2017.03.17.0100.Conclusion

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Speaker's Name:

Facilitators: Elizabeth van Es, Rochelle Gutierrez

Talk Title:

Conclusion

Date:	03/17/2017	**Time**:	4:00 - 5:00	pm

Materials:

- Detailed notes from notetaker (pdf)

List 6-12 key words for the talk:

Equity, broad themes, big concerns, action items, pedagogy, introspection

Please summarize the lecture in 5 or fewer sentences:

This final session discussed broad themes from CIME 2017 including big issues and concerns noted by the conference organizers. The discussion nicely summarized the contextualized history of mathematics, persistence of racism, and approaches to rehumanize mathematics. After this summary, action items were discussed including building from introspection, inviting others into the conversation, developing collaborations, allies and communities, while also committing to create concrete resources. Final reflections from CIME participants provided insight and recommendations for future CIME work.

Detailed Notes on 2017.03.17.0100.Conclusion

Broad Themes from the CIME including Big issues/Concerns - Presented by Elizabeth van Es

1. History of Mathematics - who defines math, who defines who can be present in mathematics
   Long histories of departments (wherever they reside - K12, universities, institutions) -how we think about shifting perspectives and ideas that reside there
2. Persistence of Racism - How we give access and limit exit points
3. Who defines equity and how do we define equity and equality?
4. Rehumanizing- Contextual nature of mathematics. There were high school students in the room and that touched us, what does it mean to have people in the room.
5. Math resides in community and is contextual/ What does it mean for students to have misconceptions/conceptions, deficits/strengths. If we still maintain a deficit perspective what does that mean for our idea as human beings
6. New forms of representing who is in spaces. Saw qualitative and quantitative data related to stratification/ quantification. Learning to live and see people's learned experiences and how does that affect their mathematical selves.
7. Pedagogy - inquiry based learning. What are the pedagogies? Are the pedagogies enough?
8. Making visible what is invisible - tools, resources, and conversations with whom, how often, and in what spaces?

Action Items - Presented by Rochelle Gutierrez.

If you publicly state what actions you're going to take it is more likely that you're going to do it. Who are you going to do it with? Who are your allies? Who are you going to have to navigate.

Themes through the action items:

- A lot of the work was introspection - your own blind spots, your own biases, your own reflection on what thing that you are perpetuating without realizing. Educating yourself - reading articles, connecting with others outside my department and university?
- Invite others into the conversation - positioning - how to invite others to continue the work that I started with myself, others to be speakers to help students, colleagues, department - how does inviting the others in help educate me and other people to help show expertise
- Develop collaborations, allies and communities - how do these people become a part of what we're going to do
- Creating concrete stuff - create things. Others have that stuff and need to get it out to more people and make it accessible to more people. How to disseminate it and keep it available for other people.

Some of the thing were keeping an idea on the macro level while keeping an idea of what you can do at the micro level.

What were the thing that you noticed?

Other themes/patterns

Two contradictory impulses - one the agenda so big it was important to focus on something specific to be able to accomplish something and then the specific actions depended on individual context (resources and situations that don't transfer across to other people). Maybe this emphasis on focus coupled with context that lists very concrete focused actions people can take in their particular situation with the people they can

influence, that list is a list of representations while the array of representations of large scale impulse. This is way of bridging these two impulses.

Reaction: Thinking about comment made by a person in my group while we were creating our action items chart, “I’m a grad student I’m having a hard time filling sticky notes out (like the rest of you)”. Thinking about that … I’m already scheduled to give a talk about the beauty and power of mathematics and now I have a different way I’m going to talk about power. That was already going to happen. I have an NSF grant to talk about mentoring relationships in the RUME committee, it’s near and dear to my heart and I am already positioned in a way to have these conversations. It would be cool if there is a way to bring together people of similar context (grad students, faculty at research institutions) to talk with each other as you’re struggling to generate their action step. Might address that feeling of isolation as you are not alone.

