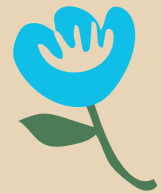


EXPLORING STUDENT STORIES
ABOUT ACTIVE LEARNING,
PARTICIPATION, LANGUAGE, AND
CULTURE



Michigan State University Mathematics
Education Colloquium



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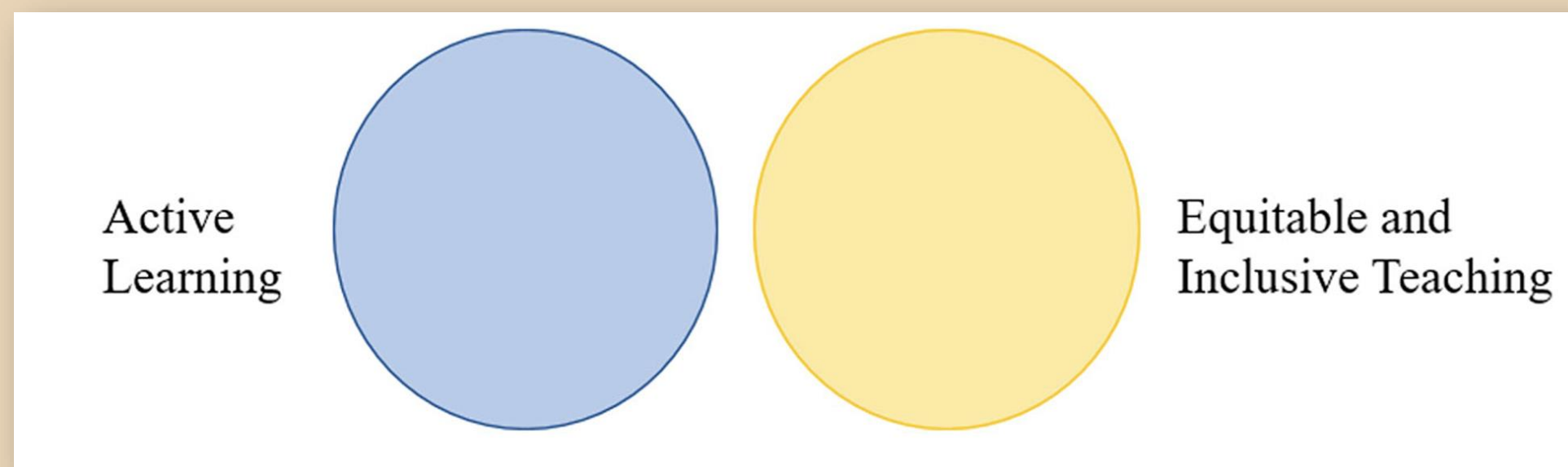




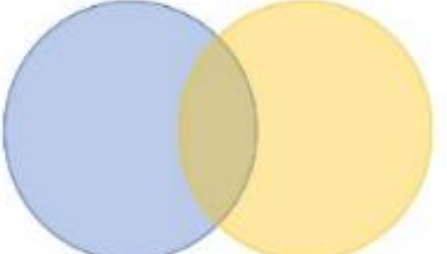

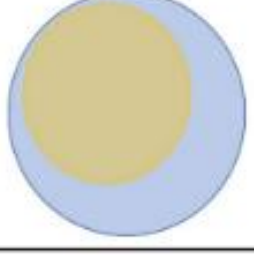


THE UNIVERSITY OF ARIZONA

Active learning and equitable teaching

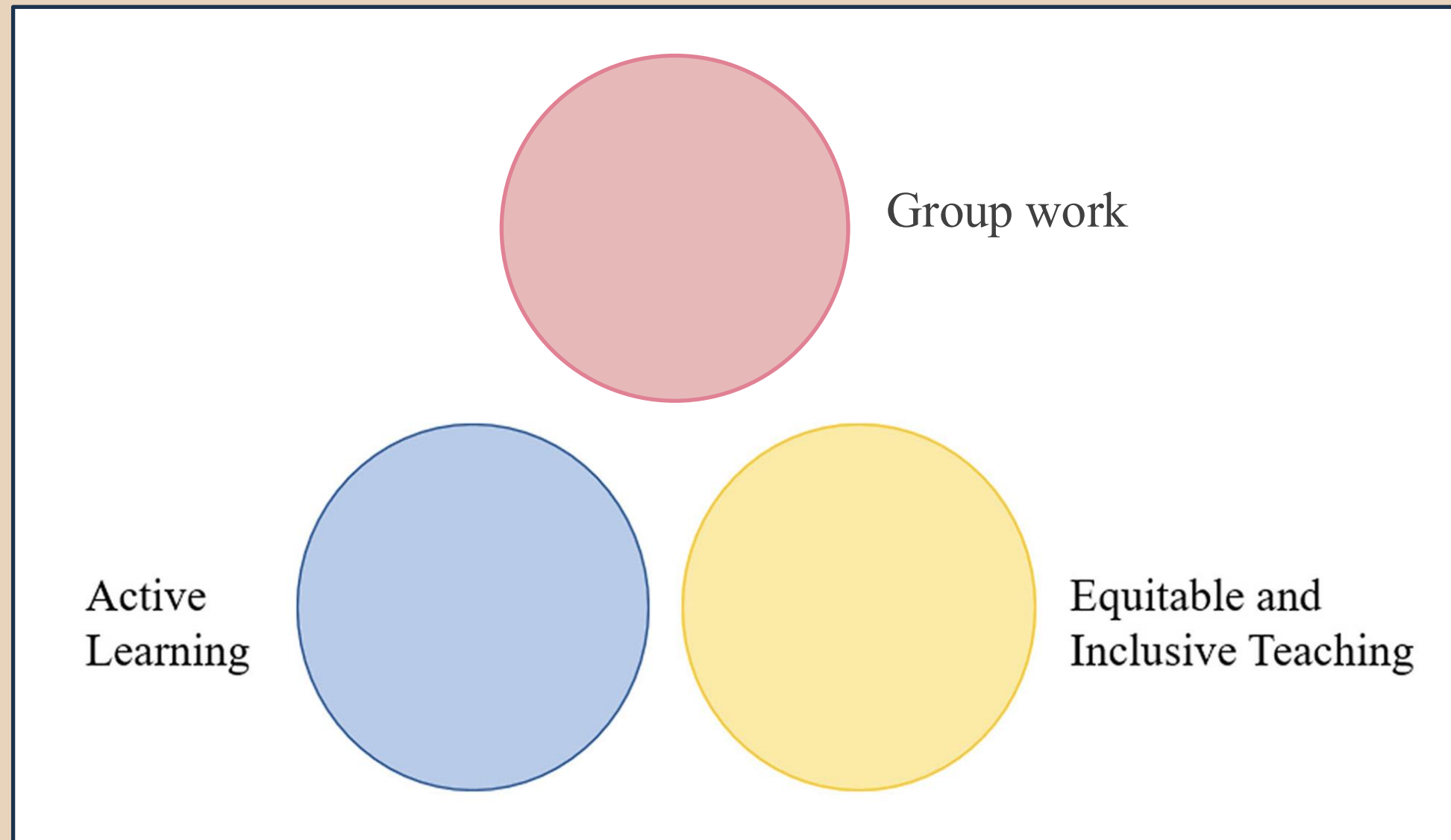
- Been Bennett et al. (2022) explores instructors' perceptions of the relationship between active learning and equitable and inclusive teaching.



