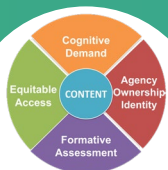
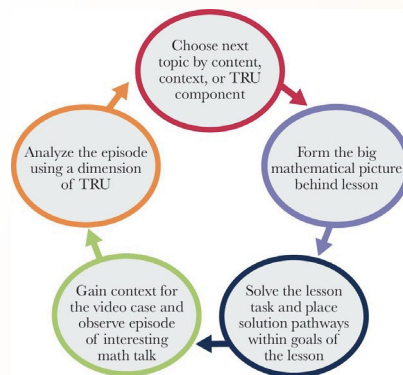


Powerful Conversations for Powerful Classroom Instruction: Creating Spaces for Teacher Learning and Growth

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Analyzing Instruction in Mathematics using the TRU framework (AIM-TRU) is a research-practice partnership that is investigating the problem of supporting teachers in increasing their capacity to implement high-quality instructional materials in the classroom with fidelity. Drawing upon the design-based research paradigm, the partnership has worked to co-design, investigate, and iteratively form the AIM-TRU Learning Cycle, which gives teachers the opportunity to understand the materials and how they are used in the classroom through a video-based professional learning cycle. In this poster, early findings are shared documenting the positive change by which teachers have grown their knowledge through engaging in collegial conversations around Big Mathematical Ideas and the TRU framework.



Powerful Conversations

Frame Processes and Nature of Dialogue

(see Benford & Snow, 2000)

Category	Frame Process	Description
Congenial	Articulating	Expressing experiences, observations, and/or interpretations of implementing instructional materials
	Punctuating	Highlighting some issues, events, or beliefs as being more important than others
	Bridging Amplifying Extending	Connecting two or more unconnected frames Clarifying a previous frame Building on a previous frame
Collegial	Transforming	Generating new meanings or understandings based on previous frames
	Countering Disputing	Opposing or disagreeing with previous frames Disagreeing with a portion of a previous frame, not the frame entirely

Frame Analysis

(see Bannister, 2015)

Framing Type	Definition
Diagnostic Framing	Diagnostic framing is when teachers diagnose a problem of practice and attribute causality for the problem.
Prognostic Framing	Prognostic framing is when teachers discuss a solution or possible solutions for a problem of practice diagnosed or implicit from earlier conversations. This implies attribution of causality and solution(s) for the problem.
Motivational Framing	Motivational framing is the rationale for engaging in a particular action to attend to a particular problem of practice. This rationale should be more than just mentioning what the teacher thinks will change but include justification for why the proposed action will create change. This implies attribution of causality, solution(s) for the problem, and a rationale for why a solution or solutions would actually work.



Teaching for Robust Understanding

The Content	Are the ideas in the lesson important, coherent, and connected? Are there opportunities for critical thinking and problem solving?
Cognitive Demand	What opportunities do students have to make their own sense of ideas? Do they engage in productive struggle?
Equitable Access	Who participates and in what ways? Can students hide or be ignored? Do all students engage in sense-making?
Agency, Ownership and Identity	What opportunities do students have to see themselves and each other as powerful thinkers and learners?
Formative Assessment	Does the classroom discussion reveal what students understand so that instruction may be adapted to help students learn?

Video Case Library

TEACHING & LEARNING EXPLORATORY

High School Cases

- Exploring Business Model Patterns
- Interpreting Algebraic Expressions
- Modeling Motion: Rolling Cars
- Representing Conditional Probability 1
- Representing Linear and Exponential Growth
- Representing Exponential Growth
- Representing Probability: Medical Testing
- Representing Quadratic Functions: Opportunity Costs

Schoenfeld, A. H., and the Teaching for Robust Understanding Project. *Indicators of powerful classrooms*. Berkeley, CA: Graduate School of Education, University of California, Berkeley. Retrieved from <https://truframework.org/> <http://map.mathshell.org/trumath.php>



Discussion & Conclusion

- We found evidence of different types of participation patterns through identifying teachers' talk turns within PD sessions:
 - when the conversation consisted of **collegial** talk turns, teachers were more likely to motivate their suggestions and to align them with the TRU framework.
- Teacher learning patterns were most clear when teachers transitioned from **congenial** to **collegial** conversation.
 - These are instances of Borko's (2004) and Zepeda's (2020) successful learning communities for teachers, as teachers felt safe in their PLCs to take risks in their dialogue by respectfully challenging each other.

The On Targets are great. I love that. We focus on them towards the end of our sessions more so, but having those to have specific examples for each of the dimensions of what a great classroom should look like or should incorporate is really good. Not only does it help frame the discussion with the case, you can't help but look at the on targets and reflect on what you're doing as a teacher and that always comes out in the discussion. Middle School Teacher, 2023

I think crafting the big mathematical ideas were helpful as a way to sort of frame a curriculum for a math class and help focus your own attention on what matters. It's not just the sort of like procedural steps that you know are commonly associated with what doing math is. It's also a conceptual understanding and getting students to see the connections between different ideas. Middle School Teacher, 2023

Congenial and Collegial Talk Turns

Category	Type of Talk Turn	Definition
Congenial	Articulating	Expressing experiences, observations, and/or interpretations of implementing instructional materials
	Punctuating	Highlighting some issues, events, or beliefs as being more important than others
	Bridging	Connecting two or more unconnected talk turns
	Amplifying	Clarifying a previous talk turn
	Extending	Building on a previous talk turn
Collegial	Transforming	Generating new meanings or understandings based on previous talk turns
	Disputing	Disagreeing with a portion of a previous talk turn, not the talk turn entirely
	Countering	Opposing or disagreeing with previous talk turn

Why Collegiality Matters

Collegial talk turns (compared to Congenial talk turns):

- Are twice as likely to be motivated
- Are more closely aligned to the ideals of the TRU Framework
- Are five times as likely to relate to a different TRU dimension than its previous linked talk turn

	Congenial Talk Turns	Collegial Talk Turns
Motivation provided	31%	62%
Average TRU Score (1-3)	2.39	2.82
TRU Dimension Change	8%	40%

