Rehumanizing Mathematics: Why It Matters for Students and Society

Rochelle Gutiérrez

University of Illinois at Urbana-Champaign

@rg1gal

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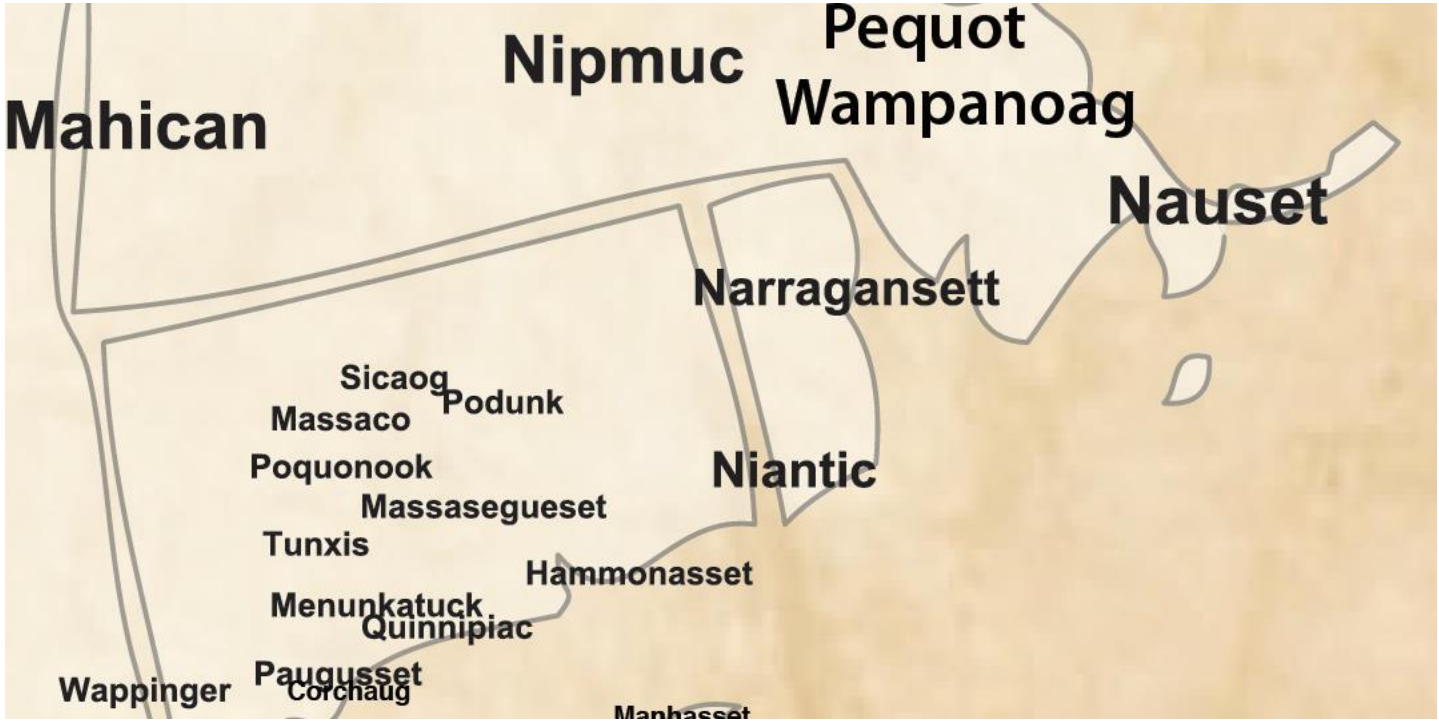
Truth & Reconciliation

Tribal nations 1735



Overview

- How we think and talk about our work matters
- How we take stock of our practice matters
- How we move through the world matters

1. How we think/talk about our work

- **Diversity** (attention to difference, also used when no difference, really fuzzy, no attention to positionality)
- **Equity** (often highlights universal approaches, closing achievement gaps, leaky pipelines)
- **Inclusion** (tolerate, allow, participate on own terms, focus on individuals, understand exclusion)
- **Centering historically oppressed** (place at the core, dedicate resources and energy there, requires political clarity)

THINK-PAIR-SHARE

Think about a specific mathematical experience that felt alienating, marginalizing, or dehumanizing to you, a peer, or a student.

