
Journey to “Anti-deficit Narratives”

Adi Adiredja
Associate Professor
The University of Arizona

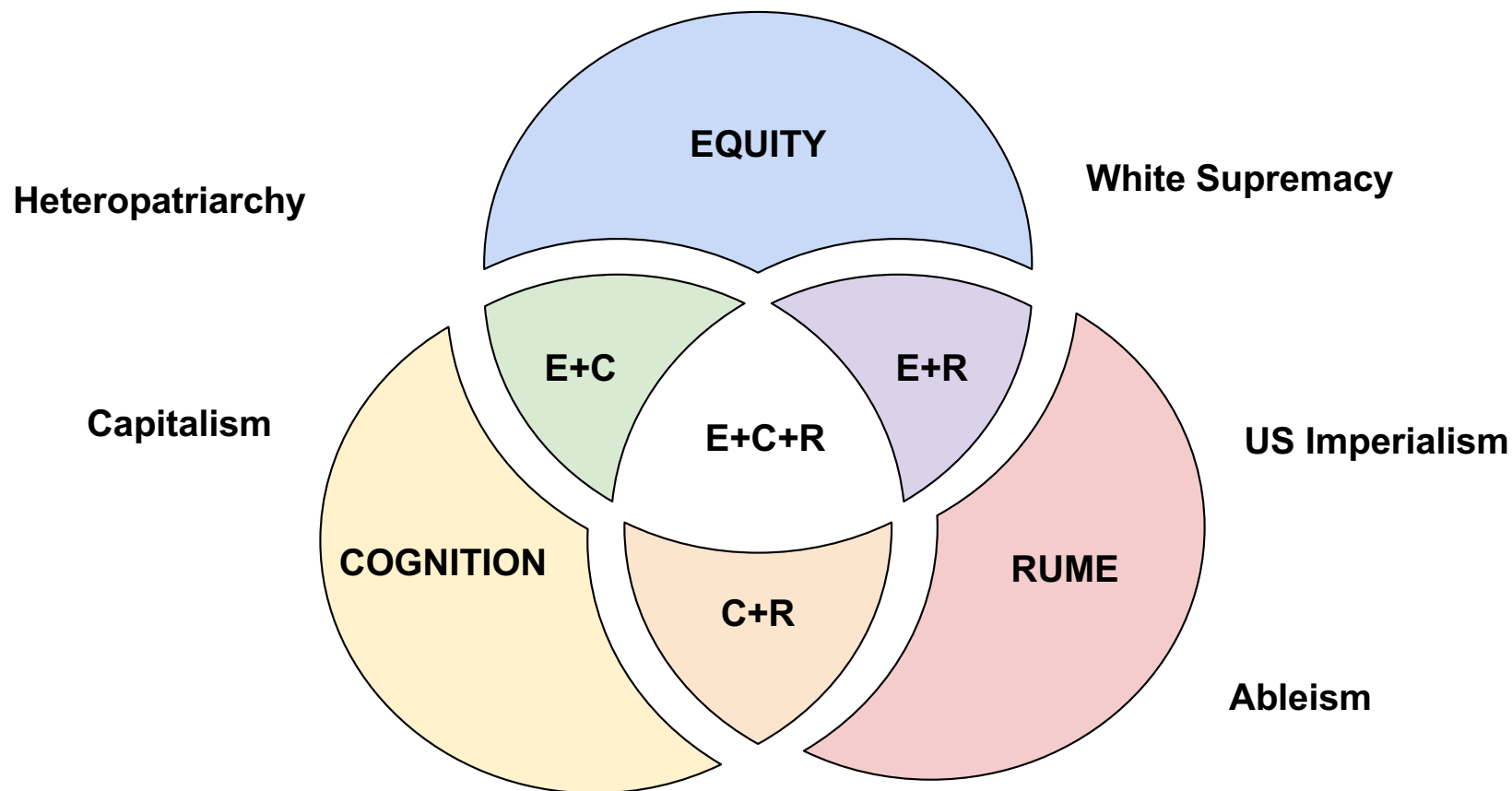
13 March 2023 – MSU PRIME Colloquium

What I Nerd Out On?

