Coloring the Relationship of Frames and Responses in Teacher Noticing

Johan Benedict A. Cristobal
Contributed Report for the 26th Conference on RUME, Omaha, NE
February 23, 2024

University of Nebraska
Lincoln

OUTLINE

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DATA (& LARGER CONTEXT OF THE STUDY)

This contributed report stemmed from research being done with Graduate Student Instructors (GSIs) who are teaching content and their own course for the first time.

For this report, we used the interviews from four graduate students before their teaching orientation (which would serve as a baseline for the rest of the larger study).

Questions ranged from their experiences as students in the past that proved to be difficult, their thoughts on how students learn math, and what a skillful teacher does.

WHAT DO I MEAN BY
Coloring?

THEORETICAL PERSPECTIVE: Noticing in the classroom comes in three interrelated skills, Attending, Interpreting, and Responding (AIR)

Attend

Interpret

Respond
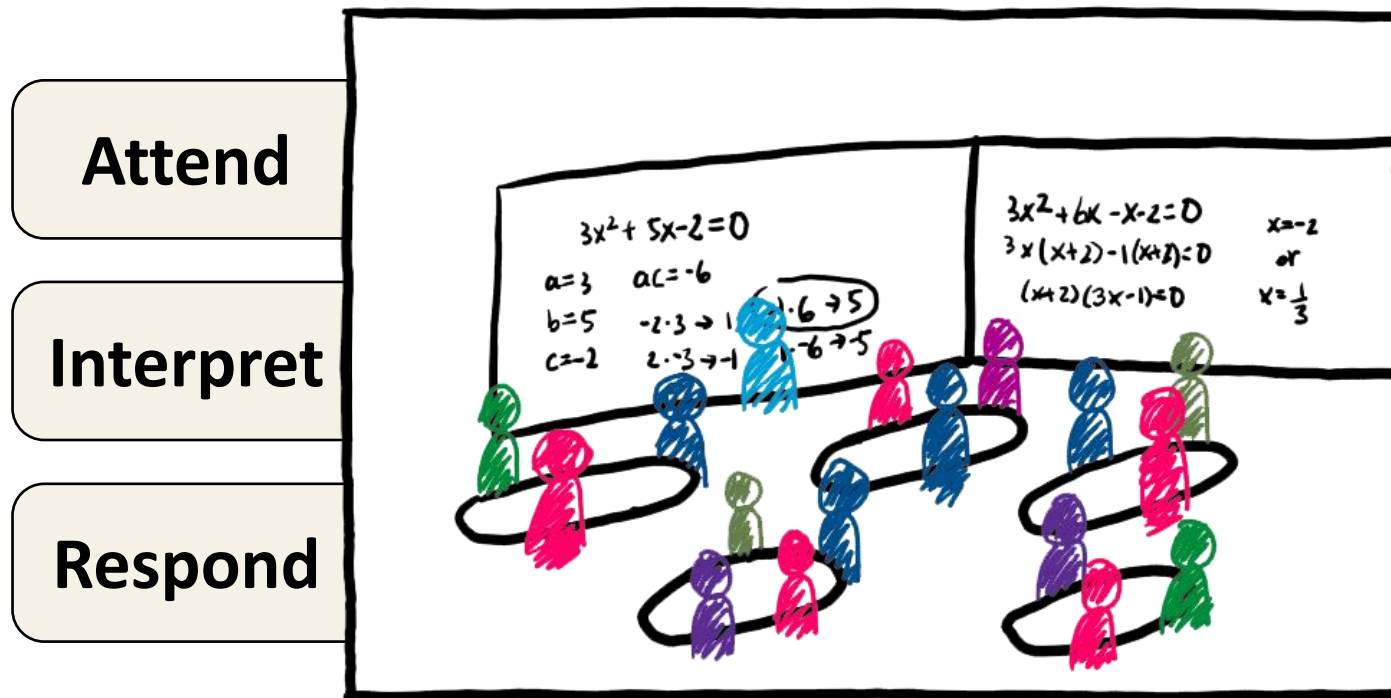
THEORETICAL PERSPECTIVE: The way someone frames teaching and learning shapes how they notice classroom events.

