)

Hireability
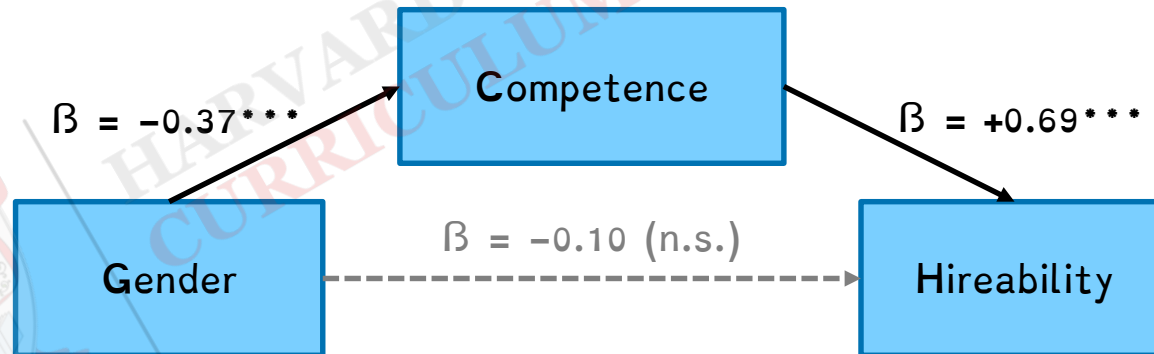
How do these pictures represent different perspectives on social justice?
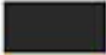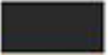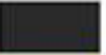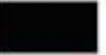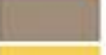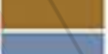
Diversity   Equity   Inclusion
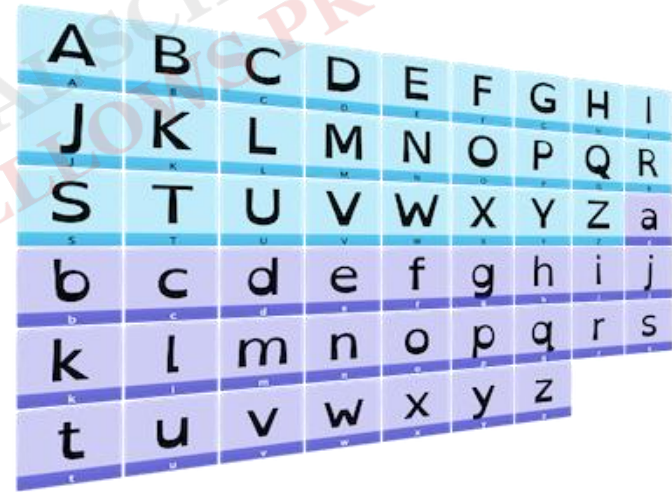
Universal designs for inclusive learning environments

Dyslexie   Open Dyslexic

Diversity ≠ Inclusion: Promoting Integration in Higher Education

Marta Tienda[1]

I argue that enrollment of a diverse student body is but a pragmatic first step toward the broader social goal of inclusion and ask whether motives for campus diversification are aligned with pedagogic goals. I address this question by focusing on inclusion, namely, organizational strategies and practices that promote meaningful social and academic interactions among students who differ in their experiences, views, and traits. After illustrating the contours and pace of diversification, I discuss challenges to achieving meaningful integration as campuses become more racially diverse by focusing on ethnic programming and evidence about students' social interaction patterns. Integration is not an automatic by-product of campus diversity; therefore, to harness the benefits of diverse student bodies, institutional leaders must pursue deliberate strategies that promote inclusion.

Keywords: campus diversity; group stereotypes; inclusion; integration; intergroup relations; race-sensitive admissions; self-segregation

