Please mute your microphones when you are not talking. This will help eliminate background noise. We will begin shortly.

We are $\frac{2}{3}$ of the way through the semester! In the chat, introduce yourself and please share: What are you most proud of accomplishing so far?
Click on the **Participants** button on the toolbar. This will bring up a window of people currently in the Zoom Session.

Click on the **Chat** button on the toolbar. This will bring up a window directly below the participant window.
Breathe

READY...

deep breaths
Welcome to Our Learning Community!

- Guest Speaker: Dr. Farshid Safi
- Check-In & Chat
- Upcoming Seminar & Focus Groups
Our Learning Community

- Please update your name display and profile pic
- All mics on in small groups
- Do not take pictures or videos of the meeting without permission
- Use asset language when describing yourself and others
- Use chat or status icon to indicate you are away

Hello
my name is

YOUR WORDS MATTER

I'll be right back!
Guiding Principles for Our Interactions

1. Choose authenticity over comfort
2. Respect confidentiality
3. Embrace messiness and kindness
4. Practice personal and group accountability
5. Be aware of equity of voice
6. Listen with the same passion with which you want to be heard

Use the Chat Window to share which agreement you are centering in our work today.

Dr. Farshid Safi, Mathematics Educator
University of Central Florida, School of Teacher Education in the College of Community, Innovation, & Education
20+ years teaching across K-16 working with prospective and inservice teachers in both the U.S. and Canada
Teaching and research efforts involve mathematical modeling and the role of historical perspectives and equitable teaching practices.

@FarshidSafi
Critical Conversations in Teaching Students Mathematics

Farshid Safi, Ph.D.

October 30, 2020
Critical Conversations
in
Teaching Students Mathematics

Farshid Safi, Ph.D.

October 30, 2020

UCF
College of Community Innovation and Education

UCF
School of Teacher Education

Culture
People
History
Art
Traditions
Architecture
Beauty
Mathematics

Cultural and Social Sciences
Language (Persian)
Community
MY commitment

My story is NOT unique!

I happen to have a great deal of privilege through teaching and a platform to share and vocalize some long standing concerns and critical issues!

Personal Acknowledgement:

I have a lot to learn and will remain committed to listening, reflecting and growing personally and professionally!
In the Chat, please write:

❖ What does GPS take into consideration?
Complexities of Identity
“The rush to move onto the next mathematical concept (or response to intervention procedure) almost ensures we will not ask why this concept? Who benefits from students learning this concept? What is missing from the mathematics classroom because I am required to cover this concept? How are students’ identities implicated in this focus?

Indeed, we are at a moment in history where we have ready excuses not to attend to issues of identity and power in mathematics education - after all, what does power have to do with a rational, universal field like mathematics?” (Gutiérrez, R., 2013, p. 37)

Sociopolitical Turn

“The sociopolitical turn signals the shift in theoretical perspectives that see knowledge, power, and identity as interwoven and arising from (and constituted within) social discourses. Adopting such a stance means uncovering the taken-for-granted rules and ways of operating that privilege some individuals and exclude others.

Those who have taken the sociopolitical turn seek not just to better understand mathematics education in all of its social forms but to transform mathematics education in ways that privilege more socially just practices.”

(Gutiérrez, R., 2013, p. 40)
Professional Commitment

Commitment to continue to educate ourselves and listen to the experts...Not just mathematically and pedagogically but also in ways to rehumanize mathematics education for/with our students!

@FarshidSafi
Classifications of Shapes

We emphasize

- Definitions
- Classifications
- Representations
- Characteristics
- Intersections

All Matter!
Identity & Intersections

What about *marginalization* and *oppression* taking place at multiple intersections?

- Race
- Language
- Nation of Origin
- Religion
- ...
- Gender
- Sexual Orientation
- Health
- Natural Disasters
- Immigration status

**My** story is NOT unique!
History Should Be a Guide

Oppression, Colonialism, & Militarization are not new.... and they are not unique to the United States of America.

