

# Transforming Students' Partnership with Scientists Through Cogenerative Dialogues

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#### Who's Involved?

- University of Texas at El Paso (scientists, engineers, graduate students, undergraduate students, researchers)
- El Paso Independent School District (Central Office, Irvin High School, Chapin High School, Andress High School, Burges High School)

**Main Audience** 

~172 high school students

~24 young scientists

~10 faculty scientists/engineers



This project investigates how Co-generative Dlogue (cogen), a respectful conversation among students and scientists for improving teaching and learning, may produce more engaging and productive interactions and learning environments.



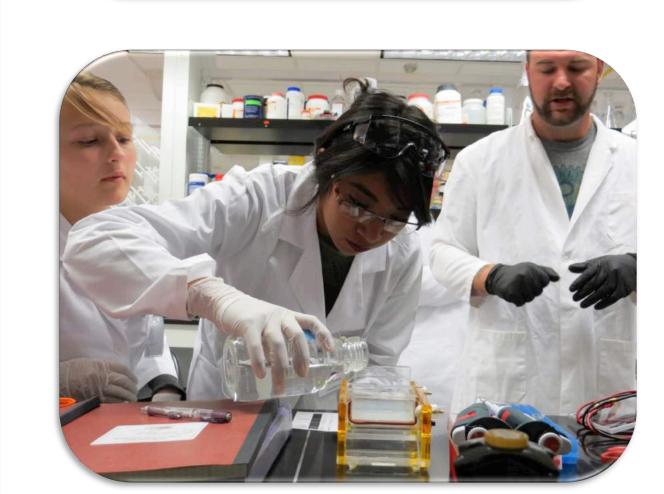
### Work With A Scientist Program

- 2014 cohort, 2015 cohort, 2016 cohort (36 students/cohort)
- 7 month program (Jan-May: 10 Saturdays, Jun-Jul: 30 days)
- Projects based on students' interests
- Regular cogenerative dialogues
- Proposal and final report presentations



# **Project Questions and Evaluation Results**

1. What are participants' cogen salient experiences?



(1) voicing issues and concerns in a respectful and supportive space, (2) learning different perspectives from different stakeholders, (3) working together as a team to improve science internship teaching and learning, (4) demonstrating care and patience about high school students' science learning, (5) fostering a stronger relationship between scientists and high school students.



(1) peripheral support, (2) oral instruction, (3) group communication, (4) personal needs, (5) scientific practice, (6) scientific knowledge, (7) scientific equipment, (8) pedagogical materials.



(1) invite participants to provide their rationale and clarification to justify their ideas, (2) provide examples of possible ideas in order to prompt others' own ideas, (3) recognizes participant's ideas, (4) translate ambiguous ideas "for others", (5) summarize and organize ideas for "collective discussion", (6) check validity and feasibility of idea, (7) invite participants to think on behalf of other stakeholders' perspectives, (8) check other stakeholders' perspectives, (9) lead the conversation back to the original topic/issue/question when off topics, (10) invite less talking participants to engage in dialogues.



## Lessons Learned: Challenges and Insights

- 1. Participants dominated the conversations during cogen -> enhance mediating strategies & record turns taking
- 2. Participants had difficulties of coming up ideas for discussions -> story telling & back up topics for discussions
- 3. Participants thought that cogen was useless because the discussion results were not implemented → add a session to discussion the quality of implementations suggested from previous cogen
- 5. Participants could not differentiate cogen from other conversations → add an cogen introduction session & provide handouts about cogen & add cogen heuristics to evaluate cogen quality
- 6. Cogen mediators sometimes had a hard time to mediate dialogues → Education RA with intensive training serve as cogen mediator