Attend

Interpret

Respond

Simplified version of the FAIR framework from Louie, Adiredja, & Jessup (2021)
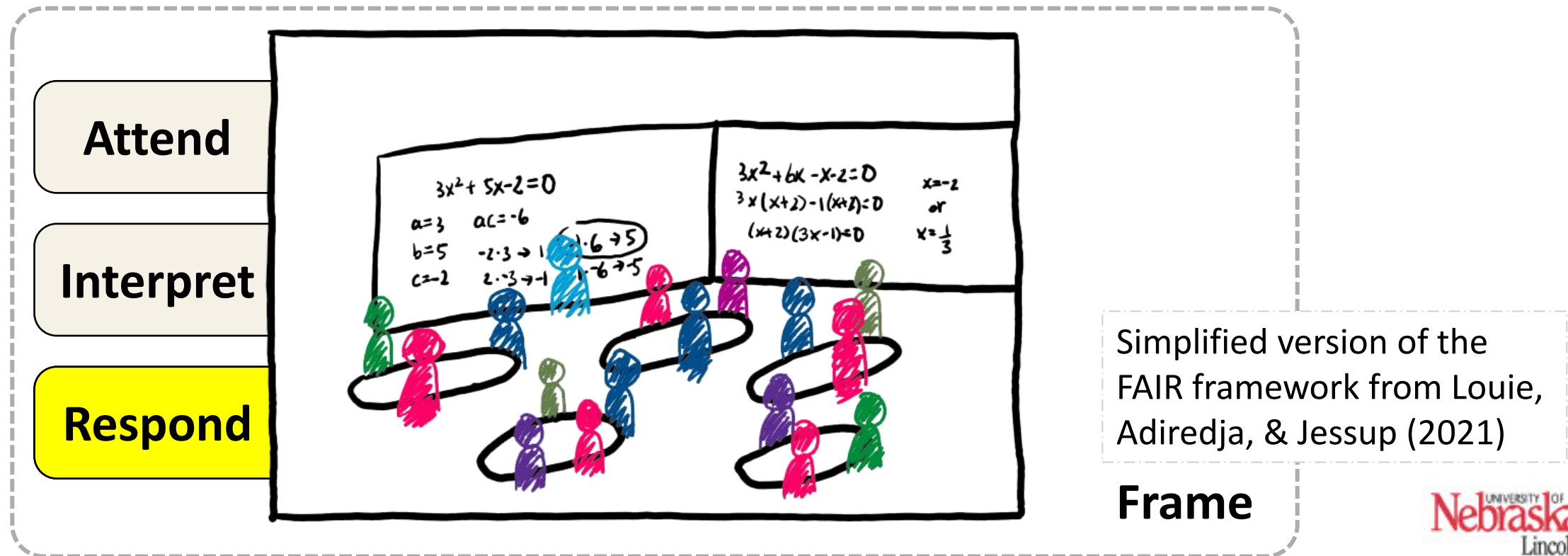
Frame

THEORETICAL BACKGROUND: FRAMES

➢ The interpretive contexts that participants of a given situation use in order to quickly interpret information, filter the details, and decide how to appropriately proceed.

> ➢ Helps people answer: "What is it that's going on here?" (Goffman, 1986, p. 8)

> ➢ Support participants' understanding of (1) what role(s) they take up, (2) what knowledge is relevant or valuable, and (3) what interactions they and others are expected or have the right to engage in (Greeno, 2009).

Examples of frames of teaching and learning:

■ Teaching is the giving of knowledge while learning is an absorption of knowledge.

■ Learning is an exploration of ideas and teaching is to facilitate that exploration.

■ Teaching and learning is a collaborative and communication-centric endeavor.

THEORETICAL PERSPECTIVE: Frames are consequential to noticing, (anti-)deficit frames and (anti-)deficit noticing.

On purpose, Louie, Adiredja, & Jessup used a "sharp contrast" to illustrate the consequences.

But they acknowledge the gray area between deficit and anti-deficit noticing.

Figure 1. Illustration of how framing students a certain way can be consequential to how instructors attend, interpret, or respond to students. (taken from Louie, Adiredja, & Jessup, 2021)

Students	**Framing** students primarily as mathematical receivers		
	Attending to the mathematical progress of individual students	**Interpreting** students as deficient, sufficient, or superior	**Responding** by labeling students "remedial," "regular," or "advanced"

Students	**Framing** students as full human beings with many resources		
	Attending to students as unique individuals, with their own personalities and participation styles	**Interpreting** individual students' ways of being as resources	**Responding** by giving students space to be themselves *and* leveraging their ways of being to support their and their peers' learning

RQ1. How do pre-professional development first-time GSIs discuss student learning and their desired teaching practices?