Relationship between AL and EIT
Disjoint 
Equivalent 
Some Overlap 
AL Contained in EIT 
EIT Contained in AL 

Active learning, group work, and equitable teaching

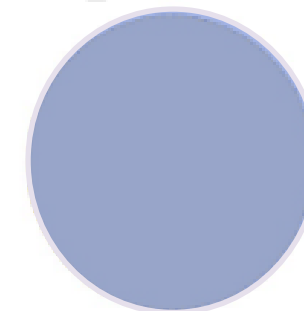
How do you view the relationship between these three ideas?



Active learning and group work

- Active learning often hinges on **group work**
 - 48% of undergraduate STEM instructors reported using group work (Hurtado et al. 2012).
 - Most common active learning activity in the STEM literature (80.7%) involved working in groups (Martella et al., 2021).

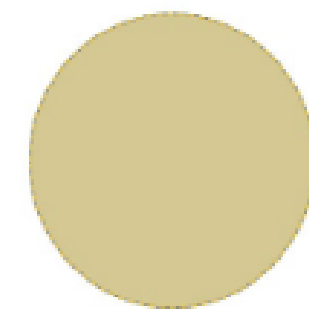
Equivalent



Active learning and equitable teaching

- Studies showed promising results (Laursen et al., 2014; Theobald et al., 2020) that active learning promotes equity were interpreted to mean **active learning is inherently equitable**.
- Recent wave of work suggests that students with historically marginalized identities may **experience** active learning practices **differently**.
 - Focus on **race** (Battey et al., 2022; Leyva, 2021) and **gender** (Johnson et al., 2020; Reinholz et al., 2023)

Equivalent



Participation

What narratives about ideal classroom participation may form in active learning spaces?

- With the sociocultural turn (Lerman, 2000), increased focus on **participation**.
- Participation is often used to conceptualize classroom **equity**:
 - “We conceptualize equity in terms of student participation in classroom practices. All students should have the opportunity to participate in disciplinary practices constitutive of the learning process, such as sharing ideas, asking questions, and justifying one’s reasoning” (Shah et al., 2016, p. 1260).
- Narratives may form about what **ideal classroom participation** looks like.

Student stories about participation



Interviews with 28 multilingual students about their experiences with active learning



Dr. Guadalupe Lozano
University of Arizona

Interview with 11 instructors and 10 students as part of an ESP calculus workshop at an HSI



Dr. Jess Hagman
Colorado State University

Interview with 9 students from a multilingual section of college algebra



Discourses about ideal participation

- Students described **participation** as **speaking** frequently (but not too frequently) in class.

“I was very **quiet** [in calculus class], so my instructor didn’t seem that I was interested in the class, but I was really interested, just I was super busy taking notes and trying to understand what he was trying to say” – *Anita, from Guatemala*

Discourses about ideal participation

- Students described **participation** as **speaking** frequently (but not too frequently) in class.

“I ask a lot [of questions]. I think professor knows that I asked a lot, but sometimes I don't feel good when I ask... What I've experienced in Iran is different. The students here **don't like when a student asks lots of questions** because they are learning to, and they need to get something from the class, but most of the time in class, the participation is really low.” – *Nima, international student from Iran*

Discourses about ideal participation

Dan | International student from Trinidad and Tobago

- Vocal participation felt uncomfortable for Dan
- “You basically speaking in front of everyone, which I have a self-conscious about”

“I feel [my group members] perspective of me is I come in here and try to get through the questions as soon as possible as to leave. And I’m just there getting their answers and **just listening**”

“When it comes to the explanation, [my group members] are like ‘oh, make sure you understand this’. That’s what’s going through my head like ‘make sure I can explain it so we can leave’ \... I felt like I was **kind of a burden**”

Discourses about ideal participation

Dan | International student from Trinidad and Tobago

- Vocal participation felt uncomfortable for Dan
- “You basically speaking in front of everyone, which I have a self- conscious about”

“I just feel kind of **ashamed** when we doing a question and I'm like one of the person in that group that **doesn't really engage much**”

Discourses about ideal participation

Instructor quotes

“There are some students who like to lead and some students who like to follow. When students fall into certain habits and get use to following, they get comfortable there, and it’s hard to get them out of their comfort zone. You can try to encourage them, in the moment. They usually have good input, but it’s like an elastic band, you can pull them out, but sometimes they want to snap back” - *Instructor*

“The student that seemed unengaged had a decent understanding of the problem; they just didn’t want to participate with the group” – *Instructor*

What deficit narratives do you see being formed here?

Student stories about language and participation



Discourses about language (Rios, 2023)

- Only **English** should be spoken in the classroom.
- Privileging the language resource of **native speakers**.
- Inequitable sharing the of **communicative responsibility**.

Discourses about ideal participation

Rafael | Transnational student from U.S. and Mexico

I tried to speak Spanish with other people, but I noticed that nobody wants to speak Spanish. So, then I just started doing the same thing. I was like 'okay I'm not speaking Spanish'. So even though we knew each other speaks Spanish, we just pretend to be fully English speakers.

