Welcome!

- **Chat box:** Comment, chat with other participants, ask questions, ... you know chat.

  Change [To: All panelists] to [To: All panelists and attendees]

- **Q & A:** Use to send questions to the presenter(s) and moderator.

- **Raise Hand:** Presenters may ask you to raise your hand to participate. Wait for it!
Welcome!

- A recording will be available on [www.nctm.org/100](http://www.nctm.org/100)
- A link to a certificate will be sent to all attendees tomorrow.
- Follow us on Twitter @NCTM and share your thoughts about tonight’s webinar using the hashtag #NCTM100
- Continue the conversation after the session on [my.nctm.org](http://my.nctm.org)
Positioning Middle Grades Students as Thinkers and Doers of Mathematics
Welcome from your Presenters!

Claudia Bertolone-Smith, Ph.D
California State University, Chico

Lynda Wiest, Ph.D
University of Nevada, Reno

Heather Crawford-Ferre, Ph.D
Nevada Dept. of Education
Women and Mathematics Education

www.womenandmath.org

Girls + Math = POWER!
Today’s Agenda

- Identity, Agency, and Positioning
- Math and Student Dispositions
- Teachers Positioning Students in Math
- Session Wrap-Up (sharing, resources...)
Identity, agency, and positioning

Why they matter in mathematics
“People think that stories are shaped by people. In fact, it’s the other way around.”

—Terry Pratchett
IDENTITY

Once I hear it and feel it enough, I believe it’s TRUE (Wood, 2013).

- Social Identities and Situational Identities
  An overall sense of who you are, what your role is, and how you fit in the community
- Changes over time
- Informed by what we hear, feel, and experience
- Teachers often inform a child’s identity
<table>
<thead>
<tr>
<th>What is mathematics identity?</th>
<th>Why does it matter?</th>
</tr>
</thead>
<tbody>
<tr>
<td>My story about who I am as a math learner.</td>
<td>Influences participation, performance, dispositions and career choices.</td>
</tr>
</tbody>
</table>
IDENTITIES

AGENCY

POSITION
Agency is our identity in action and the presentation of our identity to the world (Aguirre, Ingram & Martin, 2013).
<table>
<thead>
<tr>
<th>SOCIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>I position myself in math based on how I want to be seen.</td>
</tr>
<tr>
<td>Novice- “I don’t get it!”</td>
</tr>
<tr>
<td>Expert- “I know it already.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACADEMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am positioned in math based on how others see me...</td>
</tr>
</tbody>
</table>

**Positioning**
What gets constructed as mathematical competence in the classroom has implications for students’ perceptions of their own and peers’ relative capabilities and thus for issues of status and power in the classroom.

-Cobb et al., 2009, p. 48
“Helping our students become more aware of their mathematics identities can empower them to make that relationship more meaningful, thus motivating them to engage in mathematics in our classrooms and beyond” (Hill, 2010, p. 213)
2. Math and Student Dispositions

How school can shape our mathematical identity, agency, and position.
"One of the best teachers I ever had never complimented me for being smart. She would only ever appreciate my dedication, compassion, and hard work. Today, she is still someone that I want to make proud."
Think about a time in middle school when you were learning math.

What were your thoughts? What did you believe was true about yourself and math?

What emotions do you remember feeling?

What did you do? How did you behave?

Take a moment to write in the chat any emotions or behaviors you had because of this experience!
Thoughts/Beliefs → Emotions → Behavior

Blanton, M, 2000
The assignment:  **Dear Math, I love you.**  🖤

Write a letter to math, include experiences you have had that have shaped your relationship with math.

Draw a picture of yourself LEARNING math.

DUE next week.
<table>
<thead>
<tr>
<th>EMOTIONS and THOUGHTS from PSTs Letters to Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excited</td>
</tr>
<tr>
<td>Stressed</td>
</tr>
<tr>
<td>Surprised</td>
</tr>
<tr>
<td>I don’t like you (math) very much</td>
</tr>
<tr>
<td>Feel dumb</td>
</tr>
<tr>
<td>Frustrated</td>
</tr>
<tr>
<td>Embarrassed when it did not come naturally</td>
</tr>
<tr>
<td>Proud</td>
</tr>
<tr>
<td>Anxious trying to figure you out.</td>
</tr>
<tr>
<td>Insecure</td>
</tr>
<tr>
<td>Shirking</td>
</tr>
<tr>
<td>------------------------------</td>
</tr>
<tr>
<td>Go to the bathroom</td>
</tr>
<tr>
<td>Shrink in your seat</td>
</tr>
<tr>
<td>Fidget with random things</td>
</tr>
<tr>
<td>Look outside, daydream</td>
</tr>
<tr>
<td>Distracting others</td>
</tr>
<tr>
<td>Talk to friends</td>
</tr>
<tr>
<td>Head down</td>
</tr>
<tr>
<td>Rolling eyes</td>
</tr>
<tr>
<td>Make excuses</td>
</tr>
<tr>
<td>Doing anything but the math</td>
</tr>
</tbody>
</table>
Why do WE behave this way??

YOU MAY BE SURPRISED.

I'm scared I don't get it and I don't want people to know.

I just want them to like me! Maybe they will if I show them how good I am at it.
Give them alternative behavior choices!

