Conference Overview 2017.03.15.0430.Rochelle Gutierrez

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Talk Title:

Equity: How the E-word helps and hurts our cause in mathematics education

Date:	03/15/2017	**Time**:	04:30 - 06:00	pm

Materials:

- Presentation slides (pdf)
- Detailed notes from notetaker (pdf)

List 6-12 key words for the talk:

Equity, Rehumanizing mathematics, Rigor, Effectiveness, Video coding.

Please summarize the lecture in 5 or fewer sentences:

This talk was a community build up to justify a shift in focus from mainstream equity to rehumanizing mathematics. As we look for characteristics of equity, rigor, and effectiveness in a classroom we can hold very individualized definitions. The speaker provided a video observation exercise to help draw the audience into this experience and then define equity while thinking about identifying and transitioning from dehumanizing actions to rehumanize the math experience.

HOW THE E-WORD HELPS & HURTS OUR CAUSE IN MATHEMATICS EDUCATION

Rochelle Gutiérrez
University of Illinois at Urbana-Champaign

A presentation given in Critical Issues in Mathematics Education: Observing for Access, Power, and Participation in Mathematics Classrooms as a Strategy to Improve Mathematics Teaching and Learning. Mathematical Sciences Research Institute. Berkeley, CA. March 15, 2017

Purposes of Viewing/Coding Videos

- Should focus on things that can be high leverage (action oriented), some will be low hanging fruit, but some will not
- Why "notice" things unless we can change them?
- Videos as…
  - Characteristic across settings (e.g., a school, department, country)
  - Evaluation (e.g., of a given teacher's practice)
  - Formative (e.g., help teachers notice things and move toward action)
  - Unearthing values/definitions (e.g., teachers identifying things in own practice or in others')
  - Opening up a conversation (e.g., what does a teacher most want to understand that seems observable, what besides video could capture that?)

Our Definitions & Goals Always Matter

- What counts as rigorous teaching…depends on for what purposes it is being carried out, and from whose point of view we are judging it
- What counts as effective teaching… depends on for what purposes it is being carried out, and from whose point of view we are judging it
- What counts as equitable teaching… depends on for what purposes it is being carried out, and from whose point of view we are judging it

Key: Cannot assume rigorous = effective = equitable

What is Equity?

How is equity defined in your **current work context** (e.g., department/school/district/team)? What's one thing you are working on as a team/school/department?

In what way(s), if any, does **your** definition of equity map onto your current work context?

A Brief Look at National Standards

Equity Principle (1 of 6)

- NCTM (2000), Principles & Standards for School Mathematics
- Focus on
  - High expectations
  - Strong support for all students
- What individual teachers can do
  - Accommodations (equal, not same treatment)

Equity does not mean that every student should receive identical instruction; instead, it demands that reasonable and appropriate accommodations be made as needed to promote access and attainment for all students. p. 12

Students who are not native speakers of English, for instance, may need special attention to allow them to participate fully in classroom discussions. Some of these students may also need assessment accommodations. p. 13

Students with disabilities may need increased time to complete assignments, or they may benefit from the use of oral rather than written assessments. p. 13

Equity Position Statement

- NCTM website (2008)
  - Broader scope (not just high expectations)
  - “Respect” and “Understanding” added (cultural roots and history; different solutions, ways of knowing math)
  - Policy issues, school leaders
  - Culture of equity = teachers in community

"Equitable practices… empower all students to build a relationship with mathematics that is positive and grounded in their own cultural roots and history."

"NCTM believes that schools in which teachers and students experience equitable practices afford greater opportunities to engage students with significant mathematical ideas while supporting the greater goal of helping students learn to care about others and treat all human beings with dignity and respect."

How do the Common Core State Standards address equity?

- A step back from NCTM's 2000 Equity Principle or 2008 equity position statement
- No specific mention of equity
- Addresses emergent bilinguals in appendix
- Practice Standards: "reason abstractly & quantitatively," "critiquing the reasoning of others"

- → move to language that suggests reason contextually & qualitatively, "see a window onto another's reasoning"

Weak Position on Equity

The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post-school lives. (CCSS-M)

Where do you define Equity?

- Where, if anywhere, do you (or your working context) define equity explicitly for students or staff?