Discourses about language (Rios, 2023)

- Only **English** should be spoken in the classroom.
- Privileging the language resource of **native speakers**.
- Inequitable sharing the of **communicative responsibility**.

Discourses about ideal participation

Abhinav | International student from India

- Abhinav did not feel comfortable speaking English with peers.
- Referred to the “call center accent” stereotype.

“In front of native speakers, I’m always conscious like, am I saying this correctly? Am I making a mistake here? Am I making myself clear here?”

“I’m not comfortable speaking in English in front of a group of people, so I tend not to speak a lot in class... I don’t really **take the lead** most of the times”

Discourses about ideal participation

Yesenia | from Mexico

- Yesenia felt like her group members were “not really willing to listen to [her] input”.

“They tell me ‘oh, we should probably solve it like this’ and then I’ll try it that way. And then if it doesn’t work, I’ll suggest a different way. I think that sometimes **I would also like to kind of lead** but it’s just not always possible, you know”

“There’s the other girl in my group and she also kind of just disregarded my ideas, so, really, it could probably be the fact that **I have an accent**, maybe, because she doesn’t have an accent”

Discourses about language (Rios, 2023)

- Only **English** should be spoken in the classroom.
- Privileging the language resource of **native speakers**.
- Inequitable sharing the of **communicative responsibility**.

Discourses about ideal participation

Anita | from Guatemala

- Students felt that others “don’t have time” to talk to multilingual students.
- Students felt that they were “slowing” down group members.

“I would be in a group and sometimes I wouldn't know how to say a word and so my English would go really bad /.../ And they're like, 'I'm sorry I don't understand what you're trying to say'. And they're like 'well just maybe forget your question and let's **just actually get to the problem**'”

“One student was like 'I'm sorry but we really need to get going' but some others were like '**dude, stop, we can't do this**'. And then that time I would feel like I'm so worthless”

“I am glad I’m a Spanish speaker but sometimes I'm not when students or people feel that they have the upper hand”. – Anita

The role of silence (Rios et al., 2024)

- Students of color can experience **cultural silencing** in the classroom.
- Students may also choose silence as a **navigational** tool or tool of **resistance**.
- Complexity and nuance around **quiet** or **silent** students in the classroom
- Meaningful engagement can occur outside of the classroom

**Student stories about culture, past
educational experiences, and
participation**



High Power distance: Focus on authority, the degree to which members of an organization or society expect and agree that power should be stratified and concentrated at higher levels of an organization or government'

Individualist Perspective

Students work independently; helping others may be cheating.

Students engage in discussion and argument to learn to think critically.

Property belongs to individuals, and others must ask to borrow it.

Teacher manages the school environment indirectly and encourages student self - control.

Parents are integral to child's academic progress and participate actively.

Collectivist Perspective

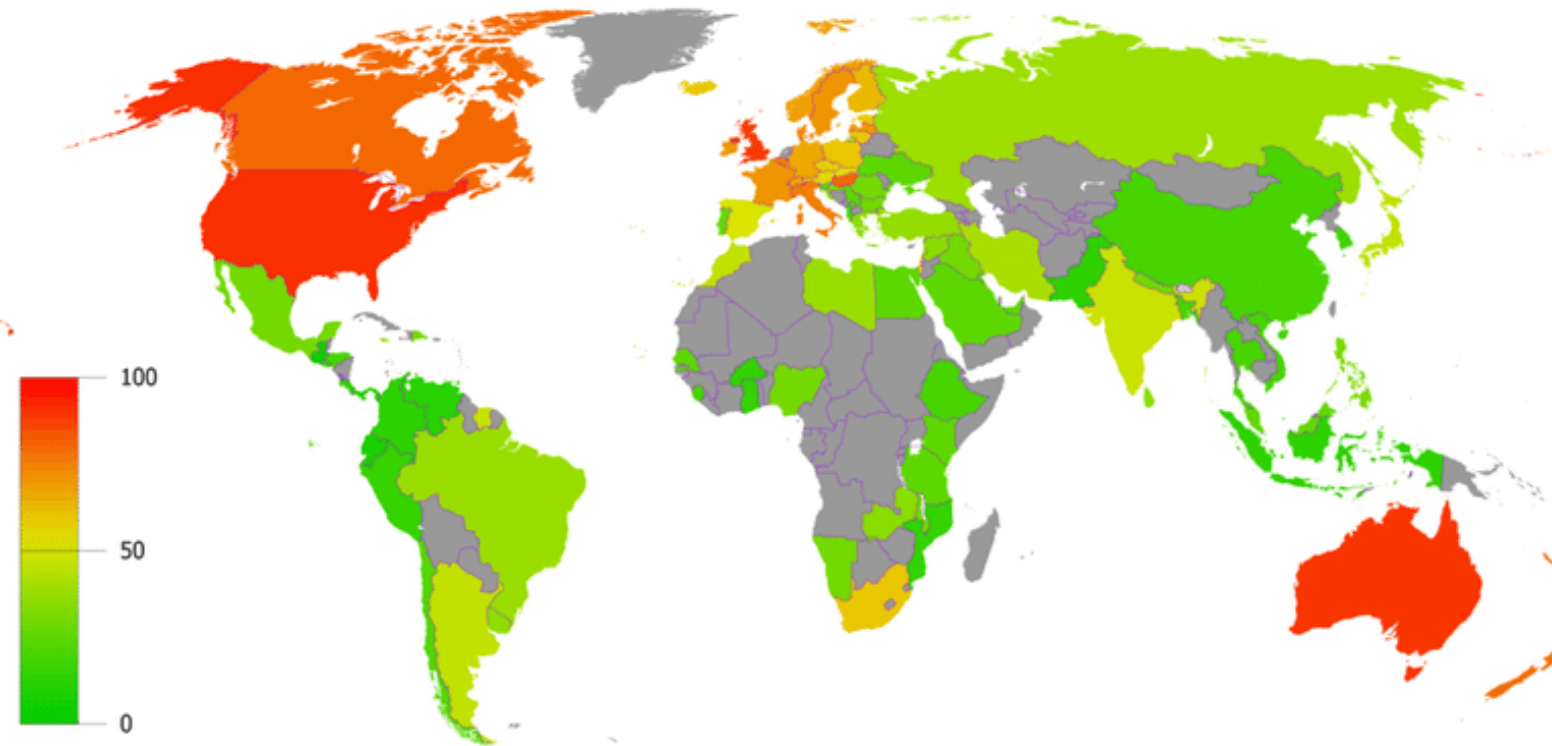
Students work with peers and provide assistance when needed.