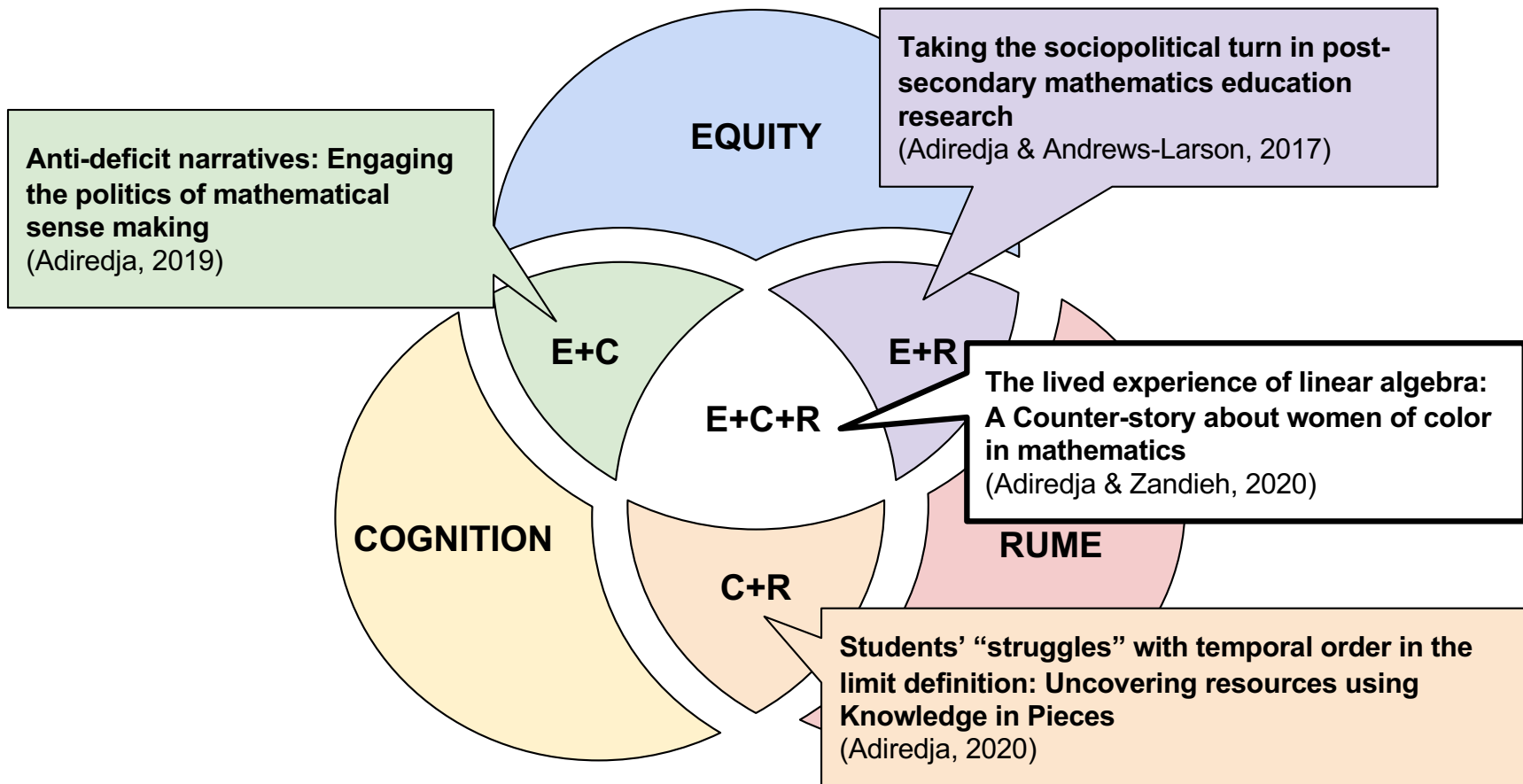
1. How do **social narratives** impact our work with students and teachers, and how do we challenge deficit narratives in mathematics education?
2. What role does **everyday intuition** and ideas from everyday lives play in the learning and teaching of formal mathematics?



