

WELCOME TO OUR NEW CLASSROOM: MY150

Susan McCahan & Sarah Mayes-Tang

Teaching & Learning Symposium

May 28, 2019

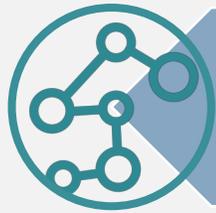
COURSE CONTEXT

Introductory
Calculus for
Science Majors

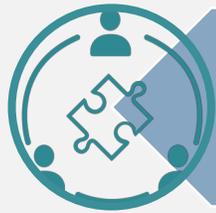
Final Math
Course for
Many Students

Mostly First-
Year Students

COURSE FOCUS



Understanding connections between concepts



Building problem-solving & communication skills



Instilling confidence

ACTIVE LEARNING

Active learning comprises a wide range of activities that are defined as “any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing” (Prince, 2004).

- Centre for Teaching Support & Innovation

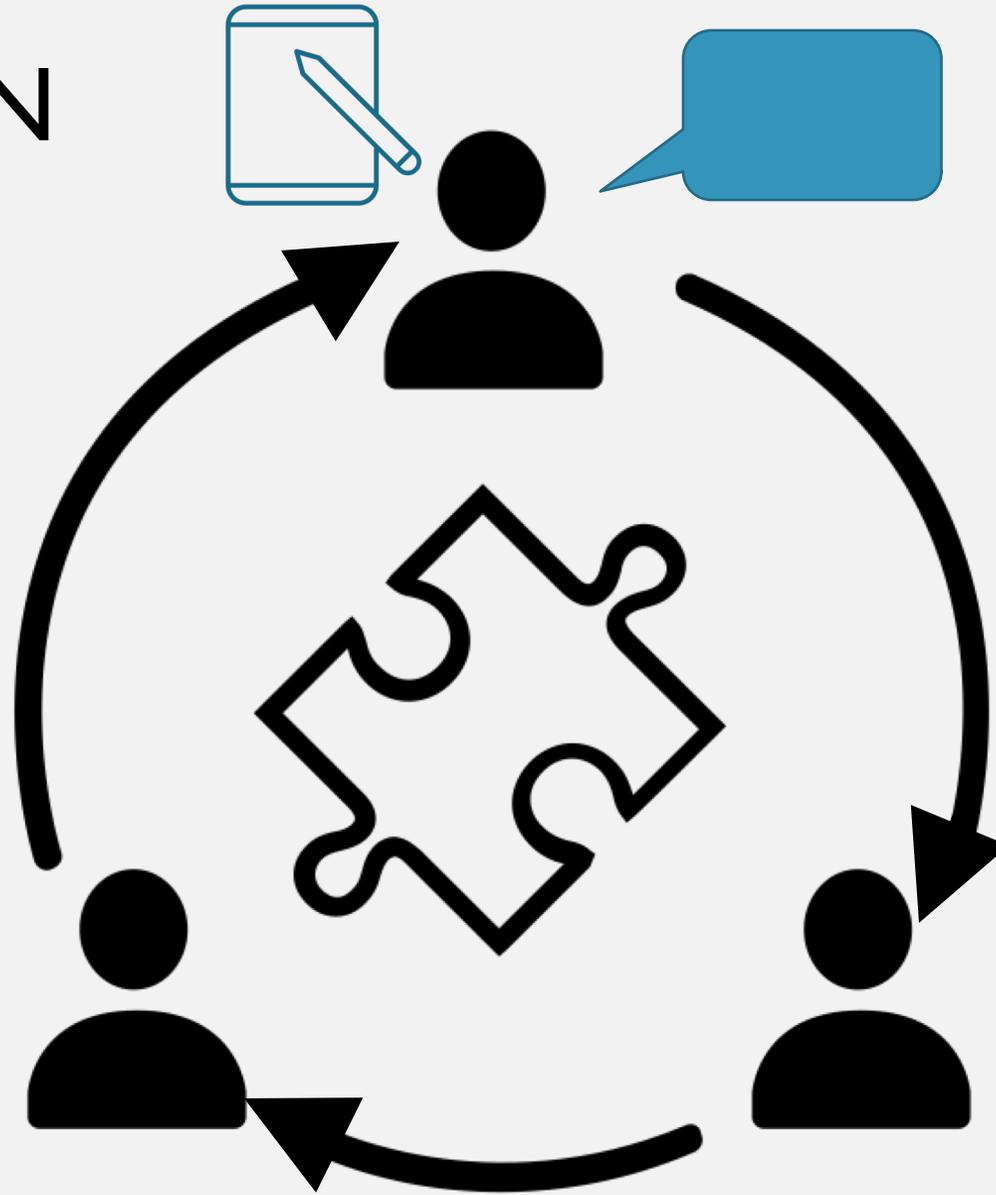
Classroom environments in which students are provided opportunities to engage in mathematical investigation, communication, and group problem-solving, while also receiving feedback on their work from both experts and peers, have a positive effect on learning... we call on institutions of higher education, mathematics departments and the mathematics faculty... to invest time and resources to ensure that effective active learning is incorporated into post-secondary mathematics classrooms.