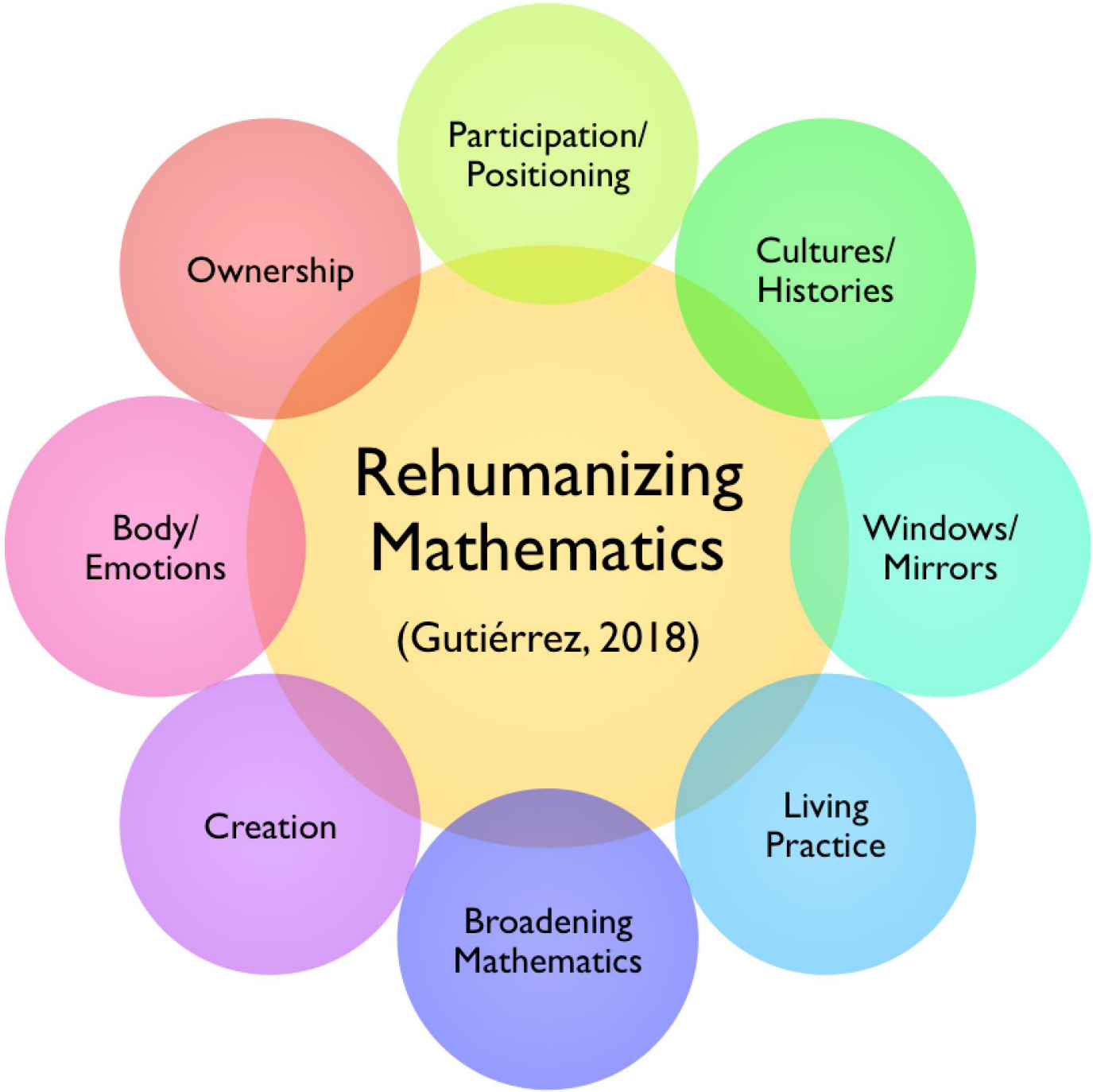
Acknowledge dehumanizing aspects

- Many examples surrounding us
- Important to know not just what is dehumanizing, but how it functions (so we see systems!)
- For example, don't just think about how to fix this assessment measure, but also think about how assessment functions in general (mental sovereignty, consent, etc.)

