Do I Belong Here?: Describing Participation and Non-Participation in a Contentious "Board" Meeting

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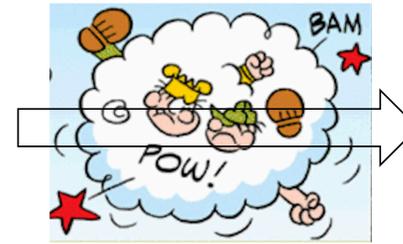
A Key Goal

- Help students realize deeply that...
  - science is tentative and evolving,
  - understandings of meaning are:
    - constructed, and
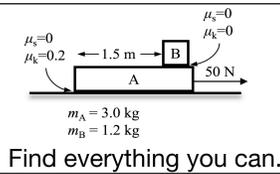   - shared through dialogue.

Problem Statement

Small Group Work
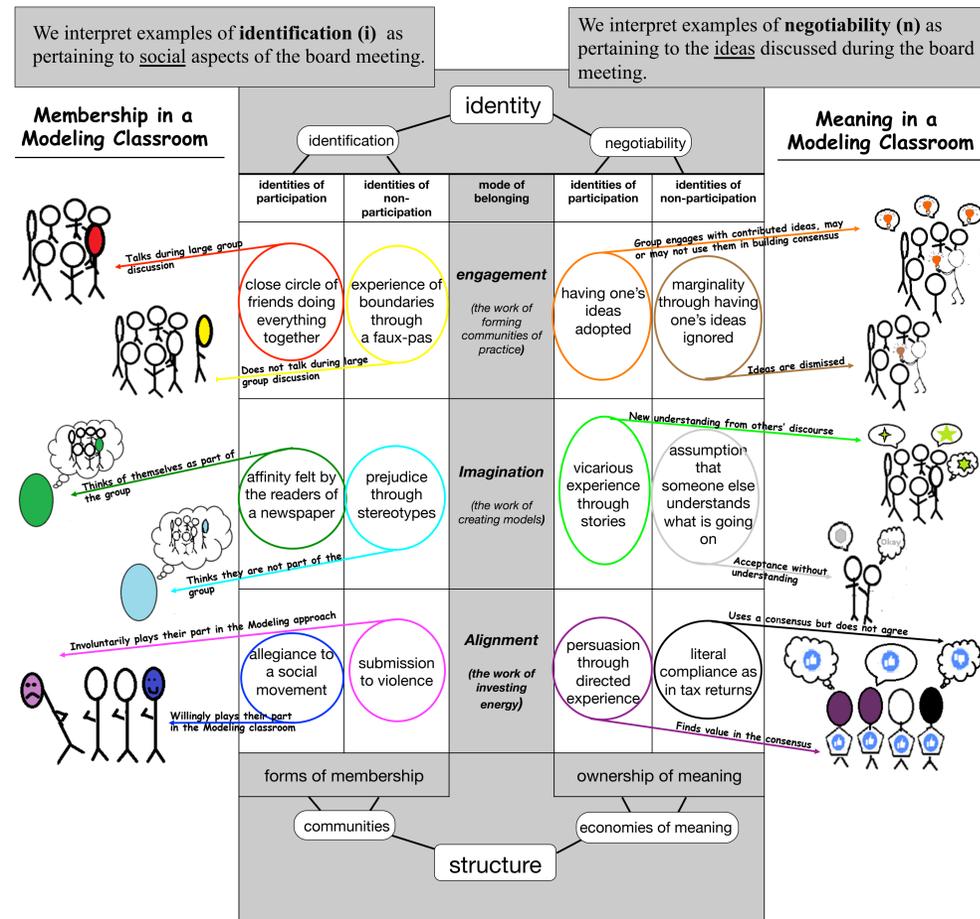
"Board" Meeting

Consensus Failure

Find everything you can.

How do students' experiences **vary** in a University Modeling calc-based physics classroom...

...in a *CONTENTIOUS* "Board" meeting[3] that does not resolve?

Method: A Phenomenographic approach[5]

Theory: Social Ecologies of Identity[6]

The chart outlines from top to bottom the two processes, Identification and Negotiability, by which identity is formed through practice within a community.

We interpret examples of **identification (i)** as pertaining to <u>social</u> aspects of the board meeting.

We interpret examples of **negotiability (n)** as pertaining to the <u>ideas</u> discussed during the board meeting.

Membership in a Modeling Classroom

Meaning in a Modeling Classroom

- ❖ There are 3 modes of belonging listed down the middle of the chart (Engagement, Imagination, Alignment).
  - They are sources of identification and negotiability,
  - They provide the context to situate the experiences of participation (P) and non-participation (N) that inform forms of membership and economies of meaning within a community of practice.
- ❖ The twelve white regions of the chart that are circled in color are the 12 possible categories created by this framework that qualitatively describe the students experience as it relates to practice within the community.