Behaviors that Bring Your Math Ability DOWN

Behaviors that Bring Your Math Ability UP

10kg
<table>
<thead>
<tr>
<th>Behaviors that Bring MY Math Ability Down</th>
<th>Behaviors that Bring MY Math Ability UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distractions, go to the nurse</td>
<td>Choose a partner who is helpful.</td>
</tr>
<tr>
<td>Playing on my phone</td>
<td>Move somewhere I can concentrate</td>
</tr>
<tr>
<td>Rushing, refusing to write anything</td>
<td>Confidence</td>
</tr>
<tr>
<td>Losing self confidence, telling myself I can’t.</td>
<td>Telling myself “I CAN do it!”</td>
</tr>
<tr>
<td>Talking to neighbor</td>
<td>Asking questions</td>
</tr>
<tr>
<td>Not asking questions when I don’t get it</td>
<td>Not giving up if I get it wrong</td>
</tr>
<tr>
<td>Believing I'm not smart enough</td>
<td>Trying my hardest no matter the challenge</td>
</tr>
<tr>
<td>Losing my papers, pencils, etc.</td>
<td>Being okay with struggle</td>
</tr>
<tr>
<td>Giving up when it is hard</td>
<td>Asking for help when I need it</td>
</tr>
<tr>
<td>Choosing a partner who I will talk with for fun.</td>
<td>Sitting alone without distractions</td>
</tr>
</tbody>
</table>
Teachers Positioning Students in Math

The important work
POSITIVE REPOSITIONING

**BE AWARE**

Students show you their math identity through their behavior.

**ASK BEFORE YOU ASSUME**

Students will tell you what they believe to be true about themselves and why they act the way they do. Help them identify behaviors that bring their ability down.

**Positively Reposition**

- Have students create personal goals.
- Notice shifts towards working behaviors!
- Praise these positive choices!
### How teachers positioned me....From PSTs letters to math

<table>
<thead>
<tr>
<th>My teacher taught me one way of learning you (math) and didn’t like it when students did it another way.</th>
<th>I understand you (math) until the teacher puts me on spot in front of everyone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had fun because my teacher believed in me.</td>
<td>My teachers liked the drill and kill that I despised.</td>
</tr>
<tr>
<td>My teachers put parameters on what someone who was good at math could do.</td>
<td>Boring lecture followed by repetitive questions that I already knew the answer to.</td>
</tr>
<tr>
<td>My dreams came true, I was placed in a self-contained classroom.</td>
<td>Someone became the beacon of light in the darkness that shrouded us (the teacher).</td>
</tr>
<tr>
<td>Taunting me in front of the whole class, holding me hostage</td>
<td>Not taking the time to slow down and help those of us who don’t quite get it.</td>
</tr>
<tr>
<td>These two teachers explained you in a way I could understand you, and for the first time I didn’t feel dumb.</td>
<td>We were able to use whiteboards and erase if we needed to. We got to work in groups at our tables for help when we needed it.</td>
</tr>
<tr>
<td>Very few asked how it should be solved, lectured us about how it should be done</td>
<td>My teacher was kind but very set in his ways about how he taught.</td>
</tr>
<tr>
<td>Never demanding anything from our bright minds.</td>
<td>Drill, kill, and formulaic types of teaching- disservice</td>
</tr>
</tbody>
</table>
Rethinks: Strategies for Positioning Reluctant Students

- **RETHINK tests.**
  - Smaller chunks
  - Frequent checks
  - Partner Up

- **RETHINK time.**
  - We need fast AND slow math thinkers!

- **RETHINK the value of connection.**
  - Make time to listen and be present.

- **REVISE the definition of a GOOD math student.**
  - Create a safe place to make mistakes and engage in learning.

- **RETHINK obedience.**
  - Encourage risks!
  - Value surprising, unexpected, and novel ideas.

- **Rethink group work.**
  - Who’s in?
  - Who’s out?
  - Notice student positioning!
Add to the chat one thing a teacher did that made all the difference in your mathematical life!
Session
WRAP UP
Let’s Share!

- If you can offer an additional key point or strategy in relation to identity, agency, or positioning in mathematics, please write it in the chat now.

- Take a few minutes to skim each others’ comments.
Reflecting On Today’s Session

- In the chat, please write something presented in this session that you consider to be especially important.
- Take a few minutes to skim each others’ comments.
Selected Resources on Math Identity & Agency

- [Furthering girls’ math identity](#) [website].
- Mathematical Agency Improvement Community. *Status & mindset interventions*.
- *The Day I Quit Math* - Powerful video on the influence of teachers.
- Stanford University Graduate School of Education. (2019). *Helping kids identify as math learners* [short article & audio file].
Another WME Session

High Impact Strategies for Sustaining Girls’ Academic Interest and Career Pursuits in Mathematics
(General Interest Session)

Lorraine Howard

July 16
7:00-8:00 p.m. Eastern Time
THANK YOU!

We are so glad you joined us!

You may contact us at
cmbertolone-smith@csuchico.edu
Thanks!

The next webinar will be...

Rich Tasks Require Rich Implementation for Rich Learning to Result (Grades 8–10)
Speaker: Peg Cagle
June 17, 2020 • 7:00 p.m. EDT

www.nctm.org/100
Guidance for teachers, schools, and districts to move forward.

www.nctm.org/movingforward
NCTM Membership

• A community to help you grow, thrive and contribute
• Resources to prepare you for all situations
• Journal content created by teachers to enrich your teaching practice

Join now at nctm.org/join and get $20 off Premium Membership
Renew at nctm.org/renew and get $20 off any renewal
Use code: 100Days

30-Day Free Trial Membership at nctm.org/freeresources
Reminder

• A recording will be available on www.nctm.org/100

• A link to a certificate will be sent to all attendees tomorrow.

• Follow us on Twitter @NCTM and share your thoughts about tonight’s webinar using #NCTM100

• Continue the conversation after the session on my.nctm.org