Why Rehumanizing?

- Honors our history
- Addresses politics of teaching and politics of mathematics (e.g., unearned privilege, arbitrariness, emperor not wearing any clothes, White supremacist capitalist patriarchy)
- Not just a decoupling (from wealth, dominance, compliance) but a recoupling (with connection, joy, belonging, healing)
- Verb because action-oriented, ongoing, performance, future-focused (desire)
- Seeks evidence from populations served (most dehumanized)
- Could rename it decolonizing, but only under certain conditions (e.g., mathematx, see Nov. 2017 issue of Philosophy of Mathematics Education Journal)

==> Re-attaching humans to each other, through the practice of mathematics



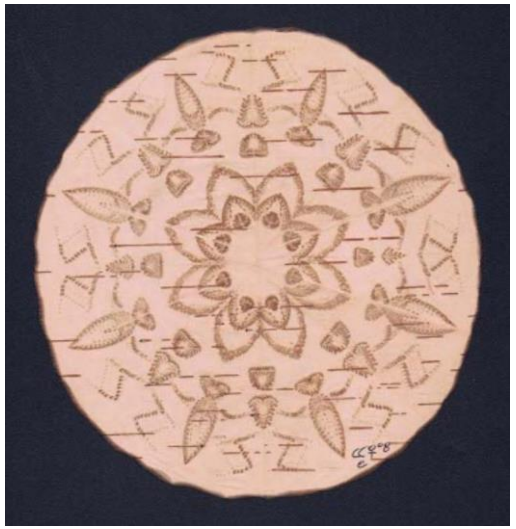
See video explanation at
https://www.youtube.com/watch?v=D266LYIigS0

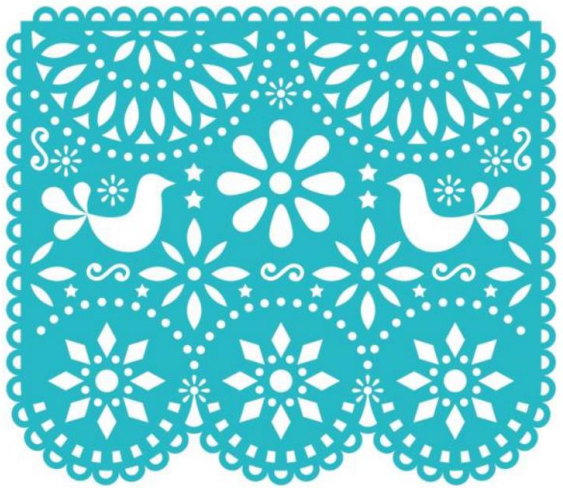
Rehumanizing mathematics is **not** universal