Inclusive classroom: Plan for this session
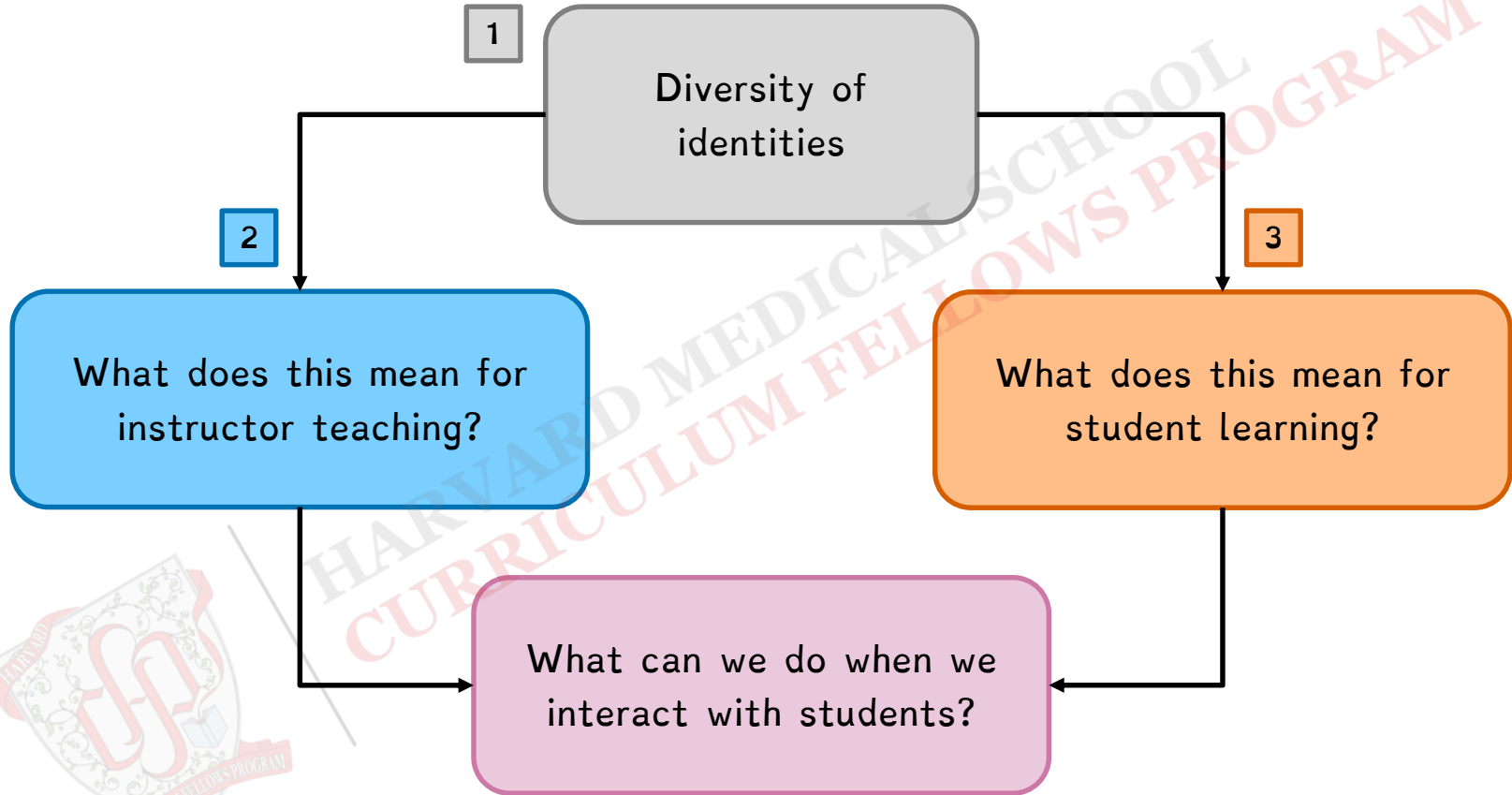
1 Diversity of identities

2 What does this mean for instructor teaching?

3 What does this mean for student learning?

What can we do when we interact with students?

Two psychology experiments on performance

- Asian American female undergraduates divided randomly into three groups
- Given **GRE** test questions on language (n=51) or mathematics (n=46)

