

BEEC Share and Learn Report: October 2026

Presenters: William Yu, Ross Venook, PhD, Stanford University

Topic: Workshop: A peer-led pedagogical course for Bioengineering graduate students as TAs and research mentors

Resources:

Drive Materials for Entire Peer-Led Pedagogical Course for TAs and Research Mentors:

<https://drive.google.com/drive/folders/1JbfOxidrKMGRmkV5q8QCKnJBaScQvUvj>

Teaching to Transgress book: <https://academictrap.wordpress.com/wp-content/uploads/2015/03/bell-hooks-teaching-to-transgress.pdf>

Kimberly Scott Tanner's work on Learning Strategies: <https://pubmed.ncbi.nlm.nih.gov/24006379/>

Growth Mindset book: <https://www.stephenlongfellow.leeds.sch.uk/tsla-assets/uploads/2018/06/Growth-Mindset-Matter-of-Mindset-booklet.pdf>

Pendleton Model of Feedback as a Dialogue:

<https://books.google.com/books?hl=en&lr=&id=74hnAgAAQBAJ&oi=fnd&pg=PT8&ots=M-WuVmbEca&sig=pmvove2xJCxbd-EQElueqfX8HKeQ#v=onepage&q&f=false>

SBI for Situational Feedback:

https://www.uab.edu/humanresources/home/images/LearnDev/PerformanceMgmt/Tools.Learning.STAFF/FeedbackModel_SBI.pdf

Discussion and Lecture Notes:

Lecture Notes:

- Major gap in TA training and support, and is often a “sink or swim” approach
- A training and community support is needed to prepare TAs
- A lot of institutions only do 1-2 hour long workshops or don't have any at all
- Research mentorship training is also lacking
- Need: Training and community support to prepare grad students as TAs, research mentors, communicators, leaders, and learners
 - Solution: student-led pedagogical training course
- Ways to improve your training courses:
 - Create a course shared drive
 - Propose a low effort peer-led pedagogical training course model for grad students to lead it
- Theory:
 - Constructivist Learning Theory: students learn by actively constructing knowledge, integrating what they know, rather than passively absorbing information
 - Social Cognitive Career Theory – students self-efficacy or belief in one's capability to perform actions, related to career goals
- Assessment – self-efficacy perception of participants in training course, long-term impact of familiarity, confidence, attitudes, and application of evidence based teaching practices
- Modules:
 - Weeks 1: Engaging Teaching – Teaching to Transgress book learning module and Kimberly Scott Tanner's work on Learning Strategies
 - Weeks 1-4: Design for Learning – Backward design for learning goals, and then work backwards to create rubrics for assessment, think about (un)grading, LLMs and impact on accessibility and equity, formative assessments and desirable difficulties

- Weeks 5-8: Learner-Centered Feedback: Growth Mindset book and Pendleton Model of Feedback as a Dialogue, SBII for Situational Feedback, and Instructor Immediacy and Trust
 - Week 8: Inclusive Teaching – Classroom wellness, Implicit Bias, Culturally Responsive Teaching, Universal Design for Learning
- Final Project Showcase: Lightning Talks – weekly project exercises to reflect, look ahead, and dive deeper into literature
- Assessment of the program – saw that all learning goals achieved:
 - Practical skills for teaching and communication
 - Inclusive strategies for building community
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 - Also improved self-efficacy in engaging teaching as inclusive teaching and active learning techniques
 - Also served as effective professional development as better TA, mentor, and communicator
 - Major gain that they felt better prepared to teach or mentor after taking the program, but self reported and pre-survey was done retrospectively
- Example final projects:
 - High school example of learning laboratory and scientific method
 - CoLab role playing game for capstone projects team-building game to roleplay scenarios like project manager
- Interestingly, attitude/importance, confidence, and belonging were same when comparing these of those who took the program vs. not, and those who did take the course were more self critical on their attitude on whether they perceived themselves as an inclusive teacher. But confidence and sense of belonging did increase after taking the course
- Found peer led model run by student instructors with participation from faculty was preferred over a fully faculty led model or a fully student led model
- Faculty participation and interviews – surprised that faculty vary in opinion like “why aren’t we spending more time with direct training on how to grade, etc.?” and “this seems great...but not as a requirement for all of our grad students”