Political Conocimiento in Contemporary Times: Honoring LGBTQ+ Youth in Our Math Classrooms



The Queer Mathematics Teacher
Educational Coaching to Re/humanize Mathematics

www.TheQueerMathematicsTeacher.com

@The_QMT

Agenda

1. What is political conocimiento & why is it important?
2. What does the political landscape look like for 2SLGBTQIA+ youth?
3. How have state curricular & sports bans impacted 2SLGBTQIA+ youth?
4. What does this have to do with math teaching & learning?
5. Activity: What can we do?
6. Q&A

To Access the Webinar Documents & Resource Page: Visit bit.ly/QMT_NCTMEquity and enter your info

A note on language:

1. 2SLGBTQIA+
2. "Queer"
3. Some content may be triggering (e.g. talk of suicide, harrassment & assault, etc)

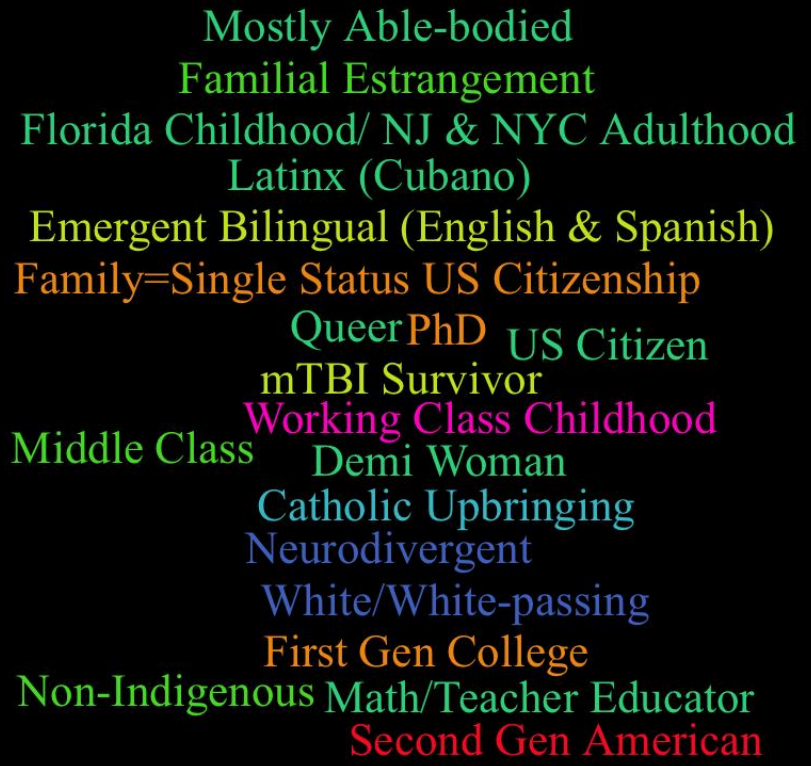


Image Description: *Word cloud with the following words: Mostly Able-bodied; Familial Estrangement; Florida Childhood/ NJ & NYC Adulthood; Latinx (Cubano) ; Emergent Bilingual (English & Spanish); Family = Single Status US Citizenship; Queer; PhD; US Citizen; mTBI Survivor; Working Class Childhood; Middle Class; Demi Woman; Catholic Upbringing; Neurodivregent; White/White - passing; First Gen College; Non-Indigenous; Math/Teacher Educator; Second Gen American*

Before We Begin

1. Political conocimiento and honoring/supporting 2SLGBTQIA+ students will be centered in this session, not mathematics.
   a. For a centering of mathematics and 2SLGBTQIA+ identity, feel free to check out my course offerings.
2. This session unapologetically assumes that 2SLGBTQIA+ identity is intimately connected to learner identity and mathematics identity.
3. This is not 2SLGBTQIA+ 101.
   a. Feel free to check out my asynchronous course if this is what you came for.
4. We will not entertain questions about the humanity, morality, appropriateness or belonging of 2SLGBTQIA+ people or identity in mathematics.
5. We will center the belief that all students, especially 2SLGBTQIA+ students, deserve access to high quality mathematics education and to thrive in mathematics.