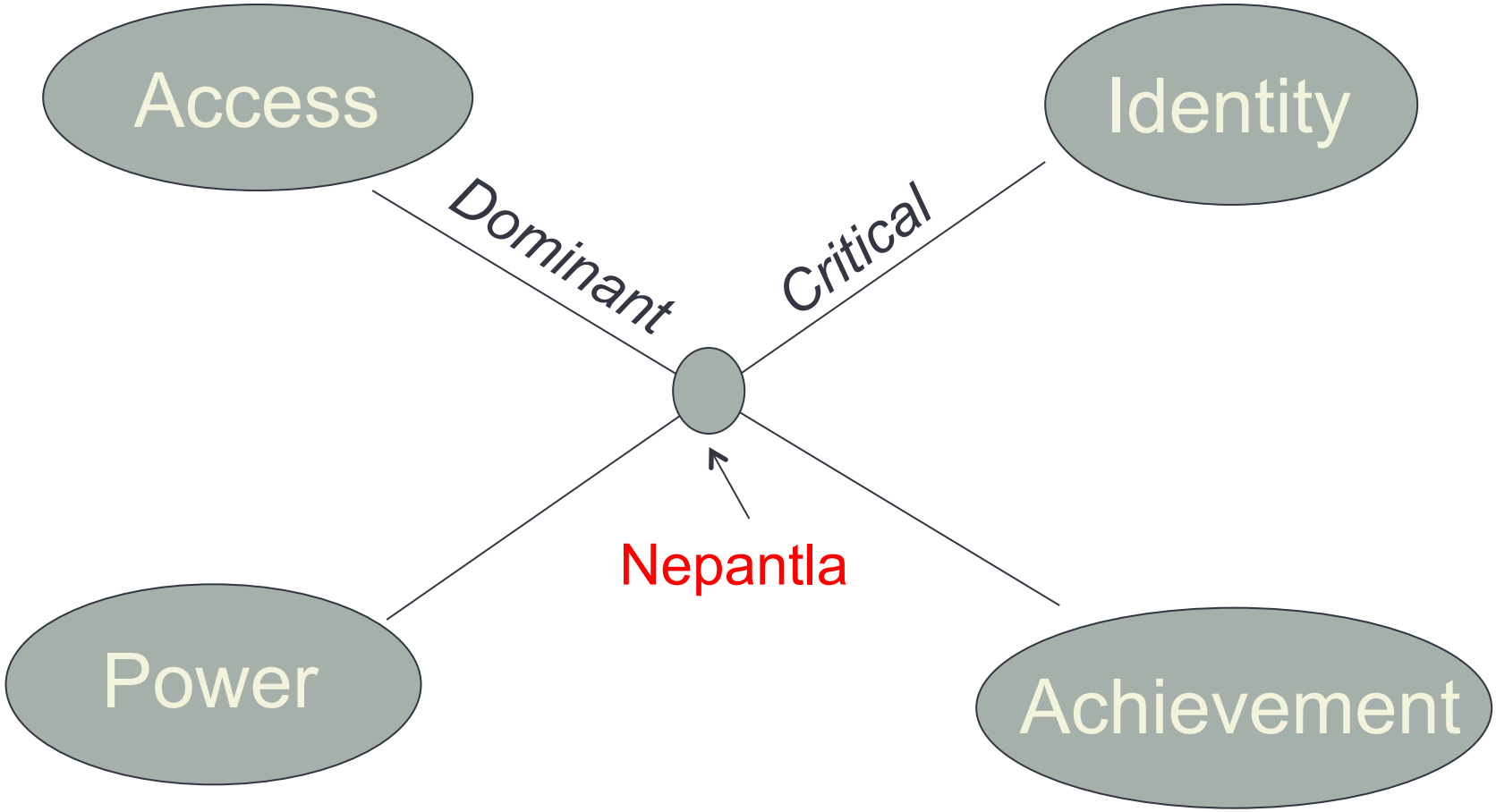
3-Part Definition of Equity

- 3-Part Definition
  - Dominant (mathematics achievement & participation so doesn't become a gatekeeper)
  - Critical (analyze/critique knowledge and events in world)
    - Recognize relationship between mathematics & power
    - Origins of mathematics, how Western view became dominant one
    - How mathematics has reoriented the modern world, (quality seen as quantity)
  - Relationships (people, mathematics, & planet)

(Gutiérrez, 2002)

Dimensions of Learning/Equity

(Gutiérrez, 2007; 2008; 2009)



Play the game/Change the game

Is Equity Still a Useful Term?

- Equity bogged down with history
- Often fails to promote dialogue/creativity
  - Everyone thinks they are talking about the same thing
  - Only know we are addressing it when far away
  - Tends to privilege a universal view (e.g., all students)
- Need a new angle to examine a long term problem that is moral, not technical

Can a Shift to Rehumanization Help?

"I tend to work on problems that are just barely out of reach of the current technologies so that you just have to stretch a little bit, find one or two new tools to solve a problem."

--Terry Tao (Fields Medalist, McArthur Fellow, Fellow of the Royal Society)

My Call to Action

With an emphasis on quantifying, categorizing, and reducing complex and multi-layered relationships to mere abstractions, mathematics as a practice seems to be mainly in the service of economics and warfare. I am calling for a radical reimagination of mathematics, a version that embraces the body, emotions, and harmony.

How does this relate to MSRI?

MSRI

Everyone depends on the success of mathematics education, and everyone is hurt when it fails.

— National Research Council, 1989

How does this relate to MSRI?