Response: Give to MSRI

I’ve gone to many CIME and this is the first one where I felt I had an action. I want to stop and appreciate the deliberateness of this and I want to appreciate that I felt more engaged than passive throughout these several days. Whether that’s through introspection and trying to think about how to push that introspection when I get back to the community. Challenges to break out past feeling comfortable when I go back to my department meeting I would appreciate the change reflect back to the broader group. Thank you for that challenge.

I’d like to advertise the MSRI programs - I one of things I have seen as I’ve been walking around is the uncomfortable, conflicts in your own sense of what to do. So you can have conversations and work to work things out and you can start where you can in your department. But there are tensions I want to point out:

- How do we define equity? In some sense equity is fairness - but one aspect is what I think is fair you may not think is fair. I might think that the grade was unfair, I knew what I was talking about and didn’t phrase it the way you wanted me to. You in your teaching may say I didn’t learn the concept or communicate the central concepts. This is an example of the intrinsic conflict between one person thinking a situation is fair and another person.
- Discussing issues of race and racism in our society and humanizing individuals.
  When you group people - gender, state they live in, … you may correctly talk about the mean you don’t get variation, the differences. I reread Treisman’s Dolciani talk about his work with emerging scholars program. He talks about how the black students at Berkeley didn’t fit any of the expected categories. They didn’t identify as black, it wasn't part of their social identification. When we talk to individuals we run into the same risk of the stereotyping that we’re trying to kill. That’s a challenge to combine the categorization and the humanification.

  Response: Yes, There are communities I want to have conversations with. And asked, How do we have the conversation to help people think about what the data is in new ways? The challenge is there and I’m more committed today to take action to have those conversations.

Other themes: How long and sustaining this journey needs to be - It takes a level of commitment that we aren't going to get there tomorrow or next week but we need to start going there right now and keep going. One things I felt really helpful was I left this conference last year and then came and realize that I actualized those within one year, I can see an action. I have a list that’s too long for this year but one action is to come back next year and see that I’ve actualize this year’s commitments.

Second thought, go back to what Dorothy did with us this morning, taking a room full of people who are somewhat like-minded because we all ended up in this room and she helped even those of us who have

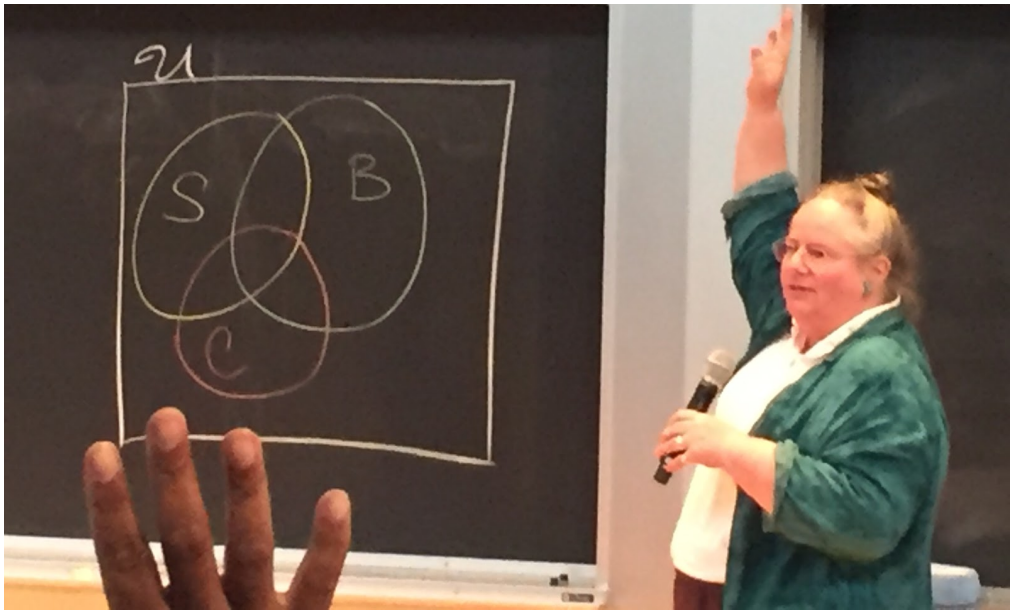
thought a lot about tracking re-experience it and build from that experience. These conversations that we want to have to have to recognize the knowledge and experiences of my colleagues and build on their knowledge and experience. Rather than come back from this space and throw at them.