This question was the motivation for the interviews.

RQ2. How do these discussions clarify our understanding of frames and noticing?

While this question is what gets at the heart of this contributed report: coloring the gray area that Louie, Adiredja, and Jessup talked about.

DATA REVISITED

The four graduate students were asked questions which focused on:

- experiences as students in the past that proved to be difficult
  - How they have framed teaching from the perspective of a student
  - A proxy for how they would like to respond to student (motivated by improving difficult learning situations)

- their thoughts on how students learn math
  - How they're framing student learning

- what a skillful teacher does
  - A proxy for how they may respond to situation in the classroom, or at least how they desire their response would be

METHODS

After each interview, I gave a descriptive summary for each question.

On the next round, I focused on each interview. I highlight discussions about teaching and student learning, using guided questions like:

- ✓ What are some aspects of teaching that this person is citing as good/skillful? As bad or undesired?
- ✓ What attitudes does this person have towards student learning?

Then, I compared these to the frames and responses from Louie, Adiredja, and Jessup's models to see if they were more aligned with deficit or anti-deficit frames and responding.

Lastly, I looked for common or unique threads among the participants.

METHODS: Trying out this deconstruction

Frames provide interpretive contexts that support participants' understanding of…	**Frames of teaching provide interpretive contexts that support GSIs perceptions and enactment of…**	**Frames of (student) learning provide interpretive contexts that support GSIs perceptions and enactment of…**
(1) What role(s) they take up	What their role is in the classroom as novice instructors	What do GSIs have to do for students to learn the intended content, practices, and orientations
(2) What knowledge is relevant or valuable	What professional knowledge is relevant in the act of teaching	What content, practices, and orientations should GSIs attend to in the classroom
(3) What sort of interactions they and others are expected or have the right to engage in	What type of interactions (instructor-student, instructor-group, student-student) are favored or useful in fulfilling their role and achieving the intended learning goals	

Student Learning

In your view, how do students learn math?

PAUL

The biggest component is **doing it yourself**, as in like actually doing problems... active problem solving with lots of repetition.

For me, I always learn math best **when I see how it connects to other stuff I care about.**

In your view, how do students learn math?

ANDY

I think it **depends on what level of math** like when you get in high school level and like early college level math, I think a lot of it is still like learning how to read where the only way to learn it is by seeing more of it.

But I think that in **proof math it starts to become more social,** because you remember certain things from lecture that stood out to you as elegant and useful, and other people remember different things from the lecture that's been as elegant and useful, and **you all have your different preferences on what proofs you like to use.**

FINDINGS/RQ1: First-time GSIs' discussions on Student learning

In your view, how do students learn math?

CARLOS

How I like to learn math... I like to go to lecture, ask as many questions as I can during the lecture, ... take notes, go home, read the notes ... And if I don't understand something, I go to office hours, ask questions there that are like more in depth.

I like to work on the homework like if I have a problem to work on, I work on it for like 30 min to an hour. And then if I don't get anywhere, then ask classmates. If we don't figure it out, I ask the instructor during office hours.

And that's in my view how this student [points to themselves] **learns math.**

Teaching Practices

FINDINGS/RQ1: First-time GSIs' discussions on Desired Teaching Practices

Climate: Having awareness of the climate of the classroom

PAUL

I noticed I liked a lot about [graduate course] and his instructor style. It felt like he was pretty good at **noticing when the class was lost**. and sort of pausing to take a break and be like, "Okay, check in with your neighbor, talk about what's going on, where or what's gone wrong." **I think that's an important aspect.**

Content: Being well-prepared in content knowledge

ANDY

I think a skillful teacher is one who has an understanding of their knowledge base, and also the ways that people can misinterpret it when they first see it.

Collaboration: Creating a collaborative, supportive environment

CARLOS

One thing that I think any class should have, for example, is to make sure that, like you're a good classmate, not just like a good student. That definitely, I think, should be verbalized in any classes, especially in that one.