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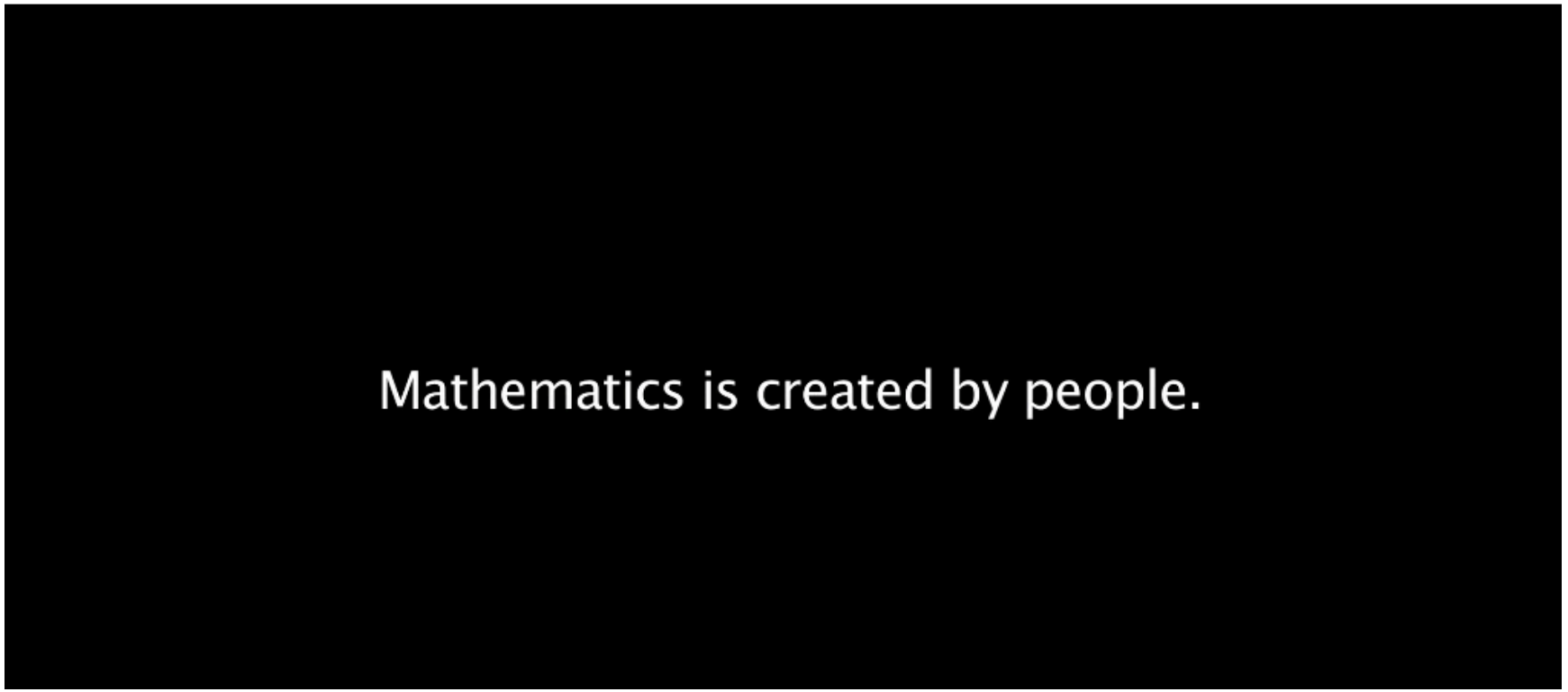
n to MSRI



Rehumanization Takes a Different Approach

- Addresses politics of teaching and politics of mathematics (e.g., unearned privilege, arbitrariness, emperor not wearing any clothes)
- Name/deconstruct what is dehumanizing (e.g., micro aggressions in classrooms)
- Imagine a rehumanized experience in school (action oriented)
- Create rehumanized experiences
  - Opportunities for windows/mirrors
- Consider the limits of humans as center

Windows & Mirrors

- Not just about culturally relevant pedagogy
- Opportunities to see out onto a new world that may not be familiar, stretch yourself (Window); connect with others
- Opportunities to be affirmed, see yourself in the curriculum (Mirror); reconnect with self
- Connection to In Lak'Ech

(Style, 1996; Gutiérrez, 2007; 2015)

“Misconceptions” as an Example

Hispanic and Anglo Students' Misconceptions in Mathematics. ERIC Digest.

Math teachers and researchers are beginning to agree on the importance of a series of new findings. According to new research, many students have misconceptions about mathematics--sometimes called "naive theories"--that can turn them into clumsy learners. This digest describes misconceptions in math--what causes them and why they interfere with learning. Next it considers common mathematical misconceptions among Anglos and Hispanics. It concludes with a discussion of techniques to help students overcome their misconceptions in math.

→ All learners naturally do mathematics.

Our job is to draw out and help them expand what they already know intuitively.

... when teachers can recognize a student's unique perspective along side of but equally important to a mathematician's or math educator's view, there is greater potential for connection between the teacher, student, and new possible forms of mathematics."

(Gutiérrez, 2012, Embracing Nepantla, p. 38)

What are Some Ways Mathematics Class Can Feel Dehumanizing to Students?

Some Ways School Mathematics Can Feel Dehumanizing

- Go along with the labels/categories we've placed you in
- Buy into a product (you won't create anything new)
- Leave your cultures, language, emotions, & bodies outside of the classroom
- Speed valued over reflection
- Just pretend this is real world

Mathematics Dehumanizes by Privileging:

- Algebra/Calculus over geom/topology/spatial reasoning/ discrete math/other forms
- Rule following over rule breaking
- Western mathematics (culture-free) over ethnomathematics (recognizing that even academic mathematicians are a culture)
- Standard algorithm over many possible
- Abstraction over context (just pretend this is real world)
- Mind over body
- Logic over intuition
- Critique reasoning of others over appreciating their reasoning

How Would Dehumanization Show Up In Video?

- What would we look for?
- What would that buy us? (e.g., how could that lead to action?)

What are some of the ways **teachers** can feel dehumanized through mathematics?

How can mathematics classrooms feel dehumanizing to teachers?