- Response: We need do this in way that are humanizing. We do it in humility. Don't go back to spaces, I get it and you don't and I'll get you to my space. Misconceptions. How to invite people to a dialog in a way that are meaningful for themselves rather than you deciding the dialog and destination everyone needs to be at.
- Response: I did not feel able or qualified to go back to department to lecture but will go back to dept chair and instead find money and bring people out. We were shown rather than told. The more people shown will help.

Something that has been growing for me, that we haven't talked about much. Starting the first evening there was a tension what mathematics is and opening the door in terms of having more people at the table defining what it is. In those efforts we need to find new way to talk and work. In doing so, how do we manage the process in ways keeps this in a place where it is about mathematics - where mathematics isn't about what we've talked about in the past and is still mathematics. I'm looking forward to puzzle about this over this next year.

Response: One of the ways I address that is often when I give the talk I get asked, Where's the math? Even if we can't find a specific example as something from history. Can we ask ourselves how mathematics a particular case. When we started to talk about mathematics is competitive. Pure mathematics expects single authorship. How is mathematics operating differently than psychology/ biology/ etc. When comparing other things that are seen similar scientifically, why is mathematics operating in these ways in society? Not necessarily coming up with mathematical content but helping make transparent how math is situated in society and how it formats the ways we interact. That's part of the mathematics as well that may not be as obvious of a route to go.

Response:



We can use mathematical representation (Venn diagram) to make sense of the world in non mathematical parts of our world.

U = universe of challenging conversations

S = safe space

C = comfortable space
B = brave space

This has helped me have conversation with colleagues, us defining for ourselves what each segment and overlap means and how do we move around during a meeting. So that's me using math to make sense of the world with a mathematical representation my colleagues are familiar with. The flip side of how to bring math into it. Can't avoid math.

Where are we at during the conference? Each person is at a different space

Power of smart research - as researchers we have to ask better questions, refine tools. I've experienced some really wonderful research while here. The session upstairs to see in precalc/calculus classrooms the ways the grad students were responding to different student groups in their classrooms. The way the research was framed, opens up and allows us to see different moments where inequity happens. It was really powerful. The researcher in me to continuously push myself to be creative in the questions I ask and push myself as a research to develop better tools. Push to become a better researcher, more attuned and more focused.

Leadership: One of the things that hit me at the conference is the number of people who are retiring. These are people who I have had the chance to have such great conversations with and who have done some great contributions. They've been the one who pushed me. How do we make sure, if these are the leaders how are we looking at to push and challenge to be part of the conversations. Francis Su has done a nice job of popularizing these conversation in a way that I can share with my students and colleagues. How are we challenging ourselves to find people to get mathematical and mathematical community recognitions. How do we change the profession? If we are going to change the profession then the people in this room need to be part of the leadership? THese big picture changes that seem to big are possible when you get people in there that make the small changes.

Response: How might we utilize math faculty in particular who may not be interested in doing this legwork that have the currency/power at the leadership level and to advocate to get us there. They have the currency and could be silent partners. How do we engage them to push the leadership piece. It's us who are going to innovate/change the structure/culture.

Response: Part of that work - as we get asked where is the math? At every math dept meeting - we need to ask where is the humanization? Call it out.

Response: Be aware of what is already going on: Large calculus study (MAA), there are opportunities there. You need to get out there and see what the profession is doing. Some of these leadership conversations - there is concern out there, you have to connect with it.There are people in the room to give a nudge/ talk to so and so. Keep looking for the opportunities, keep an eye on what the profession is doing. Know that the profession isn't the math dept. The people in leadership positions may be more progressive than the average person in the math department.