Coding Scheme

- Student writing separated into 3 broad categories of experience
- Preliminary code developed using one student from each category

Identification (i) — Negotiability (n)

E (Engagement)

i, Engagement, Participation	i, Engagement, Non-participation	n, Engagement, Participation	n, Engagement, Non-Participation
S1: *"For both of these arguments, I think <u>I participated</u> a good amount,"* S2: *"I <u>didn't participate</u> that much, but I was paying attention."*	S3: *"I <u>did not participate</u> in this part of the discussion because I felt that I would be shot down"*	S2: *"Wally said what I was thinking"*	S3: *"I did not participate in this part of the discussion because I felt that I would be shot down just like any other variant of what the minority believed."*

I (Imagination)

i, Imagination, Participation	i, Imagination, Non-Participation	n, Imagination, Participation	n, Imagination, Non-Participation
S1: *"<u>Our job as students is</u> to take the information given and simplify it in a way that makes sense to <u>us</u> and allows <u>us</u> to arrive at the correct answer."* S3: *"I had already accepted the fact that myself (and <u>my small table group</u>) was wrong before the end of discussion"*	S3: *"<u>They</u> believed firmly enough in <u>their way</u> of thinking that <u>they</u> would shoot down any other explanation of how the situation could be thought about".*	S1: *"I see the other side's argument about how adding a width would make the problem realistic,"* S2: *"The main reason I didn't was because Wally was doing a good job of explaining why we wouldn't include mass of B in the equation."*	S3: *"I feel that the rules taught in this class period would have been better shared in an atmosphere where variant ideas were not shot down."*

A (Alignment)

i, Alignment, Participation	i, Alignment, Non-Participation	n, Alignment, Participation	n, Alignment, Non-Participation
S1: *"Our job as students is to take the information given, and <u>simplify it</u> in a way that <u>makes sense</u> to us"* S2: *"I <u>was agreeing</u> with everything he was saying"* S3: *"I feel that the rules taught in this class period would have been better shared in <u>an atmosphere</u> where variant ideas were not shot down."*	Anecdotal example from classroom field notes: During a large group discussion, the instructor asked a group to start with their models and assumptions, which is a class norm. The student presenting responded: "Why?" despite having their models and assumptions clearly written at the top of their whiteboard.	S1: *"In physics, especially when working with models, I have learned that the best way to go about a problem is to simplify it as much as possible and stay in agreement with the models"* S2: *"The main reason I didn't was because Wally was doing a good job of explaining why we wouldn't include mass of B in the equation."* S3: *"I had already accepted the fact that myself (and my small table group) was wrong before the end of discussion"*	S3: *"Towards the backside of this specific circumstance, I was so frustrated with some of my classmates that I did not WANT to believe what they were arguing for to be true."*

Histograms of Codes of Three Student Responses (in %'s)

Student 1				
P	**N**		**P**	**N**
19	3	E		6
23	3	I		16
13		A		16

Actively participated.

Student 2				
P	**N**		**P**	**N**
40		E		10
		I		10
30		A		10

Didn't actively participate because they thought others were doing a good enough job.

Student 3				
P	**N**		**P**	**N**
		E	14	7
7	36	I		7
7		A	7	14

Did not actively participate and had a negative view of the discussion.

Phenomenon

A contentious board meetings in a University Modeling Instruction (UMI) classroom

Discussion

Our preliminary coding scheme demonstrates that Wenger's 12 categories allow for a rich description of different student experiences in a board meeting in the UMI classroom.

Qualitatively, we see Student 3 constructing identities of participation even when expressing frustration in the large group discussion. We also see Student 2 less active in the board meeting but clearly identifying as a member of the UMI classroom.

The Histograms quantitatively reveal an experience "finger-print" unique to each student. Student 1 has examples of (P) in each mode of belonging for both (i) and (n) but limited examples of (N). In stark contrast, Student 3 has extensive examples of (N) in each mode of belonging for both (i) and (n) but limited examples of (P).

Next Steps

- Apply the preliminary coding scheme to the rest of the student reflective writing responses.
- Seek a predictive model to inform professional development for instructors engaging in such classrooms.
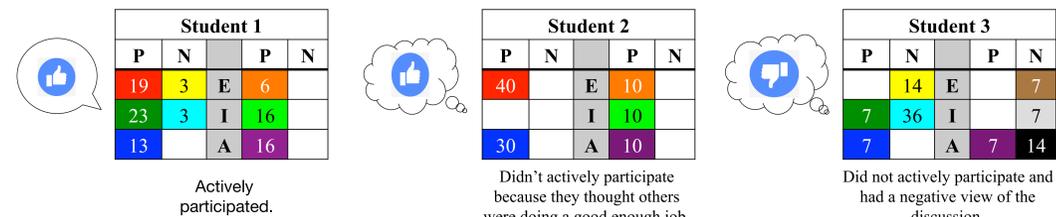
References

3. Contentious board meetings start with sharp initial disagreements that do not quickly or easily resolve[4].

4. B. E. Hinrichs, Sharp Initial Disagreements Then Consensus in a Student Led Whole-Class Discussion, 2013 PERC Proceedings [Portland, OR, July 17-18, 2013], edited by P. V. Engelhardt, A. D. Churukian, and D. L. Jones.

5. Richardson, J.T.E. (1999). 'The Concepts and Methods of Phenomenographic Research', Review of Educational Research **69**, 53–82.

6. Wenger, E. (1998). Communities of Practice: Learning, Meaning and Identity. Cambridge: Cambridge University Press, pg 190.