Let history be our guide, our teacher and our ally in uniting our efforts to bring about change!
Table 1
Equitable Mathematics Teaching Practices

<table>
<thead>
<tr>
<th>Equitable practice</th>
<th>Examples of the practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Draw on students’ funds of knowledge</td>
<td>• Build on community and cultural knowledge and practices (Civil, 2007)</td>
</tr>
<tr>
<td></td>
<td>• Recognize students’ cultural and linguistic resources (Gay, 2002; Ladson-Billings, 1995)</td>
</tr>
<tr>
<td></td>
<td>• Have robust knowledge of students, validate shared ideas and experiences, and connect instruction to students’ experiences and interests (Aguirre et al., 2013; Bartell, 2011; Hedges, Cullen, &amp; Jordan, 2011; Wager, 2012)</td>
</tr>
<tr>
<td>2. Establish classroom norms for participation</td>
<td>• Recognize that student voice has implications for power and authority and builds agency (Cobb &amp; Hodge, 2007; Turner, Dominguez, Maldonado, &amp; Empson, 2013)</td>
</tr>
<tr>
<td></td>
<td>• Set up and guide discussions so that students from non-dominant backgrounds develop strong mathematical identities (Hodge, 2006)</td>
</tr>
<tr>
<td></td>
<td>• Connect pedagogical practices to student participation (Boaler &amp; Greene, 2000; Wager, 2014)</td>
</tr>
<tr>
<td></td>
<td>• Question whose participation norms are valorized (Planas &amp; Gorgorio, 2004)</td>
</tr>
<tr>
<td>3. Position students as capable</td>
<td>• Construct social structures that enable students to “develop strategies that help maintain certain positions and reduce others” (Planas &amp; Civil, 2018, p. 145)</td>
</tr>
<tr>
<td></td>
<td>• Challenge and counteract societal stereotypes and inequities to which students and communities are subjected (Bartell, 2011; Gay, 2002; Ladson-Billings, 1995)</td>
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<tr>
<td></td>
<td>• Attend to how the curriculum may influence perceptions of students (Atweh, Bleicher, &amp; Cooper, 1998)</td>
</tr>
<tr>
<td>4. Monitor how students position each other</td>
<td>• Assign competence to support students’ repositioning of one another (Cohen, Lotan, Scarllos, &amp; Arelano, 1999; Featherstone et al., 2011)</td>
</tr>
<tr>
<td></td>
<td>• Attend to reification of existing status structures so as to reposition some students with their peers (Forman &amp; Ansell, 2002)</td>
</tr>
<tr>
<td></td>
<td>• Position students to use one another as mathematical resources (Dunlevy, 2015)</td>
</tr>
<tr>
<td>5. Attend explicitly to race and culture</td>
<td>• Make connections to students’ mathematical, racial, and cultural identities (Battey, 2013; Martin, 2007)</td>
</tr>
<tr>
<td></td>
<td>• Recognize that certain groups have been positioned as anti-intellectual (Martin, 2009; Steele, 2003)</td>
</tr>
</tbody>
</table>