Place matters

People matter

Time matters





Center people of color, womxn, queer folx, and other exploited/oppressed groups

Understand intersectionality

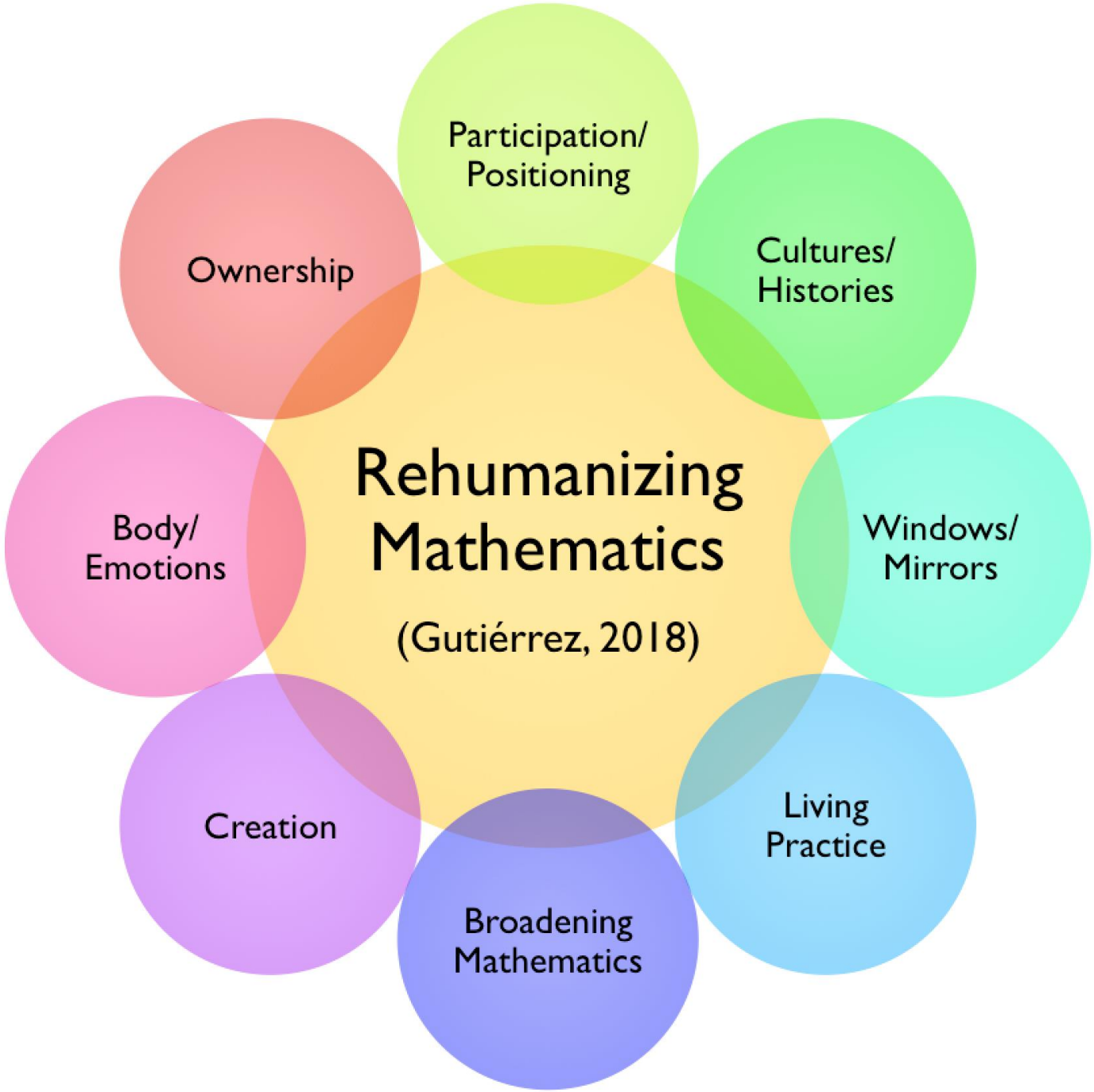
For Each Dimension—Consider Typical Narrative & Counternarrative

Typical narrative = what has been normalized in mathematics, much of which is dehumanizing

Counter-narrative = attempting to rewrite what mathematics is, who it's by/for, how we practice/perform it, etc. This counter-narrative helps us bring back that which is erased through schooling

Can we imagine a different way of doing mathematics?

- Can experimental mathematics move beyond Gallilean, Baconian, Aristotellian or Kantian exploration of conjectures?
- What might an Indigenous ontological (metaphysical) stance offer?



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Rehumanizing Mathematics Requires Political Clarity

- Understanding we must start with those the system has most failed
- Valuing student understanding and well-being over test scores
- Focusing on the collective good over individual gains
- Leveraging greatest resources towards most vulnerable
- Abandoning zero-sum mentality
- Checking your math privilege (Eurocentric fragility)
- Finding ways to prepare the soil and plant new ideas, structures, policies that will live beyond us

2. How we take stock of our practice matters

- Offer mapping space
- Attends to micro (interpersonal) and macro (systemic) issues like structures, policies, history, etc.