Students are quiet and respectful in class in order to learn more efficiently.

Property is communal.

Teacher is the primary authority, but peers guide each other's behavior.

Parents yield to teacher's expertise to provide academic instruction and guidance.



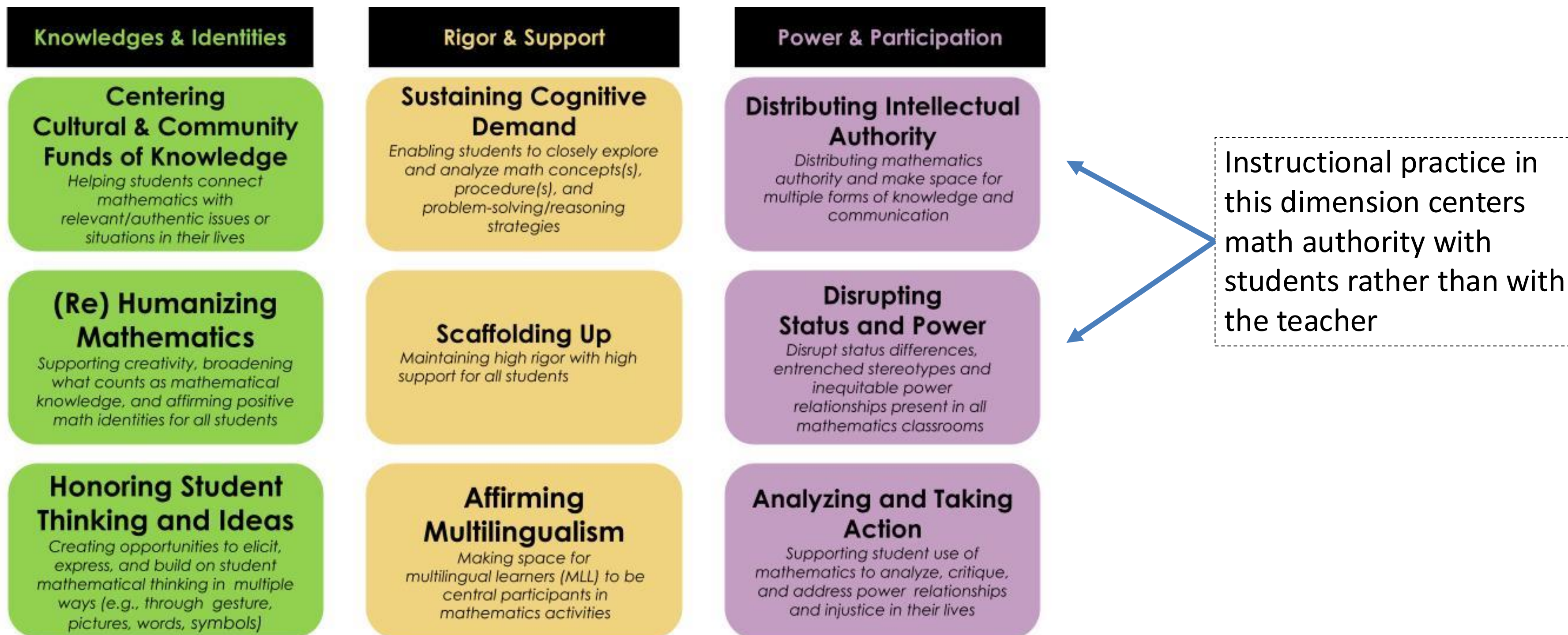
Lower power distance

Higher power distance

Individualism: places importance on the autonomy, rights and freedoms of individuals, believes that each person possess inherent value and is entitled to make independent choices and pursue their own goals, values personal responsibility

Collectivism: emphasizes the welfare and interests of the collective group or community over individual desires, promotes the idea that individuals should prioritize needs of the group and work together towards shared values, values interdependence and collaboration

Equitable teaching often emphasizes distributing mathematical authority and decision making to students



“Teachers are kind of revered in India since teachers provide us with a very prestigious thing, knowledge. We consider them equivalent to God. We are also very big on respecting and revering our elders” – *Instructor originally from India*



“Cultural clashes” with group work



Things I heard from students:

- Nostalgia for lectures
- Asking questions or talking in class is impolite
- Not used to talking to the instructor
- “Too many cooks in the kitchen. It sucks”
- Others in the class seemed annoyed by over-participation that was common in high school
- Students accused of cheating for collaborating on homework the way they were used to
- Side conversations with peers is not focused on school related things
- Active learning feels aggressive—you are competition for the teacher’s attention

“I actually miss like how professors, give lectures on the whiteboard when we come to class” – *International Student form Bangladesh*



I prefer the US type. It feels more aggressive. More participate in class. And more interaction with instructor. They get noticed from the instructors, and talking with the instructions helps me a lot so I think being aggressive have more benefits than not aggressive.... But you know, being aggressive is hard or me. –
Sun-Hi, *International student from South Korea*