How do students learn math:

➤ Do problems, and do more problems

➤ Work with others

➤ It depends on what class it is

Teaching practices:

➤ The instructor gives a "big picture" of the concepts

➤ The instructor guides the students with problems that they can practice on

➤ Desirable aspects of teaching:

  ➤ Climate: Having awareness of the climate of the classroom

  ➤ Content: Being well-prepared in content knowledge

  ➤ Collaboration: Creating a collaborative, supportive environment

FINDINGS FOR RQ2

Coloring the Relationship

An example through Andy and Longboat

Frame of learning (*What content, practices, and orientations should GSIs attend to in the classroom? What does the GSI do in order for students to get the content, practices, and orientations?*)

"You have to get some picture of what you're looking for, and then see it a lot of times to be able to really see the basic skeleton. And then you can try to fill out that skeleton depending on what problem you're working on…"

Learning is an exploration to see the underlying structure and so provide the students scaffolded problems to work on, like from unambiguous to ambiguous.

ANDY
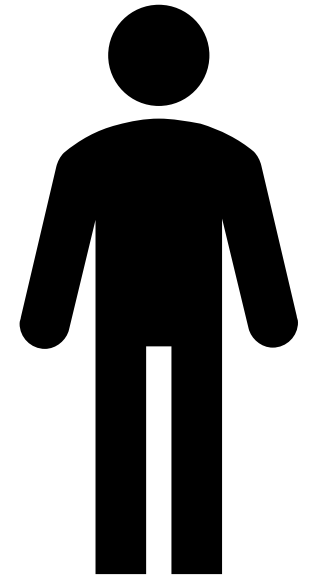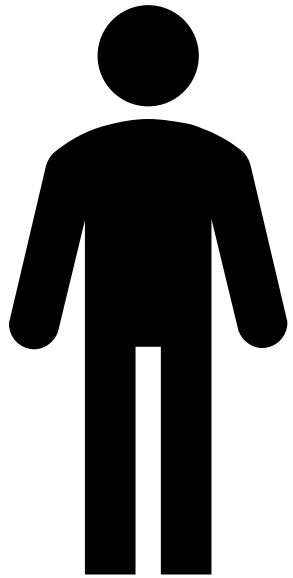
LONGBOAT

Frame of learning (*What content, practices, and orientations should GSIs attend to in the classroom? What does the GSI do in order for students to get the content, practices, and orientations?*)

"You expect students to have this mini-research mind, they should be in the head that you explore math... They shouldn't discuss it with me, because I know what the answer is."

Learning is an exploration and so let students explore with each other without the help of the instructor.