- Required to be on the same page so that all students get "equal access" to the curriculum
- "Value added models" of assessing teacher quality
- Required to enforce a standard algorithm, rather than embracing all of the different ways students may know
- Being asked to give up instruction to focus on high stakes tests
- Low salary and status for a complex and important service to society (or to a maths department)
- Requiring students to persevere in a form of doing mathematics that dehumanizes them (no body, emotions, etc.)
- Not allowed to fully express yourself in your classroom
- Expected to know all of the answers

A Shift in Focus

Mainstream Equity	Rehumanizing Mathematics
Adhering to pre-determined outcomes Comparing groups Looking for particular behaviors Universal way of thinking about learning Measuring & capturing growth quantitatively	Making sense, being active Recognizing will never look same for everyone Helping students (and teachers) be true to themselves Reconnecting with ourselves & others Measuring & capturing growth with various tools

Ways Mathematics Teachers Can Attend to Humanity

- Listen carefully for how others in your building are talking about students and their mathematical "abilities" [In what way(s) can you intervene or affirm positive statements of students as experts or sense makers?]
- Look for examples in your own teaching of access, achievement, identity, power [In what way(s) can you attend to some dimensions better?]
- Understand and make transparent to students the history of mathematics [e.g., mathematical debates, "heresies" when unsanctioned views, ways it has been practiced throughout the world]
- Note the different ways in which the word mathematics is used or represented in your classroom [Is it a verb? Noun? Are there way(s) you can be a better ambassador?]
- How can you stand alongside students in their/your journeys to (re)produce mathematics?

Dreamer's Circle

What's 1 thing educators can look for that might capture rehumanized mathematics learning in their classrooms?

What Might We "Look For" that Reflects Rehumanizing Mathematics?

- **Participation/Positioning**—status, hierarchies in the classroom, legitimate participation (authority shifts from text/ teacher to other students; students as meaning makers); teacher aware of positioning
- **Culture/Histories**—students reconnecting with their own histories or ancestors/roots (funds of knowledge, algorithms from other countries, ethnomathematics)
- **Windows/Mirrors**—students being able to see themselves in curriculum & in others (appreciation, not just critique), also a new world (standing alongside of peers, seeing new things, new axioms, goal is not always consensus); fostering respect/ dignity; becoming the best person in their own eyes
- **Living Practice**—understanding mathematics as something in motion (ethnomathematics, history, debates, highlighting breaking the rules, axioms leading to divergent answers, mathematics for one's own purpose); students thinking of maths as a verb, not noun

What Might We "Look For" that Reflects Rehumanizing Mathematics?

- **Broadening Maths**—Decentering of: Algebra/Calculus/Number Sense, symbolic representation, favoring the general case to make room for other forms that allow students to see more qualitatively or other forms that would count as maths
- **Creation**—students inventing new forms of mathematics not just reproducing what has come before (e.g., invented algorithms, breaking rules)
- **Body/Emotions**—Invitations to and examples where draw upon other parts of the self (e.g., voice, vision, touch, intuition over logic), the senses matter for any real world problem (can't just pretend)
- **Ownership**—mathematics as something one does for oneself, not just for others (e.g., school), questions and answers are useful/reasonable for one's own purposes, desire to "play" or "express oneself" through mathematics

Purposes of Viewing/Coding Videos

- Should focus on things that can be high leverage (action oriented), some will be low hanging fruit, but some will not
- Why “notice” things unless we can change them?
- Videos as…
  - Characteristic across settings (e.g., a school, department, country)
  - Evaluation (e.g., of a given teacher’s practice)
  - Formative (e.g., help teachers notice things and move toward action)
  - Unearthing values/definitions (e.g., teachers identifying things in own practice or in others’)
  - Opening up a conversation (e.g., what does a teacher most want to understand that seems observable, what other than video could capture this?)

Some Limitations in "Observation" [High Inference]

- **Intentions** (e.g., How do we know what an individual is intending to do? Might we judge a teacher without having the bigger picture?)
- **Meaning making** (e.g., how might we know if/when authority shifts from teacher to other students to self? Meaning outside of school or given audience? Seeds planted—good and bad. How do we know what meaning any given student makes of any given interaction in a classroom?)
- **Patterns** (e.g., how many instances would qualify as "consistent" or "often" in teaching for it to be a pattern or tendency? How many different times would a teacher need to be followed to adequately capture teaching?)
- **Changing the game** (e.g., how do we know mathematics as a practice is changing—relationship between living beings, mathematics, planet? Can it be measured quantitatively? Qualitatively? Over time?)
- **Role of other agents** (e.g. How do we capture the ways the text/ curriculum disciplines students?)

Other Considerations

- When is observation the right tool? (e.g., ability to intervene, give immediate feedback)
- When is video the right tool? (e.g., ability to re-watch)
- When should/could it be paired with something else? (e.g., transcript, interview with student)

Our Tools Help Make Things (In)Visible

- For those of us who have created “tools” for particular purposes, can we still think about whether that “tool” helps us do what we want with a clear focus on equity/ rehumanization?

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Detailed Notes of Conference Overview 2017.03.15.0430.Rochelle Gutierrez

Equity: How the E-word helps and hurts our cause in mathematics education

This presentation is going to look at race and class language effect on teacher learning with the goal of creating shared language and theory building of constructs to start our conversations during the conference.