Response: For some people it's the person in the math dept or Math Ed/ Math/ School of Education/leadership in K-12 school district. All of the settings have something unique to them that these ideas that we're talking about, what it means to take up in your setting varies. Each of these settings have their unique interests/concerns and the way they're willing to move forward is different. Who is at the table is critical.

Action: Take extra post-its and attach to your computer with the things that are the absolute things that you are committing to doing when you leave. Go back at your own poster, look at comments from others and write down your commitment to action. Rethink your action item based on this discussion and what you saw. Encourage you to write it down rather than take a picture.

Question: Slides will be posted. We will also work to create discussion boards to help us feel accountable and celebrate what we've accomplished.

CIME-MSRI@googlegroups.com
https://groups.google.com/d/forum/cime-msri

Next year.. https://www.msri.org/workshops/877

Critical Issues in Mathematics Education 2018: Access to mathematics by opening doors for students currently excluded from mathematics

February 21, 2018 - February 23, 2018
Organizers: Aditya Adiredja (University of Arizona), LEAD Julia Aguirre (University of Washington - Tacoma), Kate Belin (Fannie Lou Hamer Freedom High School), LEAD Ricardo Cortez (Tulane University), Michael Driskill (Math for America), Nicole Joseph (Vanderbilt University), Katherine Stevenson (California State University, Northridge), Francis Su (Harvey Mudd College), Maria del Rosario Zavala (San Francisco State University)

Our mathematics education system is inequitable. It operates in ways that leave a significant proportion of students with negative mathematics experiences and inadequate mathematical preparation. The problem is historical and systemic, and the students most disaffected by systems of oppression are overwhelmingly Black and Latino, Indigenous, poor, women, immigrant or first generation college students. If our mathematics community is to sustainably grow and thrive, mathematics education at all levels must be transformed.

This workshop focuses on students for whom we do not yet successfully ensure access to and advancement in mathematics. Sessions will provide innovative research and programmatic efforts that welcome those students and their diverse intellectual resources and lived experiences, keep them engaged and interested in mathematics, and mentor them on new educational and professional opportunities. The focus is on reproducible efforts at various scales in k-12, undergraduate and graduate education that can improve our understanding of meaningful experiences in mathematics that disrupt systemic oppression and strengthens intellectual, socio-emotional, and professional well-being of students historically marginalized in STEM.

The theme will continue building off the discussions from this week.
Email Elizabeth van Es or Miriam Sherin (Northwestern University), to communicate if you're interested in helping with that.

We recognize that this is hard work. It takes a long time. It requires a lot on your part. You may question if you're making a difference. Our perspective is we don't have time to waste, there are high stakes, not just for people in this room but for other people who aren't positioned in universities. We need to step up to the plate. One story, studying a group of teachers studying why they would step up to take a risk. There are three big reasons:

1. You think in this interaction you can convince this other person of another way to think (cost-benefit analysis).

2. Even if I don't convince this one person about this thing that I think is important, I'm standing up for who I am, making myself visible, and I'm true to myself.
3. Even if I don't convince this person and it doesn't matter because I'm in a room of people who know who I am and don't need to see me stand up in this way, by doing it publicly I'm being a model for what it means to stand up for the rights of others.

Even when you feel like the thing you're doing isn't haven't an impact you don't know who is watching and what that means and what it means for yourself inside.

I want to add onto that. As a white women, I've thought a lot about how to enter this conversation. I'm afraid I'm going to use the right words, that I'm going to offend someone who I care about. I have to do it. Those who have grown up with access to resources it's critical to step back and ask what we can do to put ourselves into this conversation with others. I say that because I'm learning from so many others. This has now caused me to have very different conversations with people, not just people I work with but with my children, my husband, and with my friends. I think we're in a time where the consequences for children's educational experiences truly matters for who they will become. I say this with a sense of urgency for our world.

With that we close and thank everyone.