Language

Mathematics
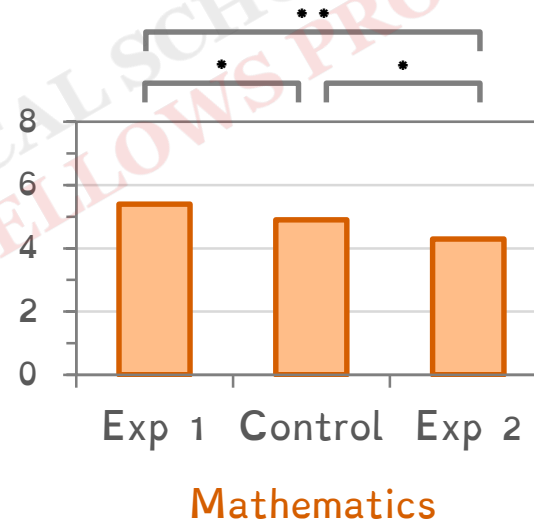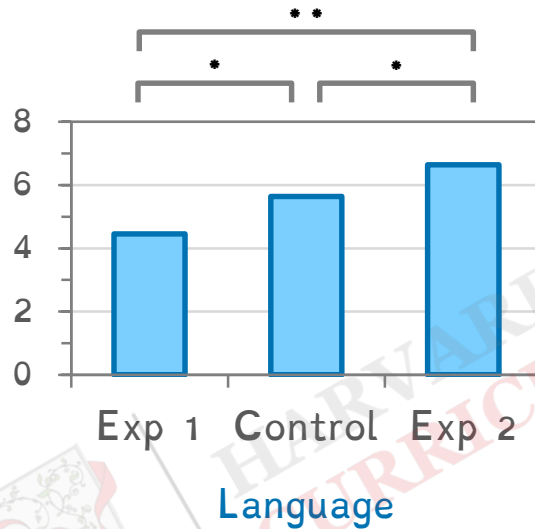
- Why do you think the three groups performed differently?
- Come up with possible scenarios for the two experimental conditions

Two psychology experiments on performance

- Asian American female undergraduates divided randomly into three groups
- Given **GRE** test questions on language (n=51) or mathematics (n=46)

Language

Mathematics
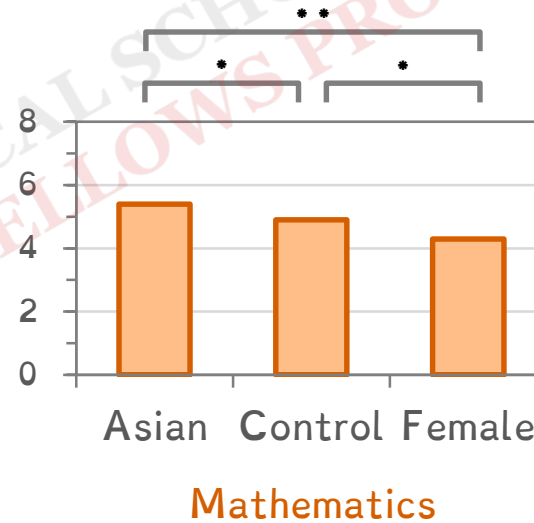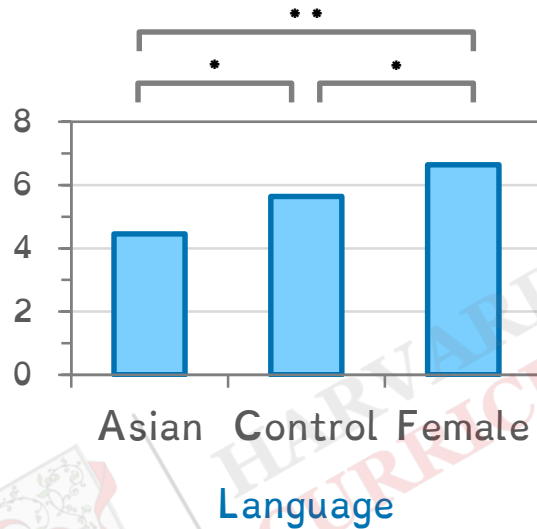
Prompt ethnic or gender identity by pre-test questionnaire

Cognitive mechanism for stereotype threat

Study population: 31 female undergraduates

$$\text{Stereotype threat} \xrightarrow{\ \beta = -0.42^*\ } \text{Math test performance}$$
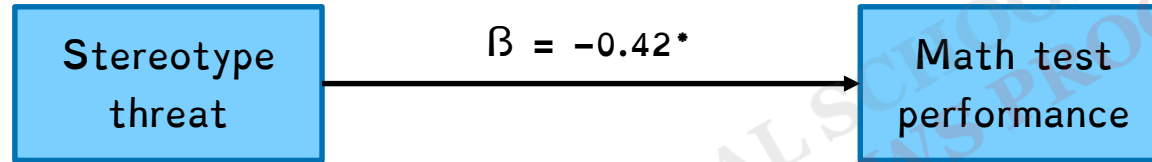
Working memory capacity test: Recall number of vowels in a sentence

Working memory capacity

$\beta = -0.52^{**}$

$\beta = +0.58^{***}$

Stereotype threat

$\beta = -0.12$ (n.s.)