What Knowledge Do Teachers Need?

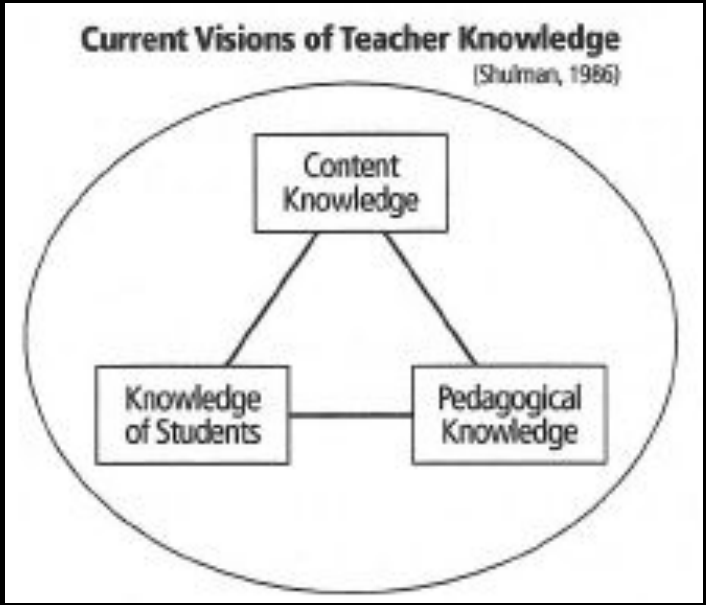


Image that shows a model titled "current visions of teacher knowledge", that has three core elements: content knowledge, knowledge of students, and pedagogical content knowledge.

Gutiérrez argues this model is lacking the knowledge needed to:

1. "Deconstruct and negotiate the world of high-stakes testing"
2. "Connect and explain your mathematics to community members and district officials"
3. Ways to "buffer you from a system or reinvent, reinterpret systems so that you can be an advocate for students."

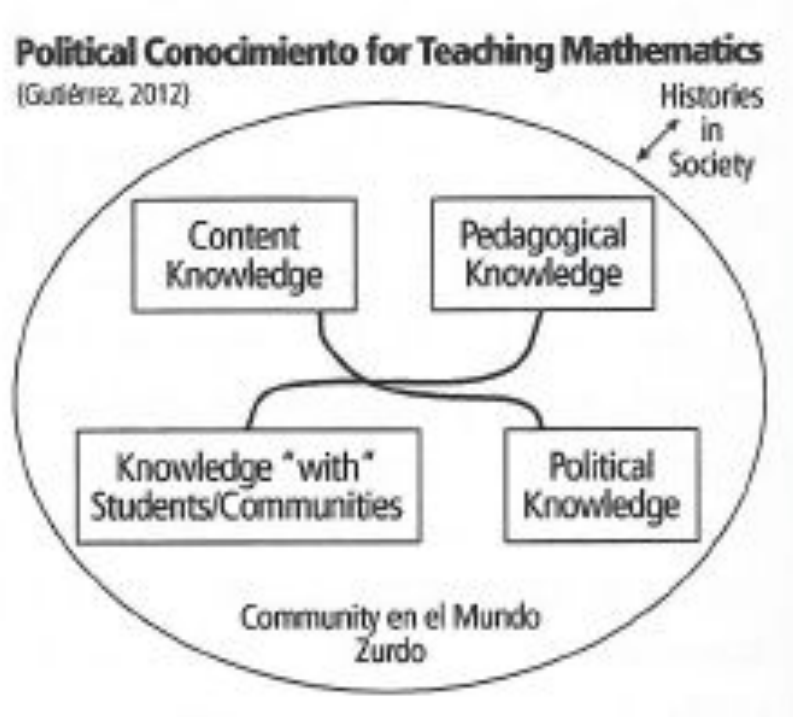


Image that shows a model titled "political conocimiento for teaching mathematics", that has three core elements: content knowledge, knowledge with (rather than of) students AND communities, pedagogical content knowledge, and political knowledge. Thes connected elements reside within a circular space of "community en el mundo zurdo" and are informed by histories in society.