Holding Ourselves Accountable: The Mirror Test (Gutiérrez, 2015)

- Rather than looking externally (e.g., US News & World Report rankings, exam scores/grades, tenure process, etc.)
- Look internally, to your own moral compass
- Consider why you entered the field and what you wanted to do in the work (why you were called to it).
- Can you look yourself in the mirror each day and say you're doing what you set out to do? (ongoing vigilance & refinement)
- If not, what do you plan to do about that?

Key Principles of The Mirror Test & Risk Taking

- Real change requires a different locus of evaluation
- Real change requires being radical (action)
- Real change will be met with resistance & backlash
- Real change cannot be done in isolation (needs people, connection to other pieces)
- Real change requires attention to micro- and macro- aspects of context
- Real change requires constant vigilance and new iterations
- Real change requires preparing for a marathon, not a sprint

What's at stake?

"**What do we have to lose** if we engage in the process of rehumanizing mathematics?"

[Talk to the person next to you]

- Time/energy?
- Prestige?
- Privilege?
- Friends/colleagues?
- Our jobs??

What's at stake?

- **What's on the line** in doing this work?
- Our identity/dignity
- Our humanity
- Our sense of hope for the next 7 generations

What's at stake if we do nothing?

- Continue to run into people who give the adulation/confession/surprise response
- Not able to look ourselves in the mirror and say we're part of the solution
- Mathematics in the service of warfare, maximizing profit, continued erasure

3. How we do the work matters

Knowledges, Sensibilities, Demands?

Acknowledge the complexity of the work

- **Your identity** (understand how you are implicated in dehumanization/connected to the rehumanizing project; don't assume you are superior to others; see the work as part of your journey, not a destination)
- **Your knowledge/expertise** (assume blind spots & biases, Google, crowd source among friends/colleagues, avoid unpaid sherpas)
- **Your context** (Just as you are unique, your work context also is—know the history, minefields, language/policies to scaffold onto)

The Need for Ethics in Mathematics

- 1974 SESPA work—social responsibility of scientists
- Not just “do no harm,” but what do we want to stand for?

1995 Policy Statement on Ethical Guidelines

- Focus on Mathematical Research/Presentation
- Social Responsibility of Mathematicians (1 line on respecting ability without regard to race/gender/ethnicity/disability/etc.)
- Education & Granting of Degrees

AMS American Mathematical Society
Advancing research. Creating connections.

Policy Statement on Ethical Guidelines

Preamble:

In January 1994 the AMS Council received the report of its Special Advisory Committee on Professional Ethics. The Committee, which consisted of Murray Gerstenhaber, Frank Gilfeather, Elliott Lieb, and Linda Keen (Chair), presented ethical guidelines for adoption by the Council. Those draft guidelines were

What might a mathematical ethics look like?

I pledge never to participate in

…the design, development, testing, production, targeting, or use of nuclear, biological or chemical weapons or their means of delivery.

OR in

…research or engineering that I have reason to believe will be used by others to do so

--Pledge from Los Alamos study group, NRDC, and other groups

What will rehumanization require from us?

- Empathy
- Courage
- Ongoing learning
- Political Clarity (Critical bifocality)
- Creative Insubordination
- Calling others in
- Coalition building
- New metrics
- Constant vigilance

What is my role?

In a free society where terrible wrongs exist, some are guilty, but all are responsible.

--Rabbi Abraham Joshua Herschel

(theologian, author, civil rights activist)

Stand up if…

- You have a graduate degree in mathematics
- You have witnessed or experienced forms of dehumanization through mathematics
- You knew mathematics was going to involve dehumanization and you were sufficiently prepared to address or eliminate it
- You learned that from your mathematics program

What’s at Stake?

- Our dignity!
- Humanity!
- Our future!