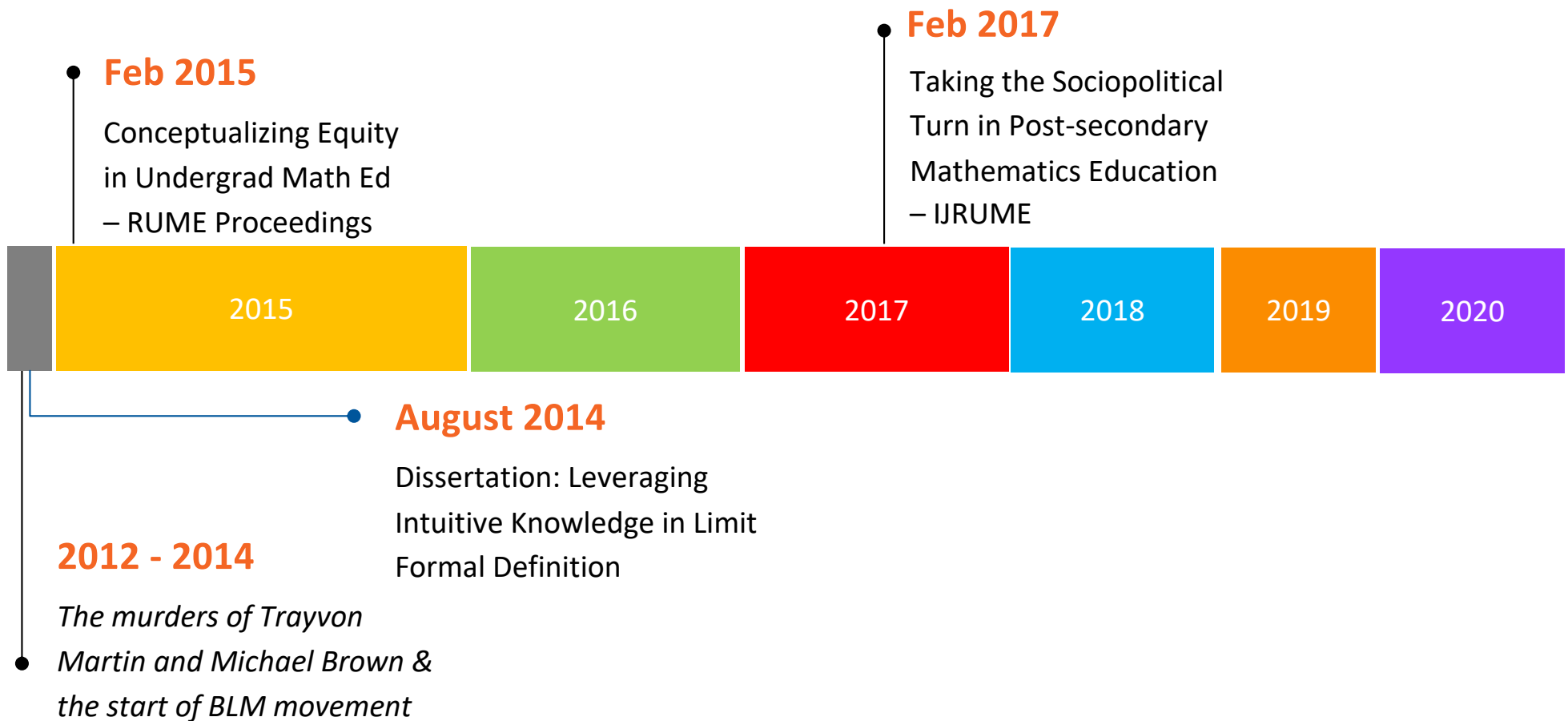
Where do I fit?