Math test performance
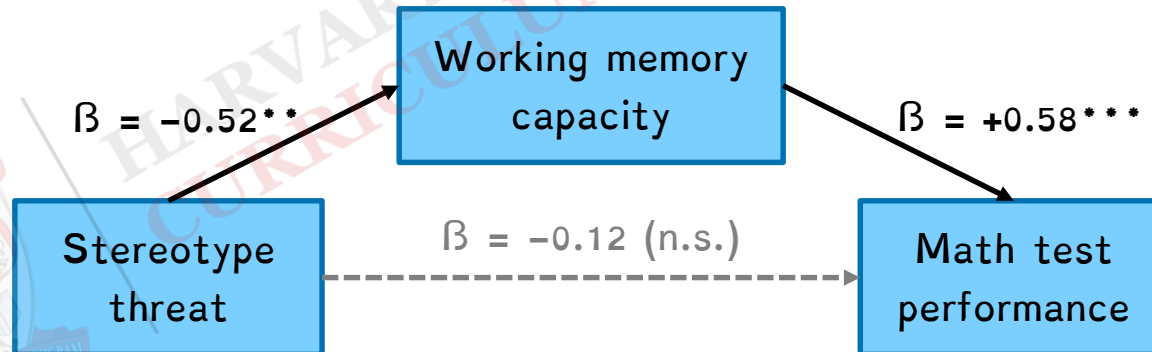
Susceptibility to stereotype threat

Brainstorm: Who may be influenced by or susceptible to stereotype threat?

Group	Negative implications	Reference
Alcoholics	Inhibition to drink	Pennington (2016) Addictive Behaviors
Christians	Science	Rios (2015) Social Psychological and Personality Science
Elderly persons	Memory	Hess (2009) Experimental Aging Research
Student athletes	GRE exams	Dee (2004) Economic Inquiry
...	...	...

Interventions to help reduce stereotype threat

Before math test, provide advice:
(7th graders in Texas, n = 138)

a. **Incremental:** Intelligence is malleable and can be improved
b. **Attribution:** Students experience difficulty in new environments
c. **Combined:** Both incremental and attribution advice
d. **Anti-drug:** Irrelevant advice on the perils of drug use

Which advice do you think would be the most effective?
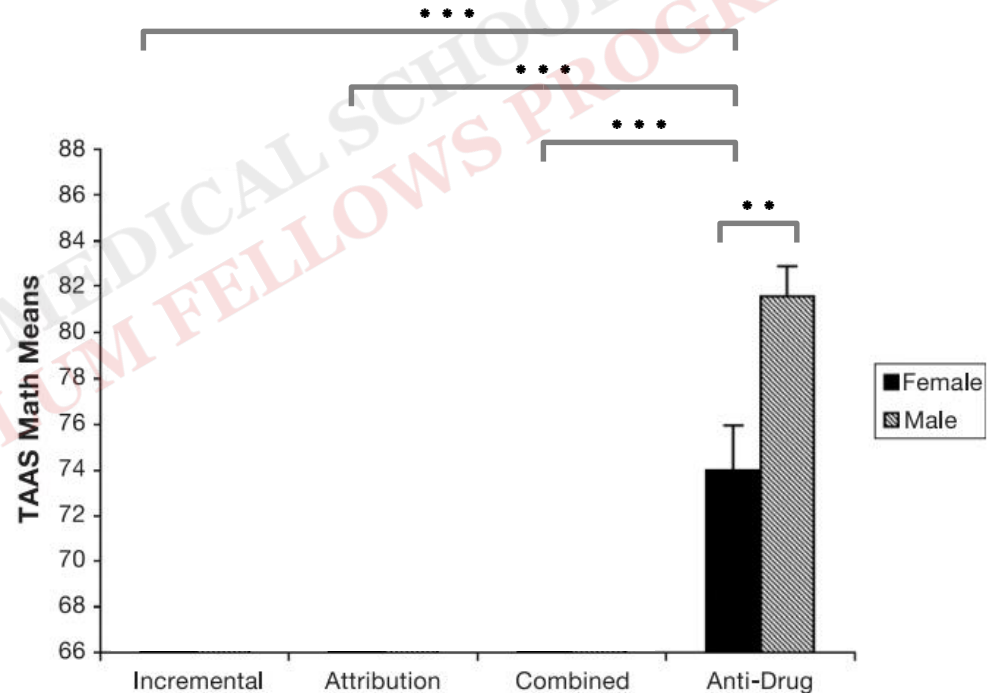
Fixed mindset vs. growth mindset