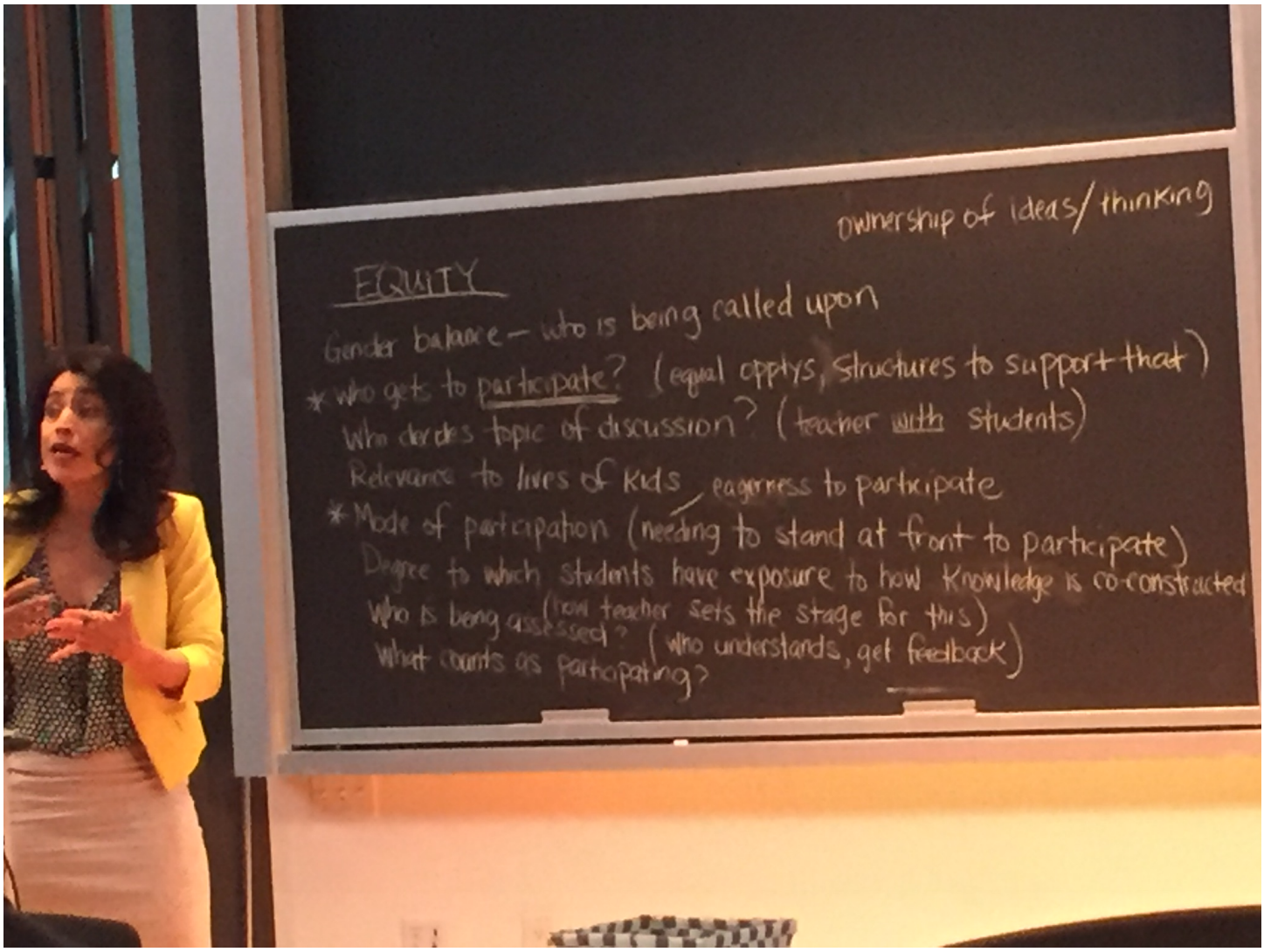
The presenter started her presentation with a focus on coding videos, using high leverage (action-oriented) focus with some more difficult goals to get at higher quality fruit. Videos can be used to describe the school, evaluate teacher practice, formative. We want to get more. To do this we need to be aware of our definitions and goals, these always matter. We cannot assume rigorous = effective = equitable.

Watch video and look for equity… what examples are we looking for in videos?
Discussion included:

- Gender balance - who is being called upon?
  (it looked liked the students that were called on to share were all male)
- Participation - who gets to participate?
  (to be equitable there are equal opportunities, looking for structures to support that).
- Participation - Who decides what gets to be the topic of discussion?
  (to be equitable, teacher <u>with</u> students)
- Relevance to lives of kids
- Mode of participation (needing to stand in the front of the room to participate, approving voices for people who don't feel comfortable with that).
  - Is there equal selection for students based on eagerness to participate (teacher is calling on people who are eager and not eager). Everyone gets to participate, whether they're eager or not.
  - Assess the people who aren't verbal and are still participating.
- Degree to which students have the exposure to the process under which knowledge is co-constructed. (look for how teachers sets the stage for this.. look for there is going to be variance with students mathematical knowledge however both were able to participate and the audience was exposed to the variance and how the knowledge progressed).
- Who is being assessed? (who understands, who gets feedback).
- Ownership of ideas/ thinking

Think about the difference between what we want people doing compared to how do we assess videos to note if we have those people doing those things.

What is Equity?
Q: How is equity defined in your <u>current work context</u> (e.g. department/ school/ district/ team)? What one thing you are working on as a team/ school/ department?
Q: In what way(s), if any, does your definition of equity map onto your current work context?



