Stanford SeeME:

Student-driven outreach within an R1 Institution

(Zach del Rosario @ NABI Summit 2019)
What is SeeME?

- **Student-driven outreach program**
  - Flagship event
  - Bay Area Science Festival

- **Student-driven training program**
  - Pedagogical training to our teachers

- **“Plug-in & Add-on” option for BI implementation**
What is SeeME?

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*Unique at Stanford*

*Unique elsewhere?*
Usual Schematic

NSF

PI
Our Schematic

NSF

PI

SeeME
Why SeeME?

● “Zach, you are widening the gap”

● Graduate training
Why SeeME?

- “Zach, you are **widening the gap**”

**Do intentional outreach**

- Graduate training

**Equip our students**

**Our Guiding Principles**
Why Am I Here?

- I *think* we know some stuff
  - Claim: Students are an under-tapped resource

- I *know* we need to learn more
  - What are others doing?
  - Peer review!
Student-driven outreach within an R1 Institution

- Student-owned
- Student-run
- Student-serving
- Tailored to Stanford’s value-structure
- Low-effort BI solution
  - “Plug-in & Add-on”
  - Broaden portfolio
Student-Driven Program
Starting SeeME

- PI “handed” us an outreach program
- PI believed in our ability to succeed
- PI actively signaled it’s ok to work on this
What Students Get

How do we get grad students to drive?

- Free food
- Resume building; fancy titles
- Community building
Teacher Training

- Our “secret sauce”
- Professional teaching consultant
- Workshops
  - Learning goals
  - 5E Model
- Teacher socials
  - Hackathon model
- Dress rehearsal
<table>
<thead>
<tr>
<th>Learning Goals</th>
<th>Content</th>
<th>Activities</th>
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| - Participants will be able to define “learning goals” | - Example learning goals  
  - Technical  
  - Motivational | - Participant-generated learning goals (LBT) |
| - Participants will be able to articulate why learning goals are useful for effective pedagogy | - SeeME program info  
  - Logistics  
  - Motivation | - Participant-generated learning goals (Small-groups) |
| - Participants will be able to distinguish between “technical” and “motivational” learning goals | | - Worksheet teardown (LBT) |
| - Participants will define at least one technical learning goal for their SeeME class | | |
| - Participants will define at least one motivational learning goal for their SeeME class | | |
Student-Driven Program

- **Students have ownership**
  - Program goals, design, implementation
- **A missing component of PhD training**
Adding Value to an R1
“This sounds great, you have my support.”

Kenneth Goodson, ME Department Chair

- What we never expected to hear!
Why Our Department Likes Us

- (We think)
- “Plug-in & Add-on”
  - Easy way to diversity one’s BI portfolio
- Partner, not a parasite
  - We write grants; bring in part of our budget
  - Written into proposals
Stanford graduate students teach local teenagers about engineering

Graduate students in mechanical engineering shared their engineering know-how and enthusiasm through a new program for local middle and high school students. The program’s interactive classes exposed teenagers to the breadth of engineering.

Stanford SeeME: Student-driven Outreach within an R1 Institution

Presenter: Zachary del Rosario, Stanford University, Department of Mechanical Engineering
Conclusion
Takeaways and Inquiries

- **Institutional values**
  - Know them
  - Tailor
- **Students will pitch in**
  - Give affirmation
  - Give resources

- **Similar models?**
- **Measurement?**
  - Student outcomes
  - Teacher outcomes
- **Resources?**
  - Mine or yours!

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