- Conference Board of the Mathematical Sciences Statement on Active Learning

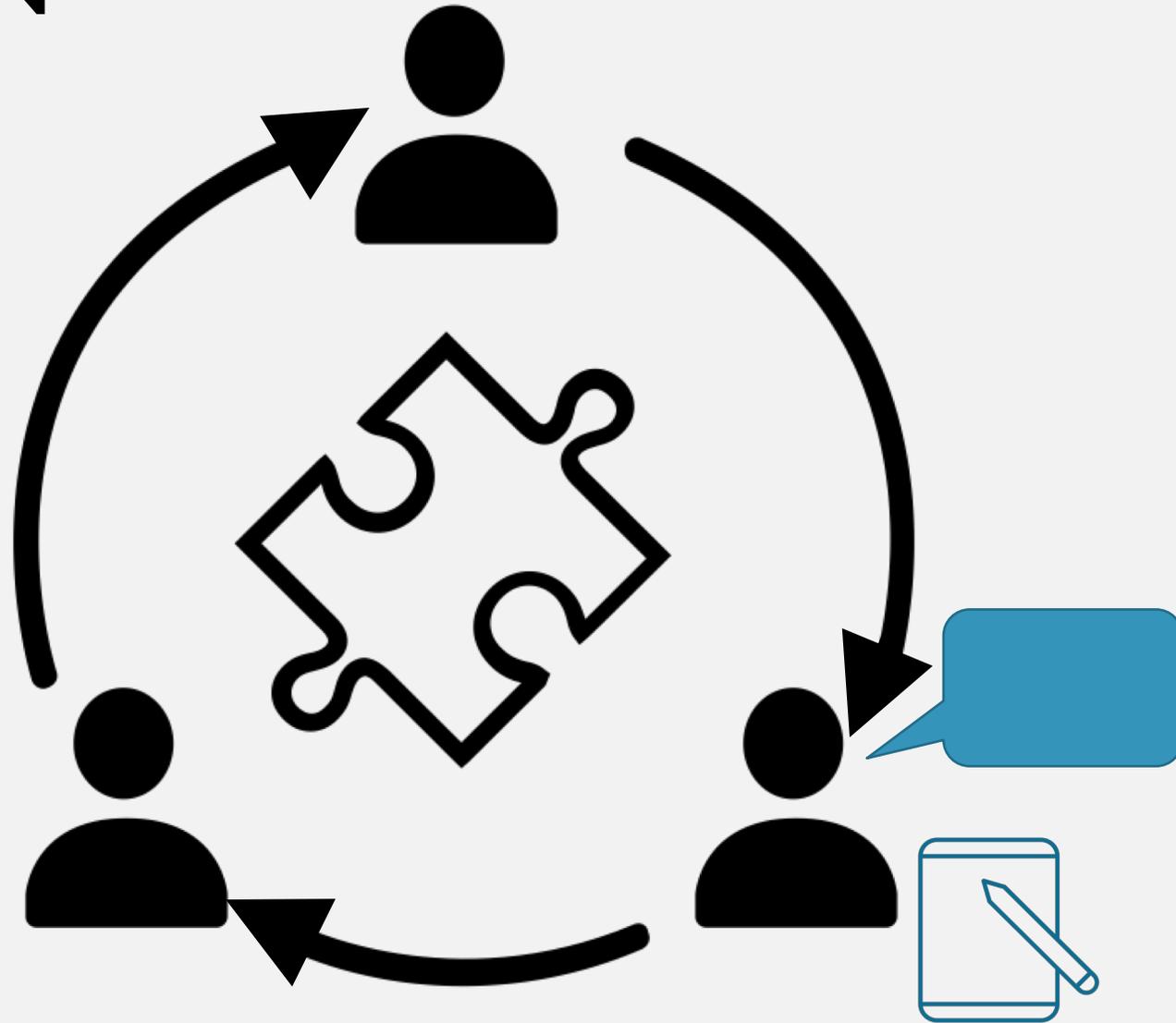
GOAL FOR TODAY

Think about issues in preparing to teach in an Active Learning classroom, while demonstrating the use of MYI50

