“I learned how to be a voice”
An approach to equitable collaboration
Plan

• Example Team Building Activity (~20 min)
• Seed Project Review (~10 min)
• Q&A (~10 min)
Checking-in
Norms

(1) stay engaged,
(2) expect to experience discomfort,
(3) speak your truth & hear the truth of others,
(4) expect and accept a lack of closure.

Safe, Comfortable, Brave

\[ U = \text{Personal experience of an interaction} \]
Change Theory

● Structures
● People
● Power
● Symbols
Change Theory

- **Structures**: rules, policies, procedures, management, interaction
- **People**: characteristics, experiences, needs
- **Power**: resource allocation, formal and informal seats/sources/sinks of power
- **Symbols**: meaning and culture, rituals and habits, stories, sensemaking
Change Theory

- **Structures**: rules, policies, procedures, management, interaction
- People
- Power
- Symbols
Change Theory – Structures

● How do people interact?
● What policies, procedures, processes are bottlenecks or levers for change?
● What committees or bodies are influential?
● How are resources and spaces allocated?
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Part 1: Reflect

Pair up. Each person makes small notes:

- How do people interact?
- What, policies, procedures, processes are bottlenecks or levers for change?
Part 2: Similarities and Differences

Pair pairs. Find at least one group similarity and at least one uniqueness for each person.

♥️ = Liaison (visual)   ♦️ = Reporter (verbal)
♠️ = Liaison (visual)   ♣️ = Reporter (verbal)
Common to Group: We all see a need for X

Uniquenesses (e.g., online, off-campus, on-campus, asynchronous)
Part 3: Next Steps

- Identify one idea from someone else that you want to learn more about.
- Make a note to send yourself a reminder email about it that will arrive next Tuesday.
Team-Building & Changing Discrete Mathematics

● Regular check-ins
● Activity rooted in aspects of change with
  ○ Learning for acknowledgement
  ○ Planning for action
  ○ Documenting for accountability
Team members say...

- Everyone's input contributed something positive to the project. *I learned how to be a voice.*
- As a team, we each had our own individual contribution that was significant, challenging, and fulfilling. *Each group learned from the others' and we eventually came up with a common structure.*
- Open and *constructive dialogues* right from the inauguration of the project.
Active Classroom
What is Discrete Mathematics?

\{..., -2, -1, 0, 1, 2, ...\}
Example of GPA disparity

Recall: 4.0 = A, 3.0 = B, 2.0 = C
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 lowes passing grade
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Calculus reform took 40 years (2.02)
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Calculus reform took 40 years.

We aim to reform discrete math, faster.
● Goal:

● Products:

● Outcomes:
● **Goal**: provide access for each student to the intellectual work of collaborative discrete mathematics

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● **Goal:** provide access for each student to the intellectual work of collaborative discrete mathematics

● **Products:**
  ○ classroom materials with instructor guides

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● **Goal:** provide access for each student to the intellectual work of collaborative discrete mathematics

● **Products:**
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  ○ map for policy revision

● **Outcomes:**
  ○ increased belonging in discrete mathematics
  ○ shifted instructor views of self & students’ abilities
● **Goal**: provide access for each student to the intellectual work of collaborative discrete mathematics

● **Products**:
  ○ classroom materials with instructor guides
  ○ map for policy revision

● **Outcomes**:
  ○ increased belonging in discrete mathematics
  ○ shifted instructor views of self & students’ abilities
  ○ policy map reverberated with instructor reports
Analyzed existing C-IDs & client discipline standards.
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Identified overlaps in essential content (e.g., functions, graphs)
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Identified overlaps in **essential content** (e.g., functions, graphs) & **mathematical practices** (e.g., noticing patterns, abstracting, justifying, critiquing the reasoning of others).
Four lessons developed in the project.

- Intro to team-worthy work
- Binomial/number triangle
- Handshake
- Dot game/Ramsey theory
**Purpose:** Students work with combinations & vocabulary to generate alternative ways to think about a problem.

**Description:** Students explore and solve combinatorial problems. Teams present and explain work, discuss, and write reflections about vocabulary and approaches.

**Ans:** $5 \times 3 \times 6 = 90$ possibilities

- For each fruit-tea combo (of which there are 15), there are 6 flavors of sandwiches ($5 \times 3 \times 6$).
- For each choice of fruit, there are 3 teas ($5 \times 3$).
Thank You!

Tim Hsu
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Expanding Equity and Access In Discrete Mathematics