Frames

Responding

Anti-deficit
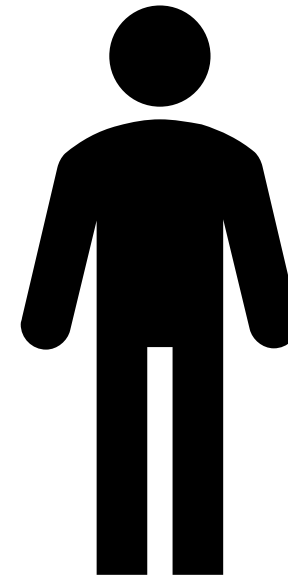
Anti-deficit

Deficit

Deficit

Longboat (possibly)
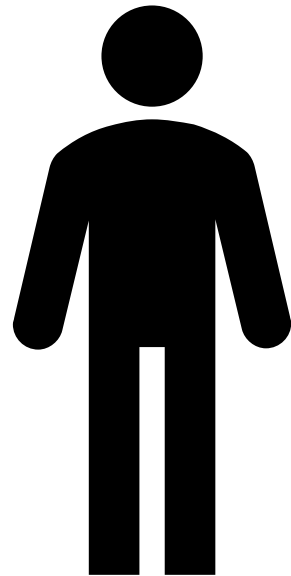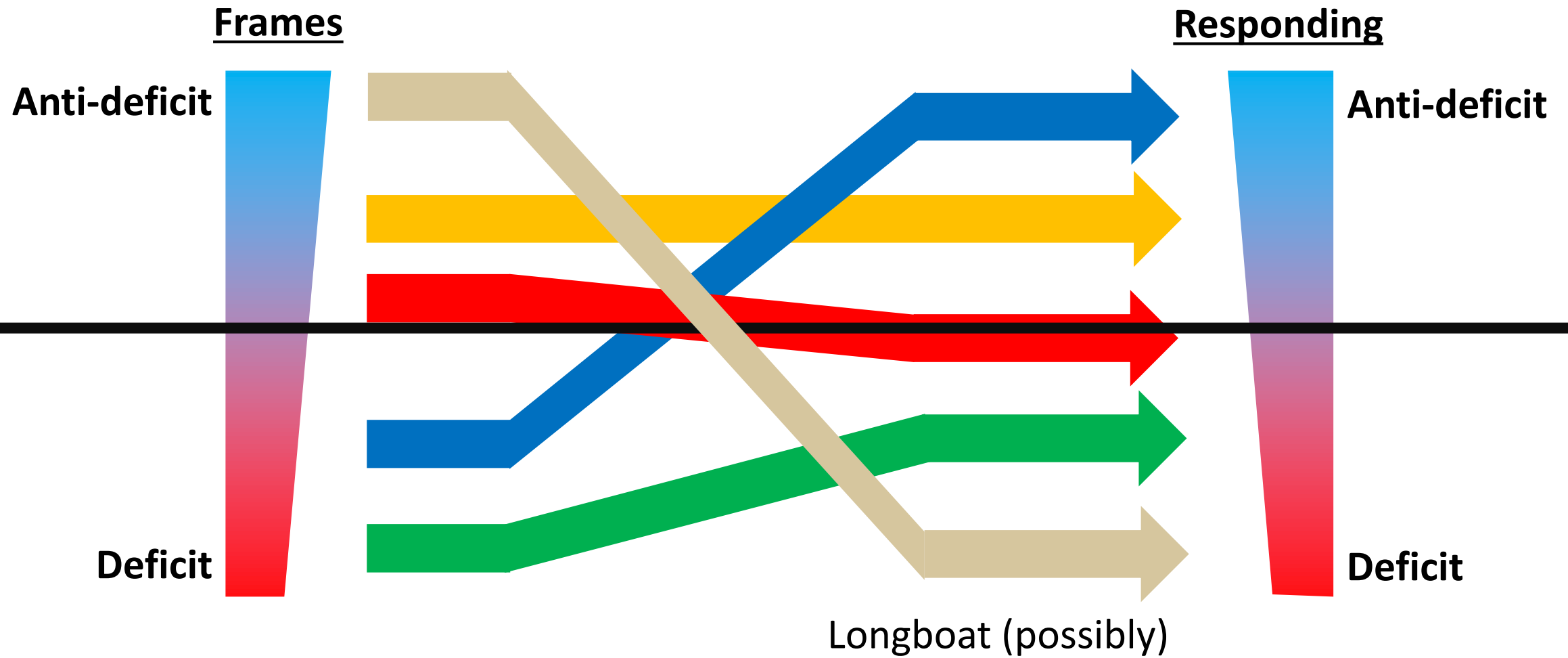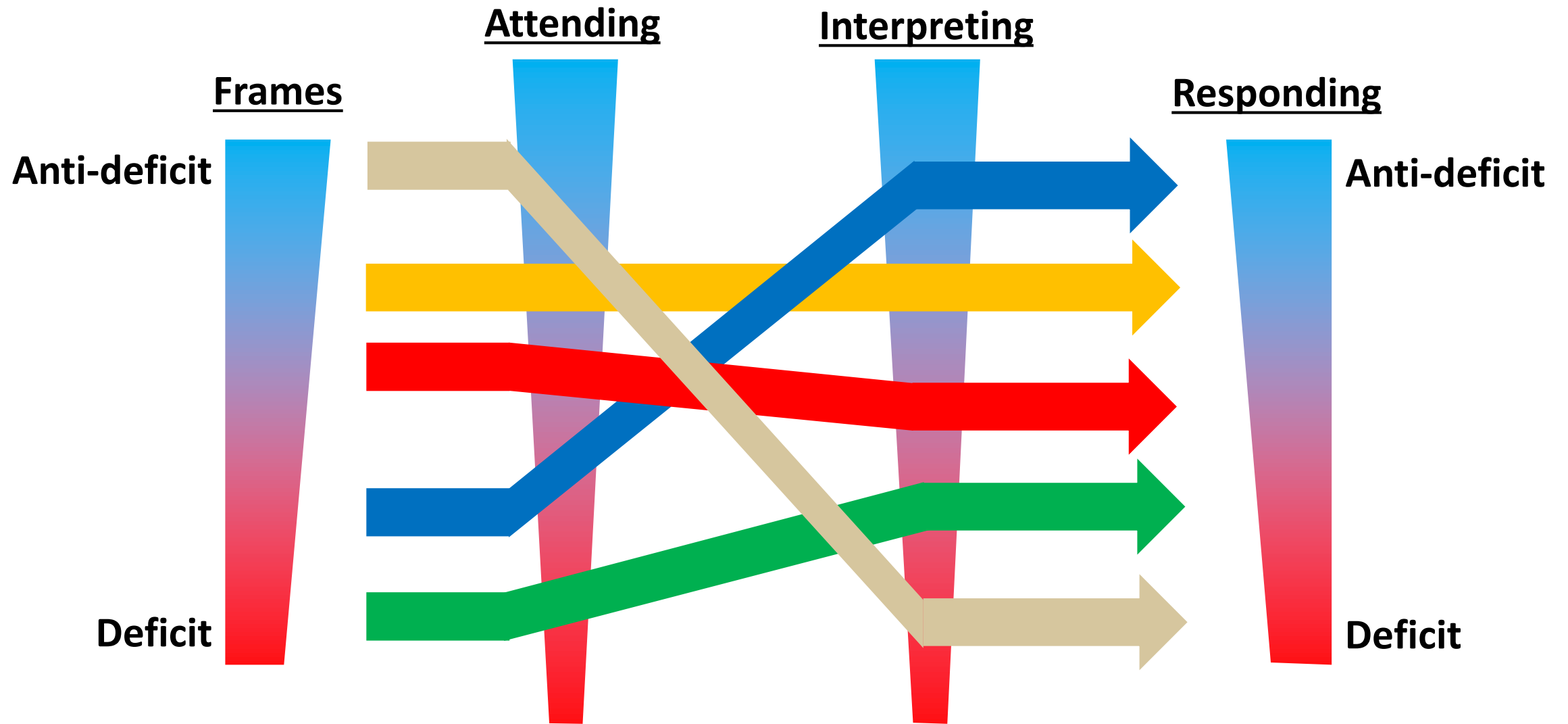
❖ Another existence proof that graduate student instructors have concrete ideas about teaching and learning even before any *formal* professional development.