Table 1 (continued)
Equitable Mathematics Teaching Practices

<table>
<thead>
<tr>
<th>Equitable practice</th>
<th>Examples of the practice</th>
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</thead>
<tbody>
<tr>
<td>6. Recognize multiple forms of discourse and language as a resource</td>
<td>• Facilitate respect among students by cultivating culturally responsive relationships among students and validating possible differences in their language practices (Moschkovich, 2013)</td>
</tr>
<tr>
<td></td>
<td>• Coconstruct resources with students in moment-to-moment interactions around mathematics (Dominguez, 2014)</td>
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<td></td>
<td>• Consider linguistic choices and acknowledge home language as a valid language of mathematics (Mesney, 2005; Setati, 2005)</td>
</tr>
<tr>
<td></td>
<td>• Bridge language practices through affirming students’ home languages, modeling code switching, and fostering interactional patterns familiar to students (Brenner, 1998; Howard, 2001; Lee, 1995)</td>
</tr>
<tr>
<td>7. Press for academic success</td>
<td>• Assess student learning, build on student strengths, explicitly communicate expectations for students, and communicate the teachers’ responsibility in student success (Morrison, Robbins, &amp; Rose, 2008)</td>
</tr>
<tr>
<td></td>
<td>• Have high academic expectations while maintaining students’ cultural and psychological well-being rather than accept deficit views about students’ intellectual potential (Fine, 1986; Fordham, 1988)</td>
</tr>
<tr>
<td>8. Attend to students’ mathematical thinking</td>
<td>• Recognize, understand, and build from children’s understanding of mathematics (Carpenter, Fennema, Franke, Levi, &amp; Empson, 1999)</td>
</tr>
<tr>
<td></td>
<td>• Respond to developmental needs so as to not expect a student to do mathematics they are not developmentally ready for (Jackson, 2009)</td>
</tr>
<tr>
<td>9. Support development of a sociopolitical disposition</td>
<td>• Incorporate critical texts, discuss controversial topics, serve the community, and allow social issues to drive instruction (Hickling-Hudson &amp; Ahlquist, 2003; Hyland, 2005; Tate, 1995)</td>
</tr>
<tr>
<td></td>
<td>• Provide opportunities to explore sociopolitical topics using mathematics (Frankenstein, 2012; Gates &amp; Jorgensen, 2009)</td>
</tr>
<tr>
<td></td>
<td>• Engage students in conversation about real-world problems and how mathematics can be used to examine them (Gutstein, 2006; Skovsmose, 1994)</td>
</tr>
</tbody>
</table>

# Equitable Mathematics Teaching Practices

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</table>

Mathematics &
Mathematical Modeling

*Mathematics* presents a playground for us to explore, analyze and reflect on the possible consequences of our actions & *inactions*!

*Mathematical Modeling* - intentionally and by design - should not allow for decoupling the context and the real world connections from examining any situation!
**Figure 3.** A modeling cycle from the MMP. (Adapted from Lesh & Doerr, 2003)

Aline Abassian, Farshid Safi, Sarah Bush, & Jonathan Bostic
Human Connections & Math Content

Connections

- Public Health
- Effect on Communities
- Disproportionate Impact on POC
- Economic Implications
- Planning for Schools
- Care
- Elderly
- Access to Resources
- ...

Content

- Graphs
- Logs
- Scale
- Unit Rate
- Rate(s) of Change
- Concavity
- Local vs. Absolute Extrema
Majority in Context
(Wolfe & Safi, Under Review)

- Ratio
- Proportion
- Power
- Representation
- Change
- Number Sense
- Probability
- Modeling
Mathematical Logic

We talk about importance of logic in learning and doing mathematics:

<table>
<thead>
<tr>
<th>Key Concept</th>
<th>Related Conditionals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A conditional statement</strong> is a statement that can be written in the form <em>if p, then q.</em></td>
<td><strong>Symbols</strong></td>
</tr>
<tr>
<td></td>
<td>$p \rightarrow q$</td>
</tr>
<tr>
<td>The <strong>converse</strong> is formed by exchanging the hypothesis and conclusion of the conditional.</td>
<td>$q \rightarrow p$</td>
</tr>
<tr>
<td>The <strong>inverse</strong> is formed by negating both the hypothesis and conclusion of the conditional.</td>
<td>$\sim p \rightarrow \sim q$</td>
</tr>
<tr>
<td>The <strong>contrapositive</strong> is formed by negating both the hypothesis and the conclusion of the converse of the conditional.</td>
<td>$\sim q \rightarrow \sim p$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Concept</th>
<th>Logically Equivalent Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A conditional and its contrapositive are logically equivalent.</td>
<td></td>
</tr>
<tr>
<td>• The converse and inverse of a conditional are logically equivalent.</td>
<td></td>
</tr>
</tbody>
</table>
Mathematical Logic

We talk about importance of logic in learning mathematics

Voters $\rightarrow$ Politicians & Policies

Politicians & Policies $\leftrightarrow$ Voters
Gerrymandering: When Equivalent Is Not Equal!