To help us consider these questions, Gutierrez guided us through looking at the historic national standards related to equity:

- Equity Principle from NCTM 2000 Principles & Standards for School Mathematics (1 of 6 key principles). At the time it focused on high expectations with strong support for all students, providing accommodations (not providing identical instruction, instead providing reasonable accommodation to support their work). This is framing equity not from changing classroom but instead changing opportunities for a subset.

  " *Equity does not mean that every student should receive identical instruction; instead, it demands that reasonable and appropriate accommodations be made as needed to promote access and attainment for all students. " p. 12*
  "Students who are not native speakers of English, for instance, may need special attention to allow them to participate fully in classroom discussions. Some of these students may also need assessment accommodations. " p. 13
  "Students with disabilities may need increased time to complete assignments, or they may benefit from the use of oral rather than written assessments." p. 13

- NCTM Equity Position Statement (2008) moved beyond these accommodation expectations and instead accepting that there are different ways to perform mathematics in classroom ("Respect" and "Understanding" added (cultural roots and history; different solutions, ways of knowing math), having a

broader scope beyond high expectations.The statement also moved from being work of individual teachers to being work of the schools and other policymakers. Significant mathematical ideas, positive and grounded in their own cultural roots and history. Greater goal of helping students learn to care about others and treat all human beings with dignity and success.

"Equitable practices… empower all students to build a relationship with mathematics that is positive and grounded in their own cultural roots and history."
"NCTM believes that schools in which teachers and students experience equitable practices afford greater opportunities to engage students with significant mathematical ideas while supporting the greater goal of helping students learn to care about others and treat all human beings with dignity and respect."

- 2010 Common Core State Standards - The CCSS have no specific mention of equity, so they are a step back from these two previous statements. Emergent bilinguals are addressed in appendix. The closest equivalent is looking at the practice standards which ask students to "reason abstractly and quantitatively" and "critiquing the reasoning of others". These don't ask students to reason contextually and qualitatively (thus dehumanizing the process, distance ourselves). Critiquing the language results in colonization, trying to convince you to come to my way of thinking, also thinking about seeing a window into another person's reasoning.
  "The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post-school lives." (CCSS-M)

Q: Where do you define equity?
Where if anywhere, do you (or your working context) define equity explicitly for students or staff?

Responses:
- When in classroom, class mantra - I'm striving to be the best there is
- Excellence isn't an A, it's you feeling confident and comfortable with the progress that you are making.

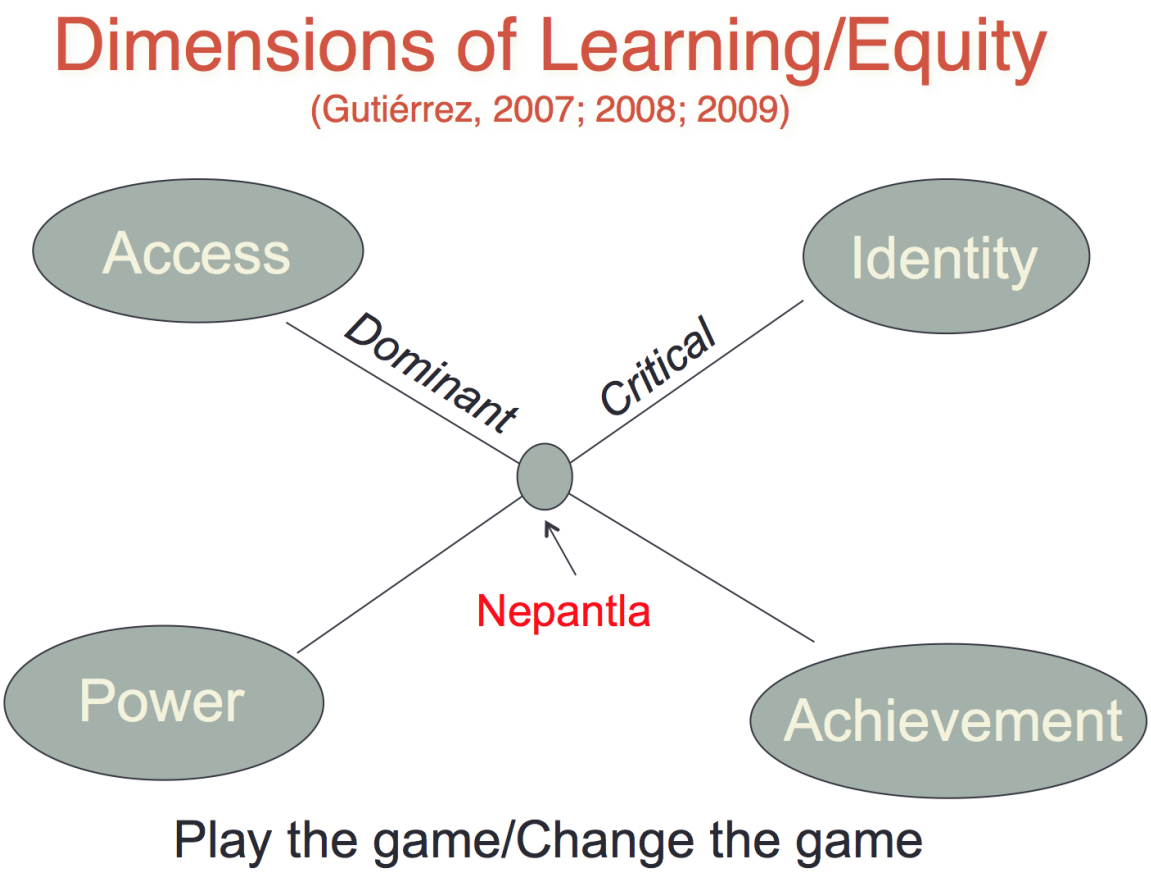
Gutiérrez (2002) provides a three-part definition of Equity:
- Dominant (mathematics achievement and participation so doesn't become a gatekeeper)
- Critical (analyze/critique knowledge and events in world)
  - Recognize relationship between mathematics & power
  - Origins of mathematics, how Western view became dominant one
  - How mathematics has reoriented the modern world, (quality seen as quantity)
- Relationships (people, mathematics, & planet)