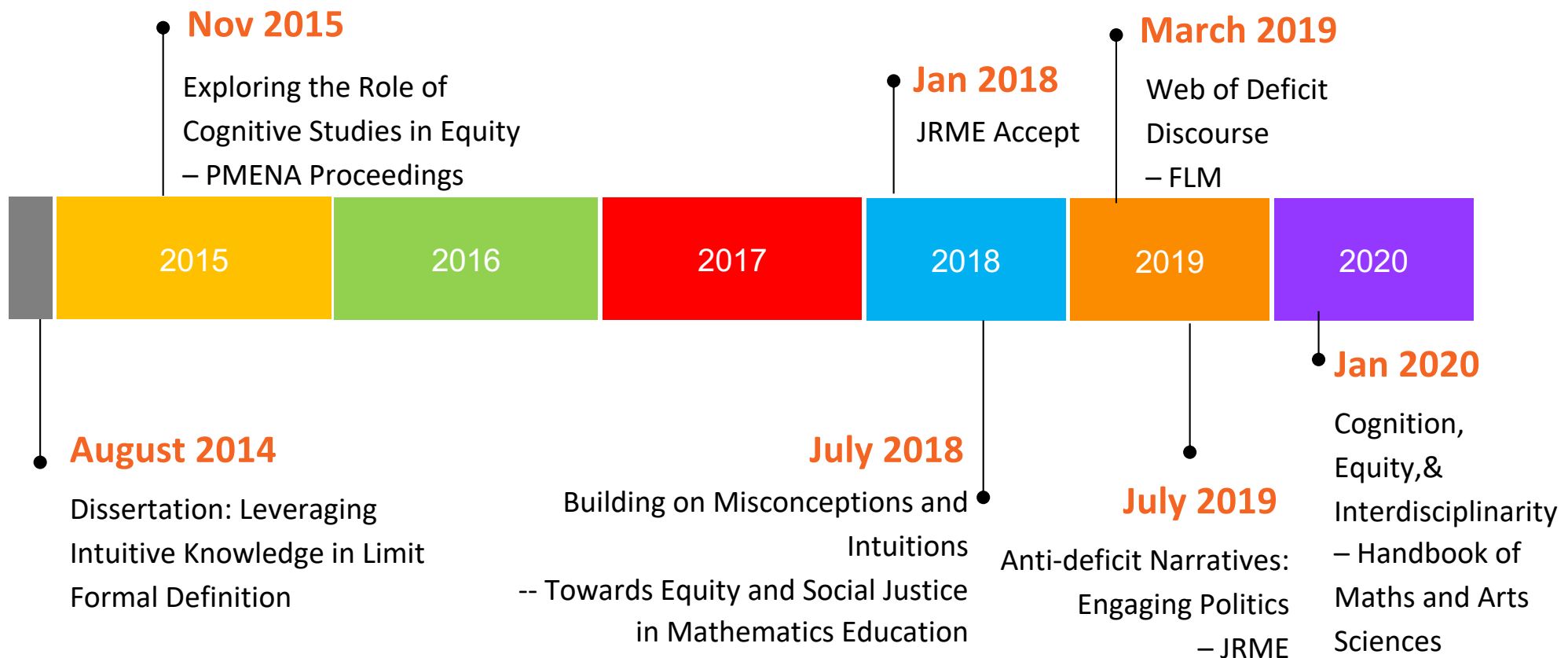
My Pride and Joy



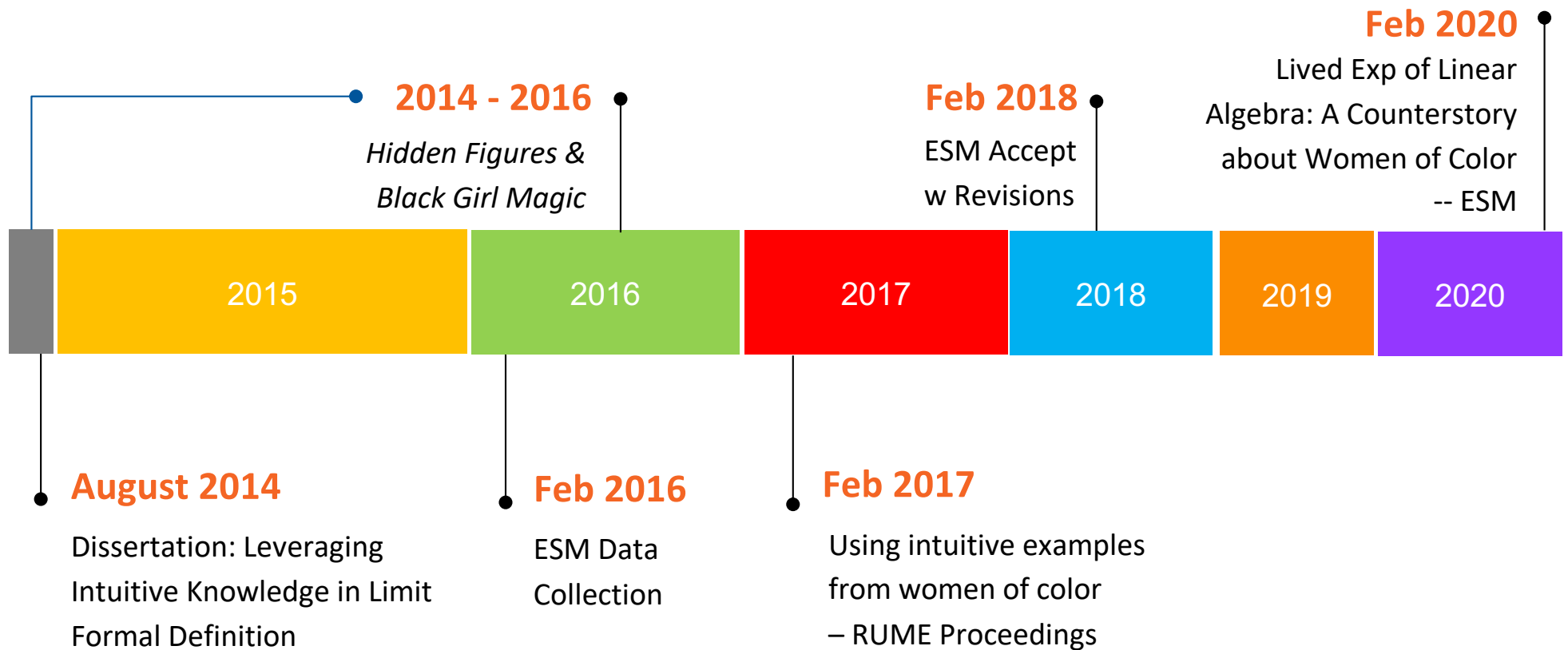