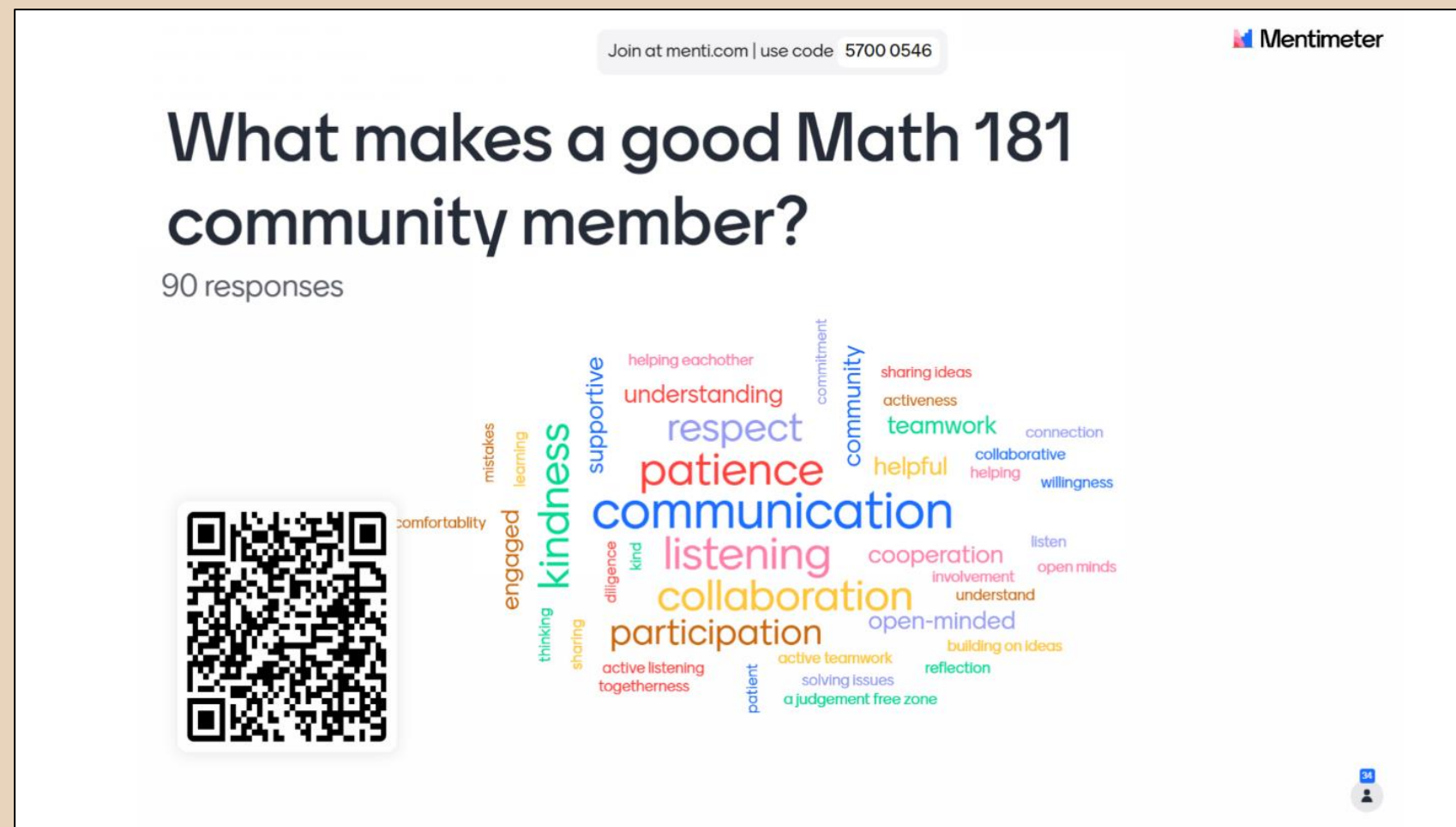
The role of silence (Rios et al., 2024)

- Active learning is beneficial.
- More needs to be learned about how to support students in active learning environments, especially students from different cultural backgrounds

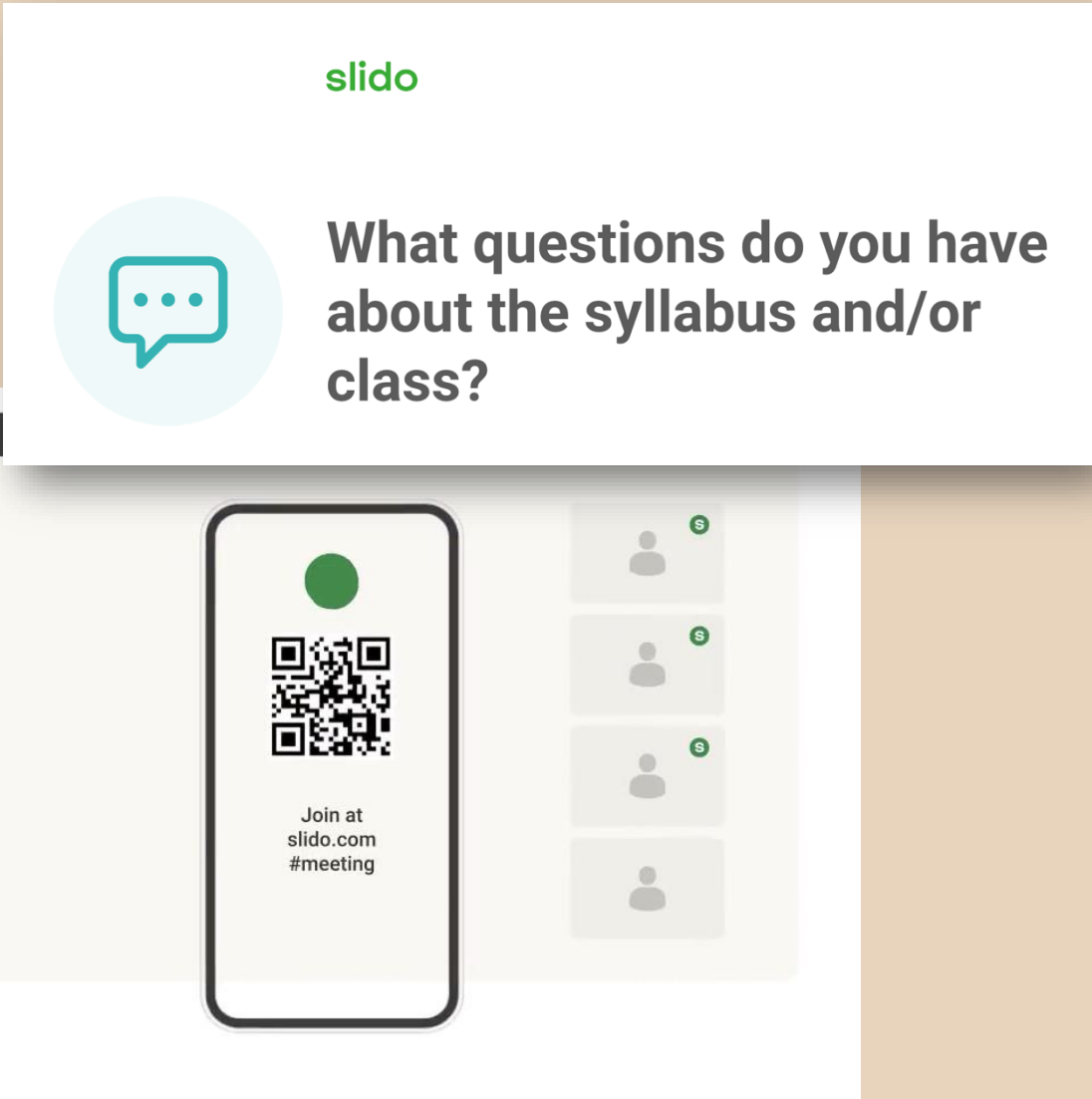
Have you noticed students experiencing any cultural challenges with active learning?