Gutiérrez, R., & Gutiérrez, R. (2002) Enabling the practice of mathematics teachers: Towards a new equity research agenda Mathematical Thinking and Learning

Using this definition provides a means of defining learning/equity:

- Access/Achievement: Dominant
- Power/Identity: Critical

When we bring them together we're looking at how students play the game/change the game.



Changing what mathematics is - move away from deficit descriptions (they need math) vs math needing people, math is a human practice and in order to continue the field new people will provide new ways for doing the work. In what way is helping change the game changing who is doing the work and how those new people is changing the work.

Nepantla - birthing new realities. Traversing new and old knowledge. A form of metaphysics- describes how we move through the word. Not trying to decide one or the other. With Nepantla you are moving through the world without fully grounding. There are going to be tensions. The goal is to play the game more than changing the game. Sometimes we're focusing on the power and moving away from the rigor of the mathematics.

Is equity still a useful term?

Equity bogged down with history, often fails to promote dialogue/creativity because we all think we're talking about the same thing and we need to stop and think about what we all mean. Often we can only agree when we totally don't see it. This tends to privilege a universal view (ex: all students). We need a new angle to examine a long term problem that is moral, not technical.

Can a Shift to Rehumanization Help?

Rehumanization -

“I tend to work on problems that are just barely out of reach of the current technologies so that you just have to stretch a little bit, find one or two new tools to solve a problem.” --Terry Tao (Fields Medalist, MacArthur Fellow, Fellow of the Royal Society)

As a community we’re all stretching ourselves a bit.

My Call to Action: With an emphasis on quantifying, categorizing, and reducing complex and multi-layered relationships to mere abstractions, mathematics as a practice seems to be mainly in the service of economics and warfare. I am calling for a radical reimagination of mathematics, a version that embraces the body, emotions, and harmony.

Where is math as a human process being created by human people - creating versus redoing what others have done.

Rehumanization takes a different approach, assuming everyday people already do mathematics in the world in ways that are humane:

- Addresses politics of teaching and politics of mathematics (e.g., unearned privilege, arbitrariness, emperor not wearing any clothes)
- Name/deconstruct what is dehumanizing (e.g., micro aggressions in classrooms)
- Imagine a rehumanized experience in school (action oriented)
- Create rehumanized experiences - Can we name what is dehumanizing, imagine how we’d like it to be different, think of how to create those experiences,
- Consider the limits of humans as center

Confession/ adulation are the two responses we get as a mathematician, it’s part of the culture. We need to think about how “being a mathematician” is being used to separate way of saying who is smart/ not smart.

Windows & Mirrors

Thinking about how things needs to be culturally relevant for not just one group but for everyone - what does that mean?

Window - curriculum as a way for you to do something you’ve never thought of before. A new view

Mirror - Reflect back on us - affirm who I am and what knowledge I bring to the classroom.

In Lak’Ech (Mayan saying) - I am another you and you are another me. The point isn’t that I am you. Thinking of shared consciousness. How can we make that more present in classrooms? (Style, 1996; Gutiérrez, 2007; 2015)

Example: Misconceptions.

When we frame them as misconceptions we’re being dehumanizing. Students have conceptions that work for them until it’s not generalizable. It’s a form of microaggression. You’re valid only until you come to my way of thinking. If instead we recognize that all learners naturally do mathematics in humane way to make sense of the world around them, our job is to not mess that up. How do we expand and draw out from students to what they know intuitively?

When we let students vear off the road, not followed the rules, then we got new lines of mathematics. That’s where we could be.

Q: What are some ways mathematics class can feel dehumanizing to students?
Responses:

- When we teach mathematics and ask students to address a question and then don't acknowledge their answer, we just move forward as if they aren't there.
- Mathematics can be setup as a set of rules, can be difficult to cope with because this is drilled into them. Two things we do well: Math and art. By 3rd grade you're convinced you don't know how to do either.
- To decide to participate in the process of math education as educator purely as an act of personal satisfaction, it is an act of service. Example: consider the interests of the learner beyond the curriculum and embrace the challenge to connect the curriculum to the child's interest. Personal satisfaction I only want to teach a track class with high learners because I don't have the patience for helping students address their learning gaps.
- We teach mathematics versus teaching students. Be so true to the mathematics, the idea of student understanding can be left behind. When we don't acknowledge that you're there. Teacher isn't teaching you and is just teaching the subject.
- When working with teacher candidates, randomizing who you select with popsicle sticks, very dehumanizing. Meet the candidates where they are but want to challenge the notion.
- Pace at which the class is taught. Having teachers that pause when they ask questions. Allowing students time to finish taking notes. Use of board - pause and watch the board vs stop and writing down.
- Giving 100 problems to do to keep them busy. A means of control and busy work as opposed to doing deep mathematical work.
- Grading policies in math classrooms, especially assessment with exams versus process/ discourse. Overworked teachers often the numerical score is to fall back.
- Mathematics, most objective of the subjects that we teach in school. Teaching is very much a social interaction. What you can use in one social context is going to be very different than in other contexts. Do we care about what the students think? Do the students expect us to know what they're supposed to think. Defer to the teacher and take what they same as legitimate. Tension with respecting people.