People with a fixed mindset believe that they have a certain amount of intelligence, and nothing can change that
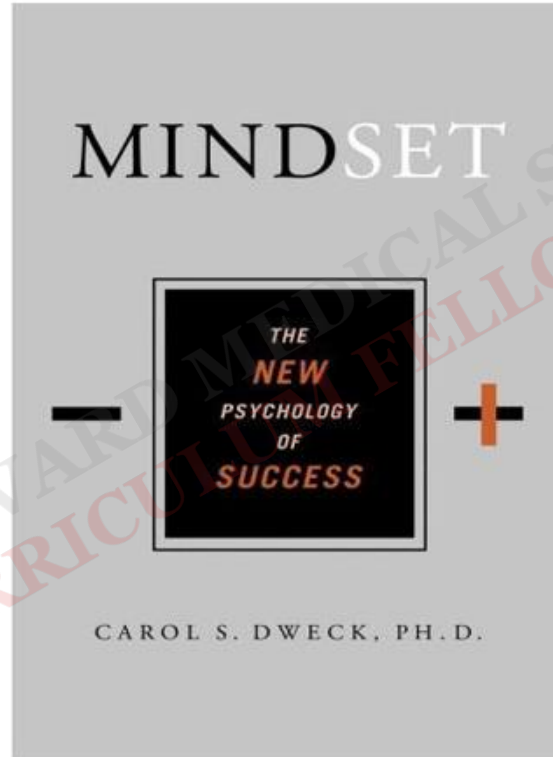
People with a growth mindset see their qualities as things that can be developed through their dedication and effort

Discussion: Promoting growth mindsets

- Determine if each of these statements would likely promote fixed or growth mindsets
- Fixed or ambiguous statements: Convert them to ones representing a growth mindset

1. "She is a B student."

2. "Organic chemistry is hard. Some people just don't get it."

3. "It will be very difficult to pass the exam unless you study and work hard."

4. "If you don't already know this stuff, you'll really struggle in this course."

5. "I am sure most of you already know this..."

6. "Great job on that presentation!"

- Read survey results of seniors
- Write reflection essay

Survey excerpt: "Freshman year even though I met large numbers of people, I didn't have a small group of close friends...I was pretty homesick, and I had to remind myself that making close friends takes time. Since then...I have met people some of whom are now just as close as my friends in high school were."

GPA

Social-Belonging Treatment

Legend:
- ◆ European Americans, Randomized Control Group
- ■ European Americans, Social-Belonging Treatment
- ▲ African Americans, Randomized Control Group
- ✕ African Americans, Social-Belonging Treatment

Y-axis: 4.00, 3.90, 3.80, 3.70, 3.60, 3.50, 3.40, 3.30, 3.20, 3.10, 3.00

X-axis: Fall Term | Fall Term | Spring Term | Fall Term | Spring Term | Fall Term | Spring Term
First Year | Sophomore Year | Junior Year | Senior Year

Interventions to help reduce stereotype threat

Empirically validated interventions and strategies

1. Remove cues that trigger worries about stereotypes
2. Convey that diversity is valued
3. Create a critical mass
4. Create fair tests, present them as fair and as serving a learning purpose
5. Value students' individuality
6. Improve cross-group interactions
7. Present and recruit positive role models from diverse groups
8. Help students manage feelings of stress and threat
9. Support students' sense of belonging
10. Convey high standards and assure students of their ability to meet them
11. Promote a growth mindset about intelligence
12. Value affirmations to reduce stress and threat