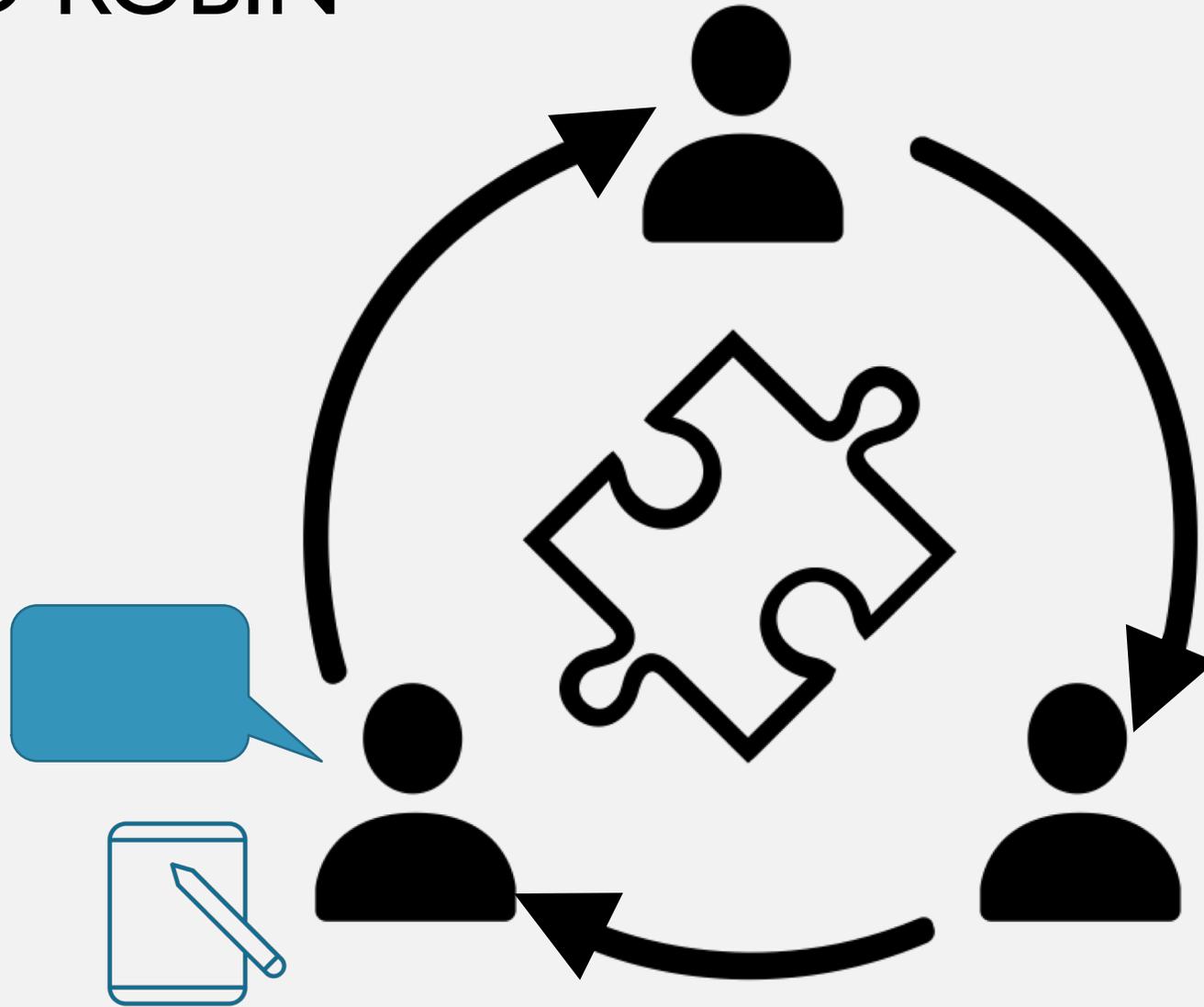
ROUND ROBIN



ROUND ROBIN



ROUND ROBIN



Share a question you might have when
preparing to teach in an active
learning space like MY150

Round Robin Prompt

How should seats be assigned (or not) to take advantage of the seating in MY150?