❖ Echoing Louie, Adiredja, and Jessup (2021) framework: frames are consequential to the deficit and anti-deficit ways instructors notice classroom events.

➢ In ways that might be convoluted and non-linear.

ACKNOWLEDGMENTS

I extend a warm thank you to these graduate students for their help and participation in my dissertation study.

As a marginalized person in education, I also want to use this time and platform to acknowledge and honor the people killed and institutions of education destroyed these past 100+ days in Gaza and Palestine.

Thank you so much for your time!

Any questions, comments, or advice is appreciated.

Feel free to reach out to me at **jcristobal2@unl.edu.**

I'll post these slides soon at johanmath.com

REFERENCES

Goffman, E. (1986). *Frame Analysis: An Essay on the Organization of Experience.* Boston, MA: Northeastern University Press.

Greeno, J. G. (2009). A Theory Bite on Contextualizing, Framing, and Positioning: A Companion to Son and Goldstone. *Cognition and Instruction, 27*(3), 269-275. http://www.jstor.org/stable/27739914

Jacobs, V. R., Lamb, L. L. C., & Philipp, R. A. (2010). Professional noticing of children's mathematical thinking. *Journal for Research in Mathematics Educations, 41*(2), 169-202. https://www.jstor.org/stable/20720130

⭐ Louie, N., Adiredja, A. P., & Jessup, N. (2021). Teacher noticing from a sociopolitical perspective: the FAIR framework for anti-deficit noticing. *ZDM Mathematics Education 53*, 95-107. https://doi.org/10.1007/s11858-021-01229-2

Scheiner, T. (2021). Towards a more comprehensive model of teacher noticing. *ZDM Mathematics, 53*, 85-94.

❖ Why "anti-deficit" as opposed to "asset-based"?

➢ Honoring the choices made by Louie, Adiredja, and Jessup's work in the FAIR framework.

➢ Johan's understanding:

❑ Anti-deficit has the perspective that we should counteract the deficit systems directly.

❑ Asset-based has the perspective of looking at what students can bring to the classroom/experience.

▪ Asset-based frames/noticing is a type of anti-deficit.