Political *conocimiento* - "See how politics permeates everything we do, in education in general and mathematics in particular, and affects how we are connected to each other today and how we might we might envision a different, more humane connection for the future" (p. 20)

Source: Gutiérrez's "Political conocimiento for teaching mathematics: Why teachers need it and how to develop it" (2017)



Political Landscape for 2SLGBTQIA+ Youth

Political Landscape for 2SLGBTQIA+ Youth: References

- "Don't Say Gay", CRT, and Trans Sports Bans: What Education Professionals Need to Know by Brandie E. Waid (blog post)
- Black women primarily impacted by ne testosterone rule for Olympics by La'Tasha Givens (news article)
- Understanding the attacks on Critical Race Theory by Francesca Lopez, Alex Molnar, Royal Johnson, Ashley Patterson, LaWanda Ward, and Kevin Kumshiro (National Education Policy Center Report)
- Five states ban transgender girls from girls' school sports. But segregating sports by sex hurts all girls by Elizabeth Sharrow (news article)
- How anti-Critical Race Theory Bills are Taking Aim at Teachers by Theodore R. Johnson, Emilia Gold, and Ashley Zhao (FiveThirtyEight article)
- Trans Girls Belong on Girls' Sports Teams: There is no scientific case for excluding them by Jack Turban (Scientific American Article)
- Four Myths about Trans Athlestes Debunked by American Civil Liberties Union
- Five Things to Know about Gender Affirming Health Care by American Civil Liberties Union
- The 'life-saving' science behind gender-affirming care for youth by Yasemin Nicola Sakay (Medical News Today Article)
- Association of Gender-Affirming Hormone Therapy With Depression, Thoughts of Suicide, and Attempted Suicide Among Transgender and Nonbinary Youth By Amy E. Green, Jonah P. DeChants, Myeshia N. Price, And Carrie K. Davis (peer reviewed journal article, *Journal of Adolescent Health)*
- Sports, Transgender Rights and the Bodily Politics of Cisgender Supremacy by Elizabeth A. Sparrow (peer reviewed journal article, *Laws*)
- Some Common Myths about Gender by Gender Spectrum (Teacher Resource)
- Talking to Young Children about Gender by Gender Spectrum (Teacher Resource)
- Responding to Concerns: Teaching about Gender by Gender Spectrum (Teacher Resource)
- LGBTQ student experiences in schools from 2009-2019: A Systemic review of study characteristics and recommendations for prevention and intervention in school psychology journals by Roberto L. Aubrey, Lilian Audette, Y'Londa Mitchell, Ina Simpson, Jessica Ward, Lindsay Ackerman, Kristen A. Gonzalez, and Katherine Washington (peer-reviewed journal article, *Psychology in the Schools*)

Impact

- “94% of 2SLGBTQIA+ youth reported that recent politics negatively impacted their mental health”
- “70% of LGBTQ youth stated that their mental health was "poor" most of the time or always”

Source: The Trevor Project’s National Survey on LGBTQ Youth Mental Health (2021)

- 8 in 10 felt unsafe at school because of 1 or more personal characteristics(e.g., SOGI, gender expression, race, etc.)
- Many avoided gender-segregated spaces in school because they felt unsafe.
- Most avoided school functions (77.6%) & extracurriculars (71.8%) because they felt unsafe.

Source: GLSEN's 2019 National School Climate Survey Results (2020)

In Addition To....

- 17.1% needed to change schools due to feeling unsafe at school.
- 86.3% experienced harassment or assault at school.
    - 56.6% did not report the incident to school staff
    - 60.5% of those who did report an incident said that school staff did nothing in response or told the student to ignore it.

Source: GLSEN's 2019 National School Climate Survey Results (2020)

In Addition To....