<u>Some Ways School Mathematics Can Feel Dehumanizing, What do students say…</u>

- Go along with the labels/categories we've placed you in
- Buy into a product
- Leave your cultures, language, emotions, and bodies outside of the classroom.
- Speed valued over reflection.
- Just pretend this is real world.

<u>Mathematics dehumanizes by privileging -</u>

- Robbing students of opportunities by being so focused on algebra/calculus
- Rule following over rule breaking **- to break a rule you have to know what the rule is.**
    - Come up with an imaginative world and justify where it is internally consistent.
- Western mathematics (culture free) over ethnomathematics (recognizing that even academic mathematicians are a culture). Think about what are the cultural practices embedded in our process.
- Standard algorithm over many possible
- Abstraction over context
- Mind over body
- Logic over intuition - math who knew infinity.

- Critique reasoning of others over appreciating their reasoning.

... when teachers can recognize a student's unique perspective alongside of but equally important to a mathematician's or math educator's view, there is greater potential for connection between the teacher, student, and new possible forms of mathematics." (Gutiérrez, 2012, Embracing Nepantla, p. 38)

How would dehumanization show up in a video?

Responses: What would we look for?

- The instructor looking at the board the whole time
- Teacher asks a question they already know the answer to
- Only honoring correct answers
- No eye contact with student.

Responses: What would that buy us? (e.g., how could that lead to action?)

- This gives us things that we can reimagine what this classroom could be. What are other ways this could look like? Identify high leverage action oriented things.

What are some of the ways teachers can feel dehumanized through mathematics?

- The weight that they carry for knowing all the right answers.

<u>How can mathematics classrooms feel dehumanizing to teachers?</u>

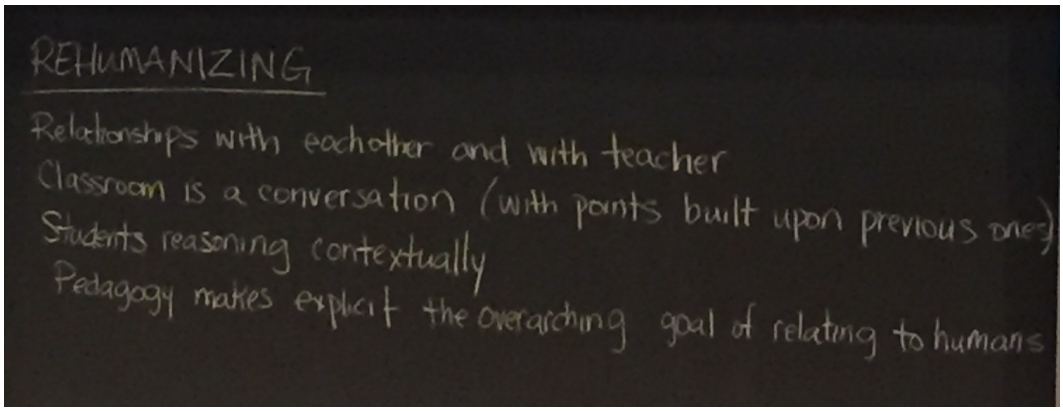
- Required to be on the same page so that all students get "equal access" to the curriculum
- "Value added models" of assessing teacher quality
- Required to enforce a standard algorithm, rather than embracing all of the different ways students may know
- Being asked to give up instruction to focus on high stakes tests
- Low salary and status for a complex and important service to society (or to a maths department)
- Requiring students to persevere in a form of doing mathematics that dehumanizes them (nobody, emotions, etc.)
- Not allowed to fully express yourself in your classroom
- Expected to know all of the answers

What if we shift the focus...

A Shift in Focus

Mainstream Equity	Rehumanizing Mathematics
Adhering to pre-determined outcomes Comparing groups Looking for particular behaviors Universal way of thinking about learning Measuring & capturing growth quantitatively	Making sense, being active Recognizing will never look same for everyone Helping students (and teachers) be true to themselves Reconnecting with ourselves & others Measuring & capturing growth with various tools

What Might We "Look For" that Reflects Rehumanizing Mathematics?



Dreamer's Circle: What's one thing educators can look for that might capture rehumanized mathematics learning in their classrooms?

We're saying that having more of these kinds of things will make the the classroom feel more rehumanized.

- Relationships of students amongst each other and their teacher. The students know that about each other and they can step up.
- Making the classroom a mathematically rich conversation - having points built on previous points (so they're listening, acknowledgment of previous work).
- Students contextually reasoning.

Q: What is the overarching goal of mathematical education that relates to how it values to the humanness of the individual students. Testing vs inquiry.

- The pedagogy of the instructor makes the answer to this question.
- Participation - does the authority shift? When can I go to myself as the authority?
- Culture/histories

Q: How does this work with 200+ students.
A: The speaker does this. She doesn't lecture and instead trains students to change the structure and developing the notes together.

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