Gerrymandering: When Equivalent Is Not Equal!
Mathematics Teaching in the Middle School, 24(2), 82-89.
Gerrymandering: When Equivalent Is Not Equal!

- What are the potential mathematical and societal impacts of reconfiguring districts so that a particular group is more likely to win the state election?

- Why is it important to understand the mathematics in grouping, regrouping, and decomposing and recomposing geographical regions?

- When we think about the Gerrymandering Task, how can understanding the context empower or potentially lead to a disenfranchisement of groups throughout society?
Identity, Equitable Teaching Practices AND Mathematical Content & Connections

**WE need to commit** *personally and professionally!*

Empathy → Awareness → Activism

- For our students
- For our colleagues
- For our schools
- For our communities
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Lead with context, discuss content, connect back to context.</td>
</tr>
<tr>
<td>(2)</td>
<td>Be as patient with yourself as you are with your students.</td>
</tr>
<tr>
<td>(3)</td>
<td>None of us begin as the educators we eventually become, but we are better versions of ourselves - personally and professionally...and that is enough!</td>
</tr>
<tr>
<td>(4)</td>
<td>Multiple Representations matter...Mathematically, pedagogically, &amp; culturally!</td>
</tr>
<tr>
<td>(5)</td>
<td>Lessons do not need to be perfect to have an impact.</td>
</tr>
<tr>
<td>(6)</td>
<td>Our students deserve our whole being including complex aspects of our identity that make us who, how and why we are!</td>
</tr>
<tr>
<td>(7)</td>
<td>Students deserve authenticity, humanity, knowledge and flexibility from us!</td>
</tr>
<tr>
<td>(8)</td>
<td>Relevance is key to initial interest and long term commitment.</td>
</tr>
<tr>
<td>(9)</td>
<td>Connections with people &amp; communities is not a checkbox.</td>
</tr>
<tr>
<td>(10)</td>
<td>Engagement, access and student voice should guide technology (all) decisions.</td>
</tr>
<tr>
<td>(11)</td>
<td>Efficiency may be a goal but should not be a starting expectation!</td>
</tr>
<tr>
<td>(12)</td>
<td>Student-centered instruction does literally mean de-centering ourselves as teachers.</td>
</tr>
<tr>
<td>(13)</td>
<td>A snapshot is never as rich, complete or informative as a longer episode.</td>
</tr>
<tr>
<td>(14)</td>
<td>Our students and colleagues are our greatest resources!</td>
</tr>
<tr>
<td>(15)</td>
<td>Listening with our ears should be coupled with listening with our hearts!</td>
</tr>
<tr>
<td>(16)</td>
<td>Students have a voice and are brilliant all on their own.</td>
</tr>
<tr>
<td>(17)</td>
<td>Curiosity and a thirst for life-long learning has to be witnessed and experienced to be enacted.</td>
</tr>
<tr>
<td>(18)</td>
<td>Love the content you teach, love the nice activities you choose, but most of all love the people and the lives we are privileged to influence!</td>
</tr>
<tr>
<td>(19)</td>
<td>As teachers we can not remain neutral in amplifying and making students’ brilliance more valued, and visible. Inaction is a form of action!</td>
</tr>
<tr>
<td>(20)</td>
<td>Patience, Intentionality, &amp; Justice!</td>
</tr>
</tbody>
</table>
Announcements

Focus Group #1
Monday
November 30th
5pm-5:50pm

Focus Group #2
Tuesday
December 1st
5pm-5:50pm

Please put your preferred day in the chat box.
Noyce Seminar #3

- Friday November 20, 2020; 4pm-5:30pm
- Guest Speaker:
  - Dr. Belin Tsinnajinnie, Santa Fe Community College
- Assignment(s)
  - Reading(s) or other pre-session activities will be sent out 1 week prior to seminar #2
See you next time!

Friday November 20, 2020
Guest Speaker: Dr. Belin Tsinnajinnie