

Preparing teachers to support rich
disciplinary discussions in their
classrooms



Plan for the Session

- Brief Introduction to the Session
(5 minutes)
- Mini-Professional Development Experiences
(3 20-minute sessions)
- Large Group Discussion of “Problems of Practice” in Teacher PD
(30 minutes)

Mini-PD Experiences



- *Developing Teachers' Capacity to Promote Argumentation in Secondary Science*
 - Project team: **Jarod Kawasaki**, William Sandoval (PI), Lynn John-Kim, Jon Kovach, & Leticia Perez
- *Integrating Quality Talk Professional Development to Enhance Professional Vision and Leadership for STEM Teachers in High-Need Schools*
 - Project team: **Jeffrey A. Greene (co-PI)**, P. Karen Murphy (PI), Sara Baszczewski, & Ana Butler
- *Fostering Pedagogical Argumentation: Pedagogical Reasoning with and About Student Science Ideas*
 - Project team: **Leema Berland (PI)**, **Rosemary Russ (co-PI)**, & Melissa Braaten (co-PI)



FOSTERING PEDAGOGICAL ARGUMENTATION

Assumptions of the Project

- Argumentation supports students in learning science.
- Argumentation could support (pre-service) teachers in learning pedagogical approaches that create opportunities for rich disciplinary discussions.

Pedagogical Argumentation

Goal: Help pre-service teachers (PSTs) justify their pedagogical decisions with

- interpretations of student ideas and
- epistemological messages they send about students' roles in scientific sensemaking



Claim:
Pedagogical
decision



How could I get this toy car to move?

- Video of teacher introducing the question
“How could I get this toy car to move?”



Let's say I attach one of those whirly things to the back of the car and spin it. Then when the wind blows, it blows itself but you have to do it more and more, like the wind, to keep it blowing and blowing.

What does Teresa mean?

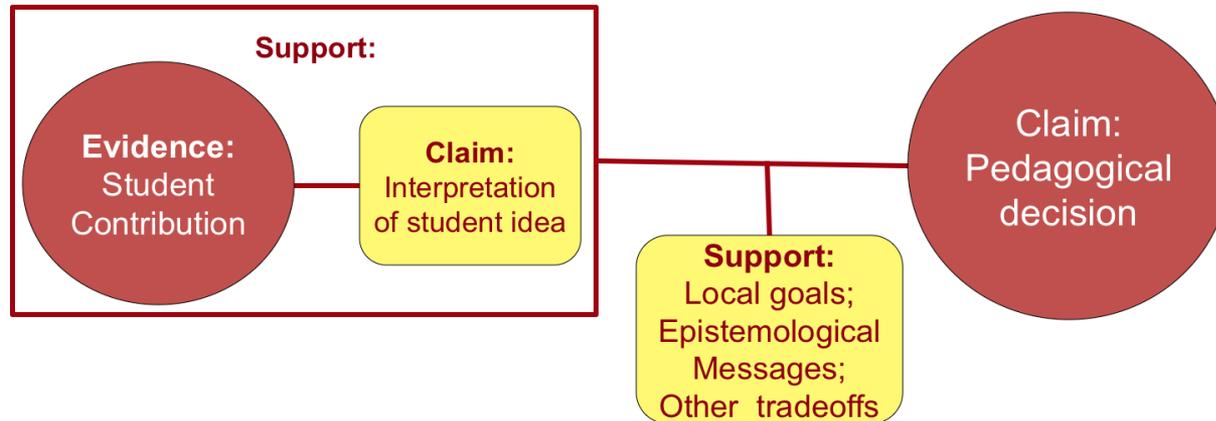
Work with your group to draw a picture of her idea.

Possible Responses

TO TERESA'S IDEA

1. Has anyone ever seen something like this?
2. Does anyone want to respond to her idea?
3. What happens when the whirly thing stops?
4. Why is the wind not enough?
5. Say more about that.
6. What do you mean by 'you have to do it more and more'?
7. How would you make the car go faster?
8. Do nothing.

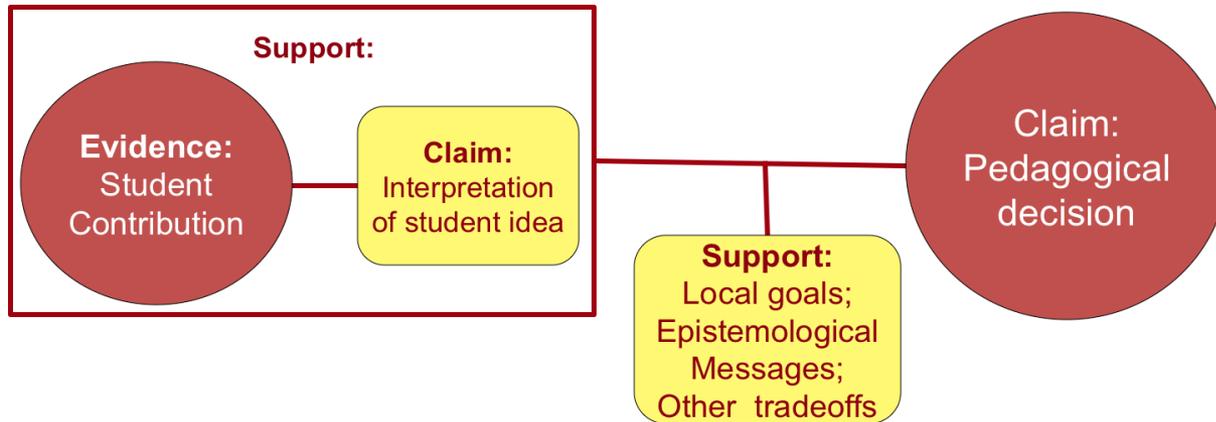
Work with your group



What would you do?

1. Why does this decision make sense given your interpretation of Teresa's idea?
2. What message does this decision send about the nature of science learning and the role of student ideas in that learning?

Work with your group



What would you do?

1. Why does this decision make sense given your interpretation of Teresa's idea?
2. What **epistemological** message does this decision send about the nature of science learning and the role of student ideas in that learning?

Let's Discuss!

1. What assumptions does your approach to teacher learning make about what teachers need to be taught vs. what they already know?
2. What makes the thing you do with teachers hard? What are the main challenges you and/or teachers run up against?