Takeaways

1. Broaden what **participation** we notice and value in our courses



slido



What questions do you have about the syllabus and/or class?

Join at slido.com #meeting

The image shows a Slido interface. At the top, the Slido logo is displayed. Below it, a question is posed: "What questions do you have about the syllabus and/or class?". To the left of the question is a speech bubble icon. Below the question, there is a mobile phone interface showing a QR code and the text "Join at slido.com #meeting". To the right of the mobile phone, there is a list of four user avatars, each with a small green 'S' icon next to it, representing participants in the meeting.

Takeaways

2. Be careful of paternalism around active learning (McNeill et al., 2023)

Journal of the Scholarship of Teaching and Learning, Vol. 11, No. 1, January 2011, pp. 53 – 61.

Is active learning like broccoli? Student perceptions of active learning in large lecture classes

C. Veronica Smith¹ and Lee

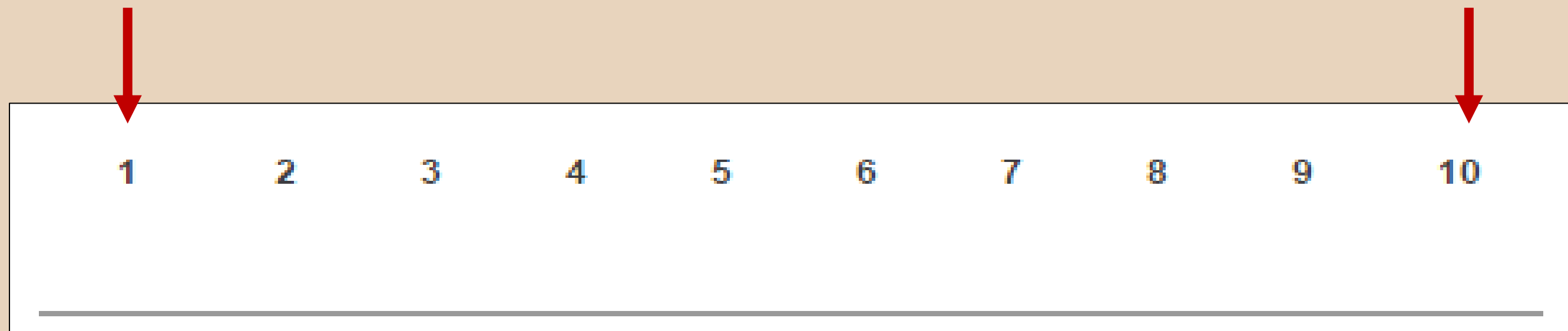
“I don't think students loved randomized groups, there was pushback. Students who speak Portuguese will naturally gravitate to students who speak Portuguese. Of course, a lot of students from China tend to stick together because they have a very shared experience, and they can help each other survive through the process. **That being said, one of the most important things we did to help equity was break up the biases**”. – *Instructor*

Takeaways

3. Implement active learning with options for collaboration

**I strongly prefer thinking
about mathematics
individually**

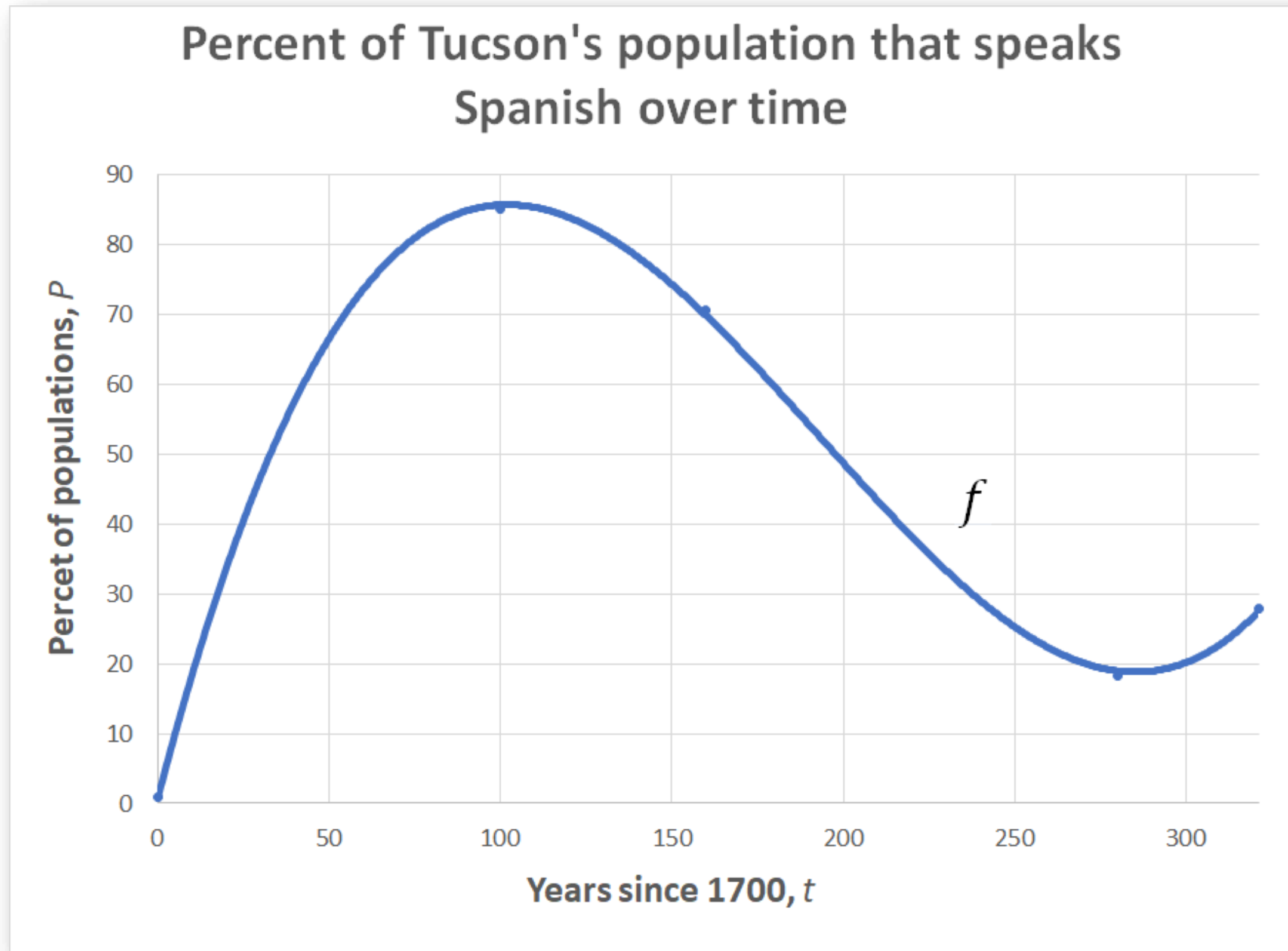
**I strongly prefer
collaborating with
classmates**