Social-Psychological Interventions in Education: They're Not Magic

David S. Yeager and Gregory M. Walton
Stanford University

Inclusive classroom: Plan for this session
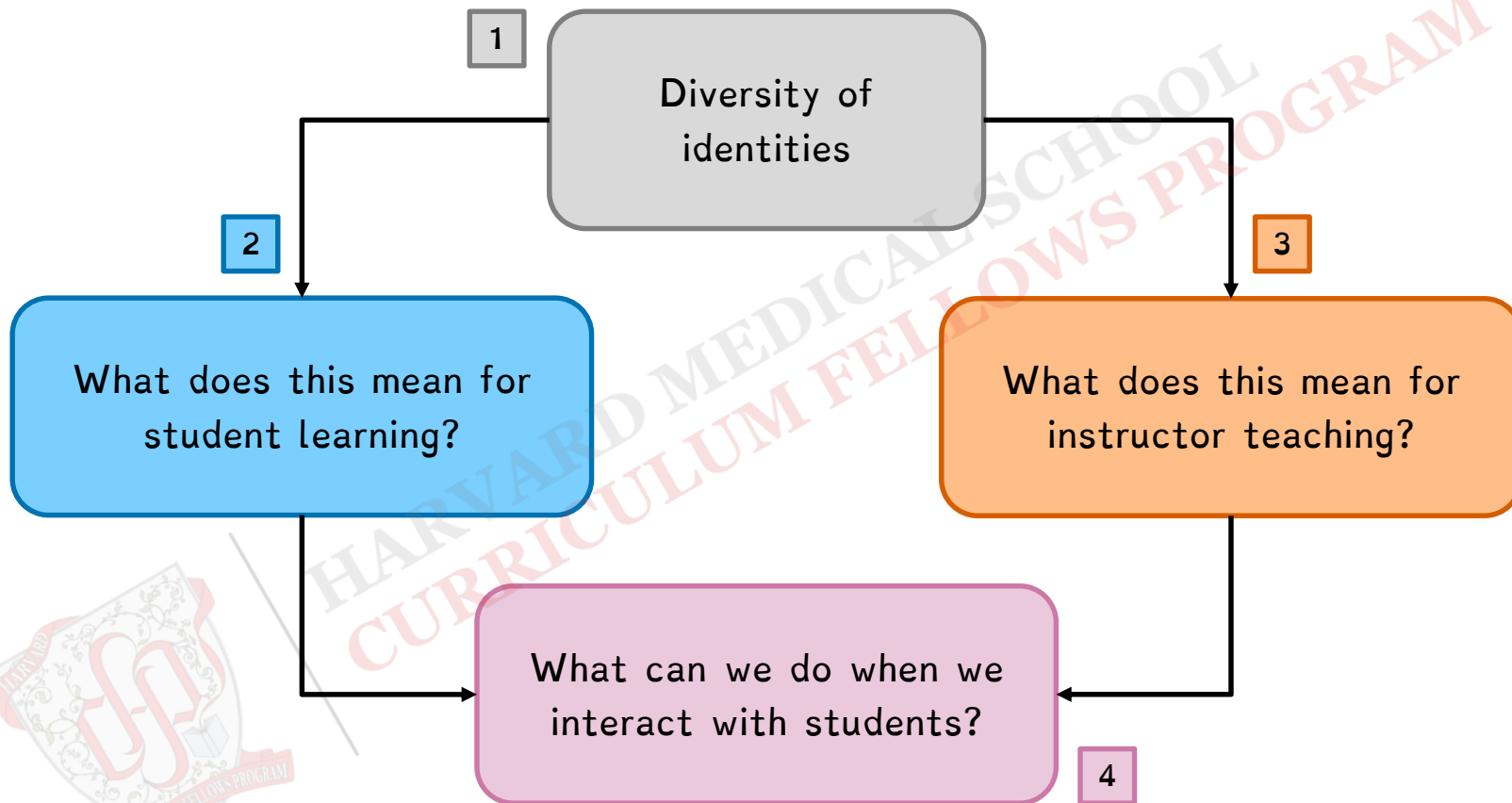
1 Diversity of identities

2 What does this mean for student learning?

3 What does this mean for instructor teaching?

4 What can we do when we interact with students?

Microaggression in the classroom

Microaggression (MA): "These brief and commonplace indignities communicate derogatory slights and insults toward individuals of underrepresented status contributing to invalidating and hostile learning experiences."

Intelligence-related MA: "After collecting quizzes from students, the instructor states: "Now you got to show your work." He asks a young Latino male to come to the board to solve a problem. The student attempts the problem but gets the wrong answer. The professor states, "You need to do it like you are in kindergarten, that way you make no mistakes, right? Write this 17 times [he writes, "17 times" on the board]—Right, Javier"? Javier looks at the board expressionless."