Timeline : Equity in RUME



Timeline: Anti-deficit Narratives



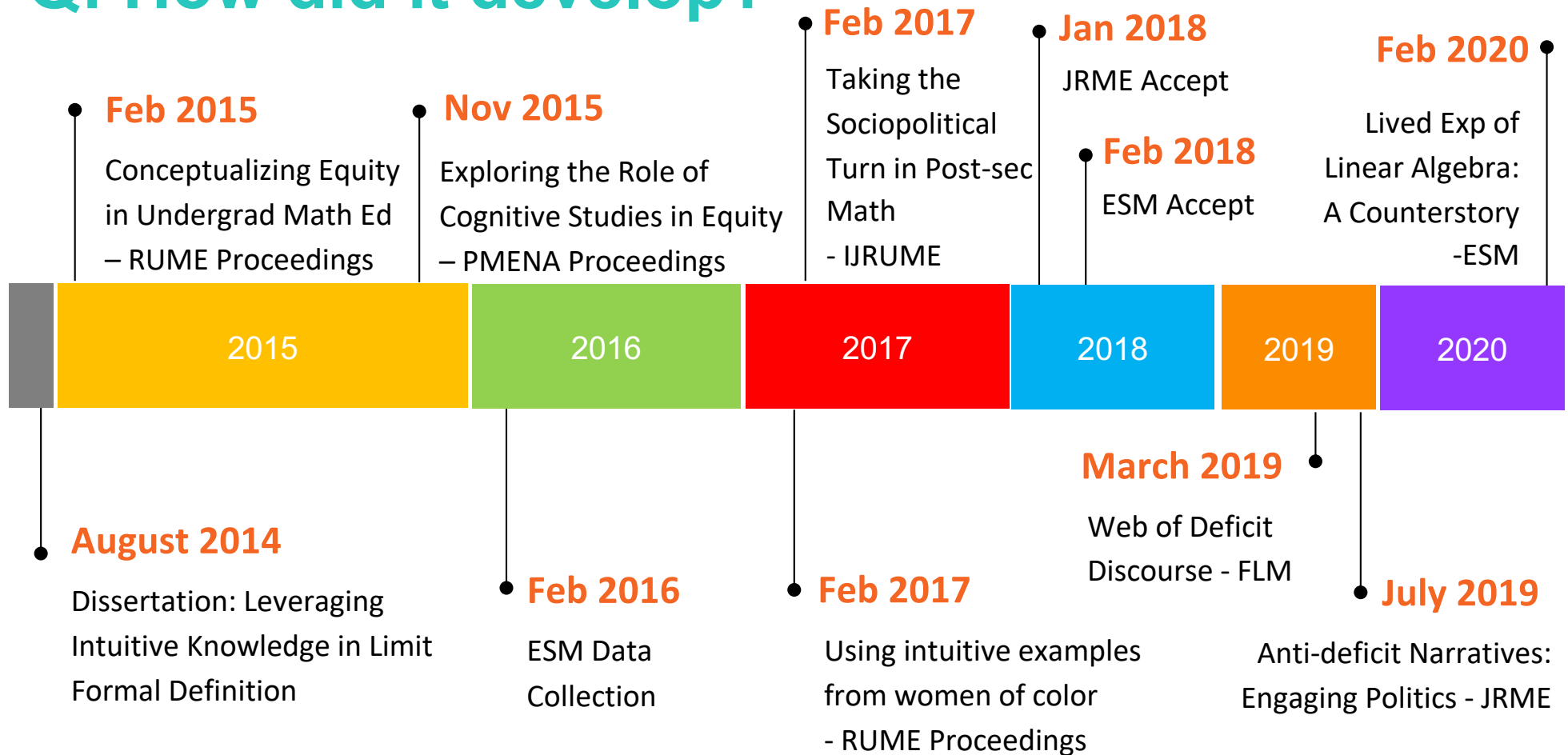
Timeline: Lived Experience of Linear Algebra