Takeaways

4. Choose contexts that have the potential to affirm students' identities

History of Spanish in Tucson



Questions:

1. Why might this be a possible graph?
2. What might explain the changes the graph shows?
3. What does the highest point in the graph tell us in plain terms?

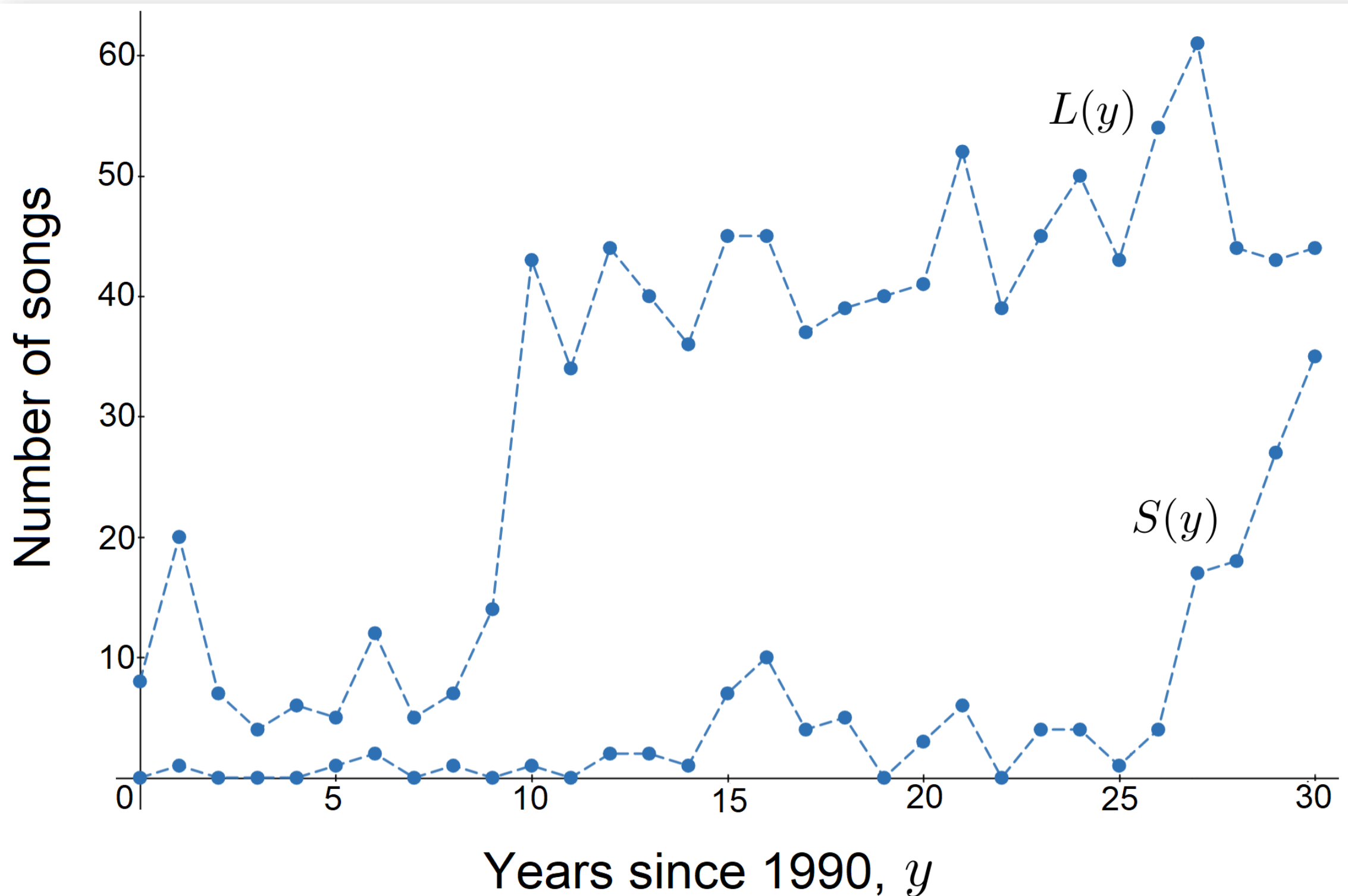
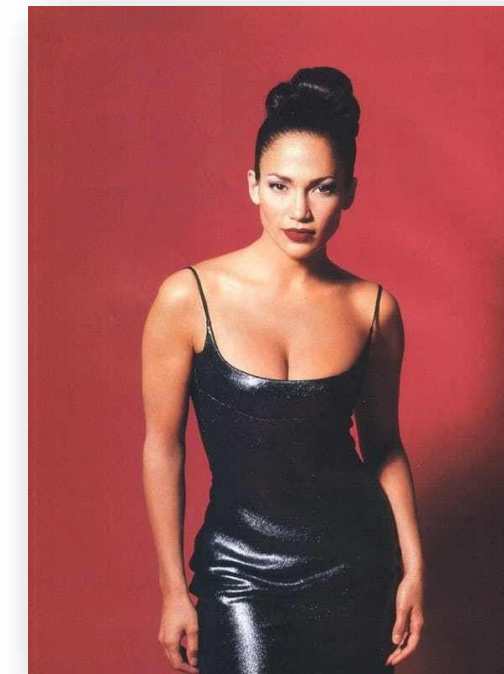
Op-Ed: Spanish has never been a foreign language in the United States