Impact on Learning: Hostile Environments & The Brain



Image Description: Image of the "Anger" emotion character from the Disney movie Inside Out
Image source: LinkedIn

"When anyone experiences others in an environment like a classroom that is inattentive or hostile, the body picks up that information through the autonomic nervous system and sends it up to the RAS [Reticular Activating System] & amygdala. There the amygdala gets the information that it's not socially, emotionally, or intellectually safe & sends out a distress signal to the body. The body starts to produce stress hormones that make learning nearly impossible. Even if the environment isn't hostile but simply unwelcoming, the brain doesn't produce enough oxytocin & begins to experience anxiety. This anxiety triggers the sympathetic nervous system, making one think [they] are in danger because the brain doesn't experience a sense of community." (p. 45)

Reference: Zaretta Hammond's (2015) *Culturally Responsive Teaching & The Brain*

Impact on Learning: Hostile Environments & The Brain

"When we look at the stress some students experience in the classroom because they belong to marginalized communities because of race, class, language, or gender, we have to understand their safety-threat detection system is already cued to be on the alert for social & psychological threats based on past experience. It becomes imperative to understand how to build positive social relationships that signal to the brain a sense of physical, psychological, & social safety so that learning is possible." (p. 45)

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Impact on Mathematics Identity?

Affirmation of one's queer identity appears to be related to the strength of their mathematical identity (Fischer, 2013)

PK-12

- Less likely to take Algebra II

Undergraduate

- Less likely to major in STEM
- Less likely to persist in STEM majors

STEM Workforce

- Less likely to enter STEM fields
- Less likely to stay in STEM fields

Impact on Mathematics Identity? Evidence

- There appears to be a relationship between support for one's queer identity in school--related communities (e.g. friends, teachers, GSAs) & the strength of one's mathematical identity. This relationship manifests when someone who identifies as queer receives support for their queer identity. If this support is from a school--based community, such as teachers or a GSA, there seems to be a related improvement in the students' mathematical identities. Research into this theory is important because possession of a positive mathematical identity has been shown to correlate to higher performance mathematically…. As mathematics is a gatekeeper subject …higher performance leads to greater college opportunities, greater career opportunities, & greater earnings potential over a lifetime." (Fischer, 2013)
- "...LGBTQ high school students are less likely to complete Algebra II than their non-LGBTQ classmates…[This] is particularly relevant given that algebraic understanding is gateway material to both college & a successful career…" (Whipple, 2018)
- "When comparing the proportions of queer-spectrum & heterosexual students enrolled in STEM & non-STEM majors, significant differences were observed. For queer-spectrum students, 40.0% were enrolled in a STEM major as compared to 47.1% for cisgender students." (Greathouse et al., 2018)
- "When comparing the proportions of trans-spectrum & cisgender students enrolled in STEM & non-STEM majors, significant differences were observed. For trans-spectrum students, 39% were enrolled in a STEM major as compared to 54% for cisgender students." (Greathouse et al., 2018)
- "Using data from federal employees where SO/GI [sexual orientation / gender identity] measures were available, two studies suggested that LGBTQ people are 17-21% less represented in STEM fields than expected based on their prevalence in the U.S. population…With a U.S. STEM workforce size of 7 million…, this corresponds to a loss of roughly 54,000 to 121,000 LGBTQ people who would otherwise be in STEM." (Freeman, 2020; Freeman continues: "But it may be difficult to generalize such estimates based on federal employees in STEM-related agencies to the rest of the STEM workforce, such as academic STEM departments.")
- "LGBTQ STEM professionals were more likely to experience career limitations, harassment, & professional devaluation than their non-LGBTQ peers. They also reported more frequent health difficulties & were more likely to intend to leave STEM. These trends were similar across STEM disciplines & employment sectors." (Cech & Waidzunas, 2021)

So….What Can We Do?

To Access the Activity:

- **Visit bit.ly/QMT_NCTMEquity and enter your info**
- **Follow the directions on the first slide of the "Action Plan" Slide Deck**

- What thoughts/ feelings came up for you during that activity?
- What other questions do we have?

Opportunities to Further Your Learning

June 11th Hybrid Learning Session:
bit.ly/RPI_MonthlyPD





July 11-14 In-person conference:
bit.ly/RPI_SC2022