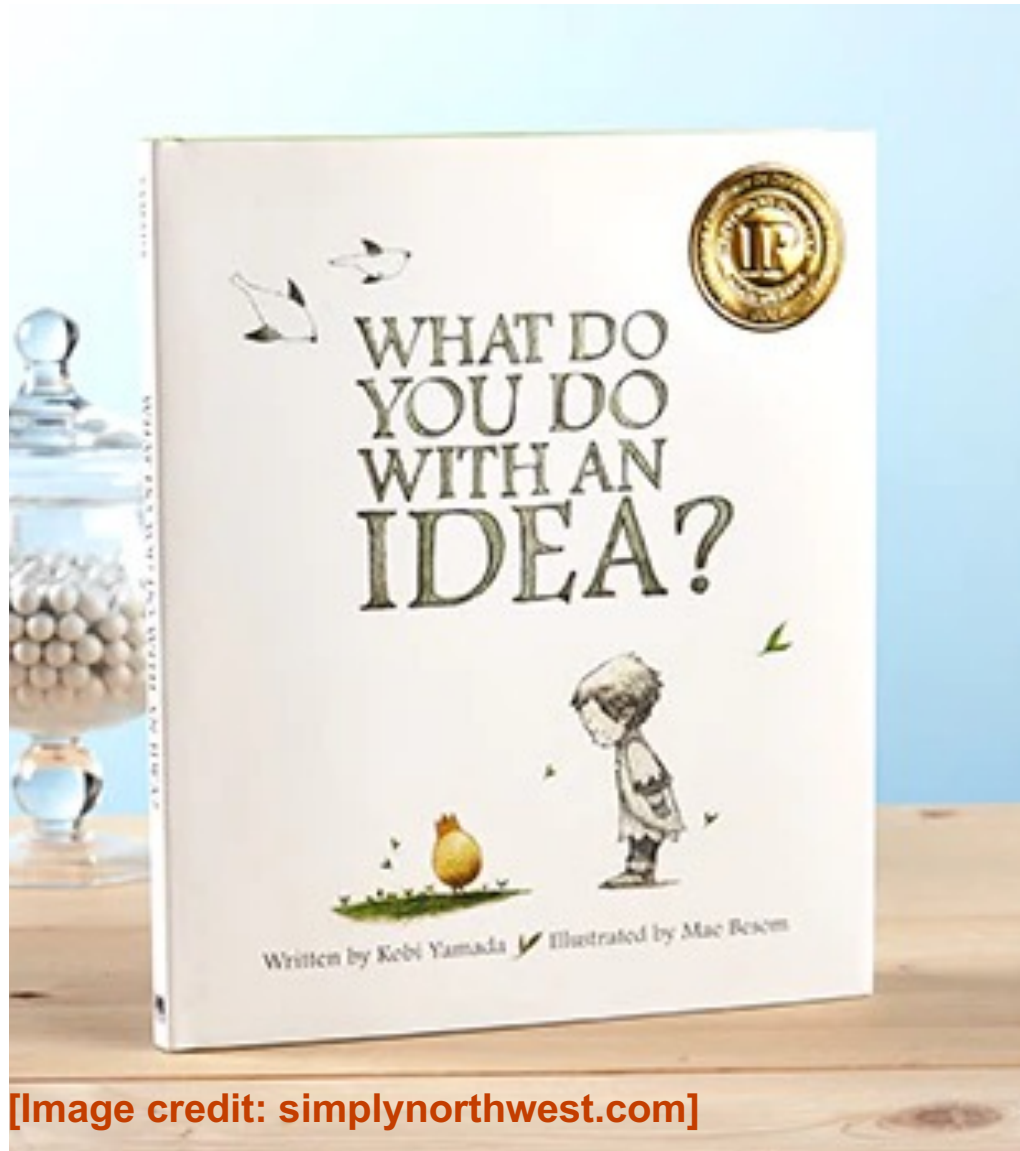


—
**Did I change direction in my
research?**

**Did I experience an awakening?
A cognitive exorcism, perhaps?**

Q: How did it develop?





[Image credit: simplynorthwest.com]

How did I do it?

1. I found co-authors, co-conspirators, community, mentors.
2. I read, read, and read.
3. I chose not to ignore the life and my life outside.
4. I am not "the best thing since sliced bread"
5. I took care of my golden egg and told the story from my perspective.

We're Not in Kansas Anymore

Anti-deficit Learning and Teaching (Adelante):

Community Learning Project Centering Race,
Gender and Mathematics



DUE-2021313 IUSE

LEAD-PI: ADITYA ADIREDDA

CO-PI: MARTA CIVIL

Main Components of the Project

- Four Professional Development meetings focusing on Inquiry Based Learning and understanding Deficit Narratives
 - One week math summer workshop in Pre-Calc, Calculus, and Linear Algebra
 - Individual coaching and observation
 - Five Critical Conversations about Race and Gender in STEM
 - Instructor-led Student Interview
-



4 NOVEMBER 22

thank you!