BY ROSINA LOZANO

MAY 29, 2018 4:15 AM PT

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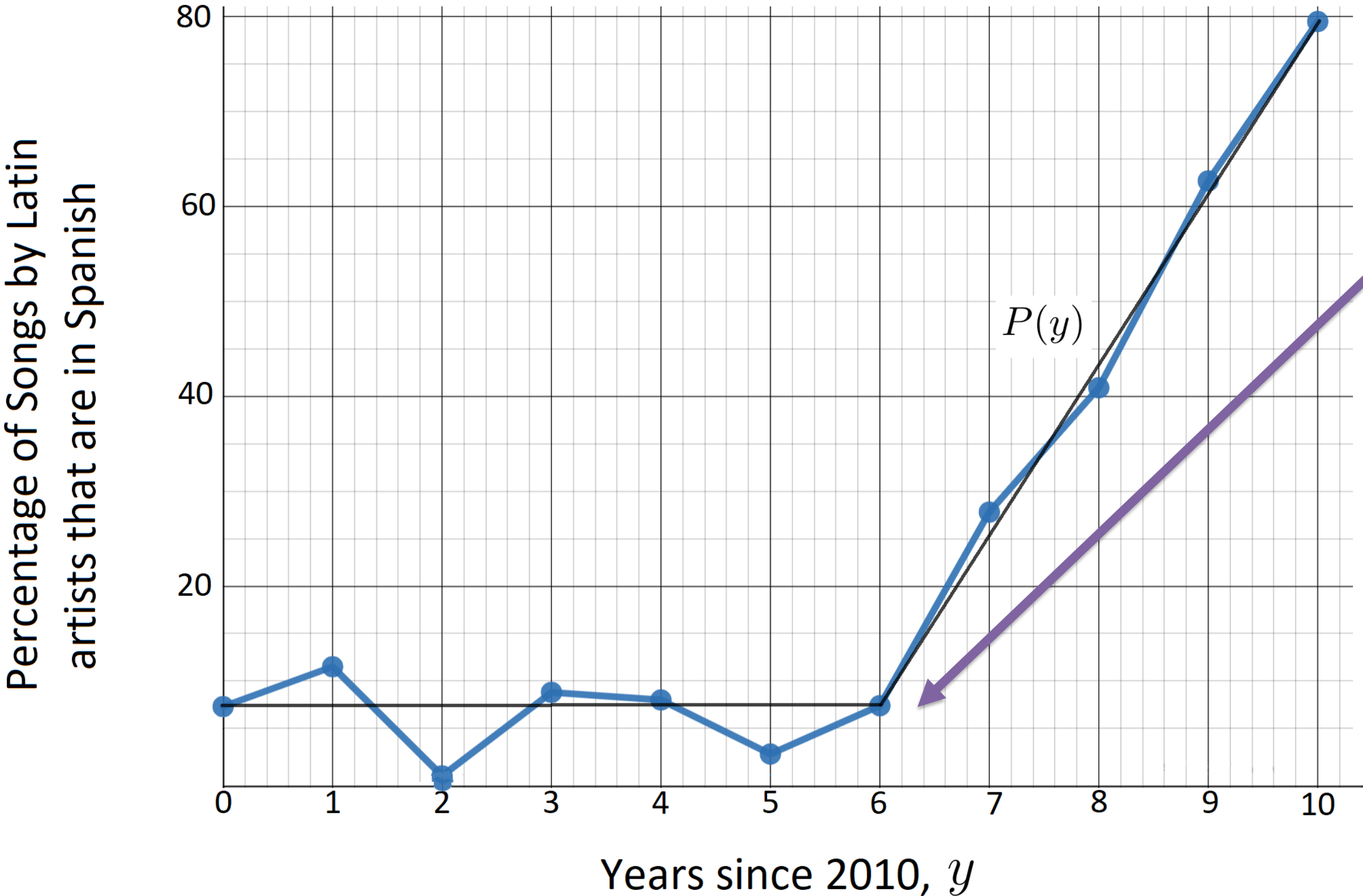
Latin representation on the billboard hot 100

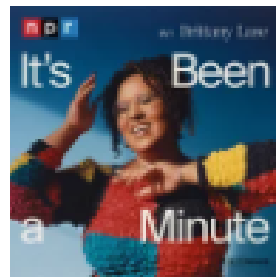


$L(y)$ gives the number of songs by Latin artists on the Hot 100 billboard each year.

$S(y)$ gives the number of songs in Spanish by Latin artists.

LATIN REPRESENTATION ON THE BILLBOARD HOT 100





IT'S BEEN A MINUTE

LISTEN & FOLLOW



1999's 'Latin Explosion' chased crossover hits. Today, Latino artists don't need them

OCTOBER 12, 2021 · 12:10 AM ET

By [Andrea Gutierrez](#), [Sam Sanders](#), [Jordana Hochman](#), [Anjuli Sastry Krbechek](#), [Liam McBain](#)

Ponderings

- Active learning may heighten awareness of social identities and power, which is relatively invisible in lectures (Henning et al., 2019)
- Can classroom norms and/or teaching practices ever "erase" students' lived experiences and sociopolitical realities?

My mom was super huge on 'we're not Cuban anymore. We're American'. So, when we got here, she purposely said we were living with my aunt to get me into the Whitest schools possible... I'm not super comfortable like speaking in Spanish because I don't know who is going to be okay with it. – *Celina*

Ponderings

- The literature emphasizes the importance of **centering students' identity**
- What if students don't want their identities centered?

I try to be very neutral with people. I try to view people as individuals. Let's do what we got to do. I'm just a student to be honest. I'm going to college to make a career and that's it. Moving forward to whatever path I'm trying to take. As a math course, I don't really feel that there's anything that math can do in regards to supporting identities - Julian

Thank you!



QUESTIONS?

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