Microaggression in the classroom

Microaggression (MA): "These brief and commonplace indignities communicate derogatory slights and insults toward individuals of underrepresented status contributing to invalidating and hostile learning experiences."

Intelligence-related MA: "In another example, another instructor in a remedial English course asks her class, "Have any of you ever visited a prison?" As some students raise their hands, the professor continues, "Better yet have any of you been to prison?" As students share their experiences with the prison system, the professor insists, "Use I statements." In this incident, the instructor makes assumptions about the criminal experience of her community college students that she is unlikely to have made if she had been teaching a middle or upper class student body."

Microaggression in the classroom

Microaggression (MA): "These brief and commonplace indignities communicate derogatory slights and insults toward individuals of underrepresented status contributing to invalidating and hostile learning experiences."

Intersecting-type MA: "The White instructor started to speak about Thomas Jefferson and his relationship with his slave Sally Hemings. A Black male student asked, "He raped her?" The instructor disagreed, saying, "He had three or four children with her." The student then asked, "Oh, so he had a relationship with her?" The instructor replied, "He was an honorable guy. He bought her a sandwich." [The instructor] grinned, evoking what seemed to be uncomfortable laughter from the students in the class."

Microaggression in the classroom

Microaggression Occurrences in Observed Classrooms by Course Type

Course Type	CIMA Occurrence	
	Total Classes Observed	**Classes With at Least One CIMA**
Remedial	17 (28.3%)	7 (41.2%)
General education	29 (48.3%)	7 (24.1%)
Vocational	14 (23.3%)	3 (21.4%)
Total	60 (100%)	17 (28.3%)

"Although cultural/racial as well as gendered MAs were observed, the most frequent types of MAs were those that undermined the intelligence and competence of students. MAs were more likely to be delivered on campuses with the highest concentration of minority students and were most frequently delivered by instructors."

Understanding experiences of successful women of color

	Kind of recognition from meaningful others[2]			
Participants	Positive from scientific others	Negative from scientific others	Felt invisible to scientific others	Positive from outside science

Research

Chris
Nancy
Jaya
Mariah

Altruistic

Jackie
Magdalena
Evonne
Xiao-Ling
Monica

Disrupted

Alethia
Conchita
Kathy
Crystl
Chanda
Merima

Discuss one scenario in relation to inclusion

#1: "I think what gave me my sense of success wasn't the tangible receiving of awards, but rather that professors would say, wow, she's really a top student, I think it's worthwhile to be a mentor to her, or I value her opinion and ideas enough to hire her for this job, etc. Or at least they gave the feeling that I was something special."

#2: "So I don't really have a feel for the science department. But working with other people, and being active with other communities of color, you learn about their struggles and this or that, and so when you apply both of them together — biology and working with people — I can see that medicine is one way to connect them all."

#3: "I went up to go see my biology teacher and he's making us do all this stuff with statistics, and I took statistics like in 1996. Excel's so different now, everything's so different, and I can't remember what I took back then, and I'm just like, "Ah! This sucks"! And so I went up to go talk to him, and I wondered, like, how someone might look at you and be like — I wonder if he's thinking, "Ah, this poor girl," or, "This stupid student," or, "She doesn't know it," you know. How is he like perceiving me?"

#4: "It sort of seems like the other white students in the class were the over-achievers, the type who challenge the professor, who work in the lab. [Professors] seem to, not welcome them as their peer, but their soon-to-be peer. With other students of color, it's kind of like, I get the feeling I do when I walk through somebody's house with shoes on. Like I'm in somebody else's home and I'm improperly walking, when I'm in science."

#5: "I remember (a graduate student who worked in the lab) who... would be like, "Why don't you just kill them? Just do it." And I always felt like I wasn't living up to these standards because I couldn't kill these mice. But then later I would be like, "Why can't they just understand that it's difficult?" I mean, this is not something normal people can do, just walk in and take a mouse out with their bare hands."

#6: "I would go to the professor in charge of the lab [where she was a research assistant] with intent of getting course advice or help as far as what else my biology degree would get me. I was expecting a mentor, but that didn't happen. He was too busy for little 'ol me. Also one of his grad students accused me of stealing his favorite pen, which ended up being in his lab pocket the whole time and eventually apologized. That is why I switched my major."

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