Adalberto & Ana Guerrero Student Center



23 SEPTEMBER 22

thank you!



Asian Pacific American Student Affairs



9 SEPTEMBER 22

thank you!



African American Student Affairs

Research Question

What role might the instructor-led student interview play in changing narratives about students?

Data Source

- The end of summer workshop survey
 - student description
 - Recording of the instructor-led interview
 - Group reflections about the experience of interviewing a student
 - “surprise” question
-

Literature and Theoretical Framing

- Culturally Relevant Pedagogy: content, cultural competence, and political consciousness (Ladson-Billing, 1995)
 - Funds of Knowledge: the focus on shifting narrative by home visits (Moll et al., 1992)
 - Novel use of interview about students, and not just the mathematics (cf. CGI)
 - Socioecological Perspective: individual bias vs. systems perspective (Louie and Zhang, 2023)
 - The Anti-deficit Framework (Adiredja, 2019)
-

Anti-deficit Framework Analysis

- Is the subject implicated in deficit narratives?
- Focus and attribution analysis
 - Focus on deficits and strengths, or just deficits?
 - Attribution to the student's character?
- Explicit articulation of deficit interpretation and counter-story

“A deficit perspective presumes that without intervention, students’ understanding of mathematical ideas would be flawed”

(Adiredja, 2019)

The case of Zaynah

Post workshop, Zaynah described Maria (Hispanic woman) as,

“very weak in basic skills at first and would typically sit back and wait for others to solve each problem without trying them for herself”

“when pushed to try and encouraged to share her ideas, *though*, she often had very good ideas that the others hadn't thought of”

Did anything surprise you?

Zaynah: I'm not sure if anything surprised me... She did strike me as **very focused**. She was very clear about what she wanted to do. And had gone through the work and the background research to figure out what major she needed to do to be able to do [forensics] later in her life. She figured this out /.../ as a high school student before coming to school. She found the right people to talk to and get the right information to choose the right major. She seems to be quite happy about what she's doing and very excited about her future. I thought that was **very impressive**, especially as a freshman.

Did anything surprise you?

Adi: And you did know that before?

Zaynah: I did not know that before

Zaynah: *[In the workshop]* **She was just kind of there. She was friendly and she was participating.** She's not majoring in math, and that's right for her. But **she did have this strong focus and interest. And she's got goals and she's got ideas.** She's gonna go follow them. And she can and will do the math but that's not her thing. That's cool.

Zaynah's Description of Maria

Post Workshop

- “very weak in basic skills”
- “would typically sit back and wait for others to solve each problem without trying them for herself”

- “When pushed to try and encouraged to share her ideas, though, she often had very good ideas that the others hadn't thought of”

Post Interview

- “very focused”
 - “very clear about what she wanted to do”
 - “happy about what she's doing and very excited about her future,” which was “very impressive”
 - “strong focus and interest”
 - “she had this passion that I knew nothing about”
 - “she can and will do the math but that's not her thing”
-

Anti-deficit Analysis

Zaynah's new story as an anti-deficit story:

1. Almost exclusively focused on Maria's assets
 2. It acknowledges and explicitly counters Zaynah's prior characterization of Maria as a student (i.e., lack of initiative to focused and passionate)
 3. The new story reframes Maria's mathematical skill ("weak algebra skill") as something that Maria would be able to develop ("she can and will do the math")
-

Dismantling Deficit Story about Zaynah

Deficit story: A deficit-oriented instructor who changed as a result of the study intervention, i.e., the interview experience.

- Zaynah is not a deficit-oriented instructor. Her description of other students in her class—all women of color— were very positive, with no mention of deficits.
 - Successful intervention vs. membership in a community of practice (socio-ecological perspective)
-

Takeaways

- ✓ **Instructor-led student interview for a counter-story**
- ✓ **Funds of Knowledge (in RUME)**
- ✓ **Not accepting simple narratives**

Thank you!

[Email: adiredja@math.arizona.edu](mailto:adiredja@math.arizona.edu)