My Focus Question

Consistency

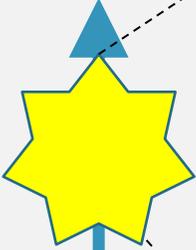


Student Choice

2 Key Decisions:

1. How **consistent** should seating be?
2. How much **choice** should students have in where they sit?

Consistency



Mark A1	Ambrose A2	B1	Thomas B2	Martin C1	C2
Atirah A3	Lydia A4	Jason B3	Natalie B4	Adam C3	C4
Catherine D1	LeDarius D2	Asia E1	Alexander E2	Erika F1	Alexis F2
Mathew D3	D4	Emilia E3	Kate E4	F3	Emm F4
		Raben G1	Walker G2		
		G3	G4		H1

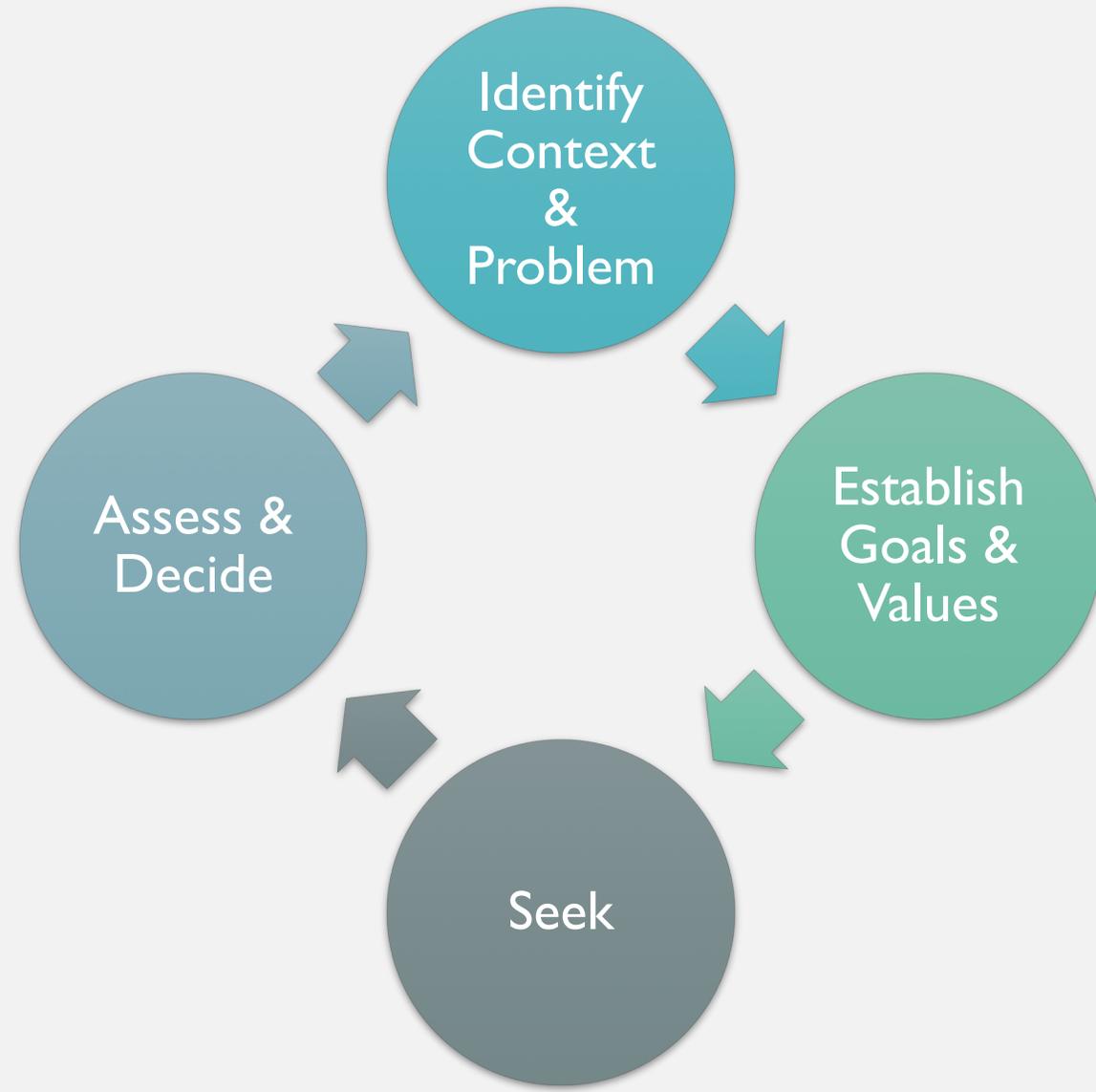
Student Choice

Consistency



Student Choice

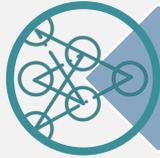




MY GOALS & VALUES



Focus on Course Goals



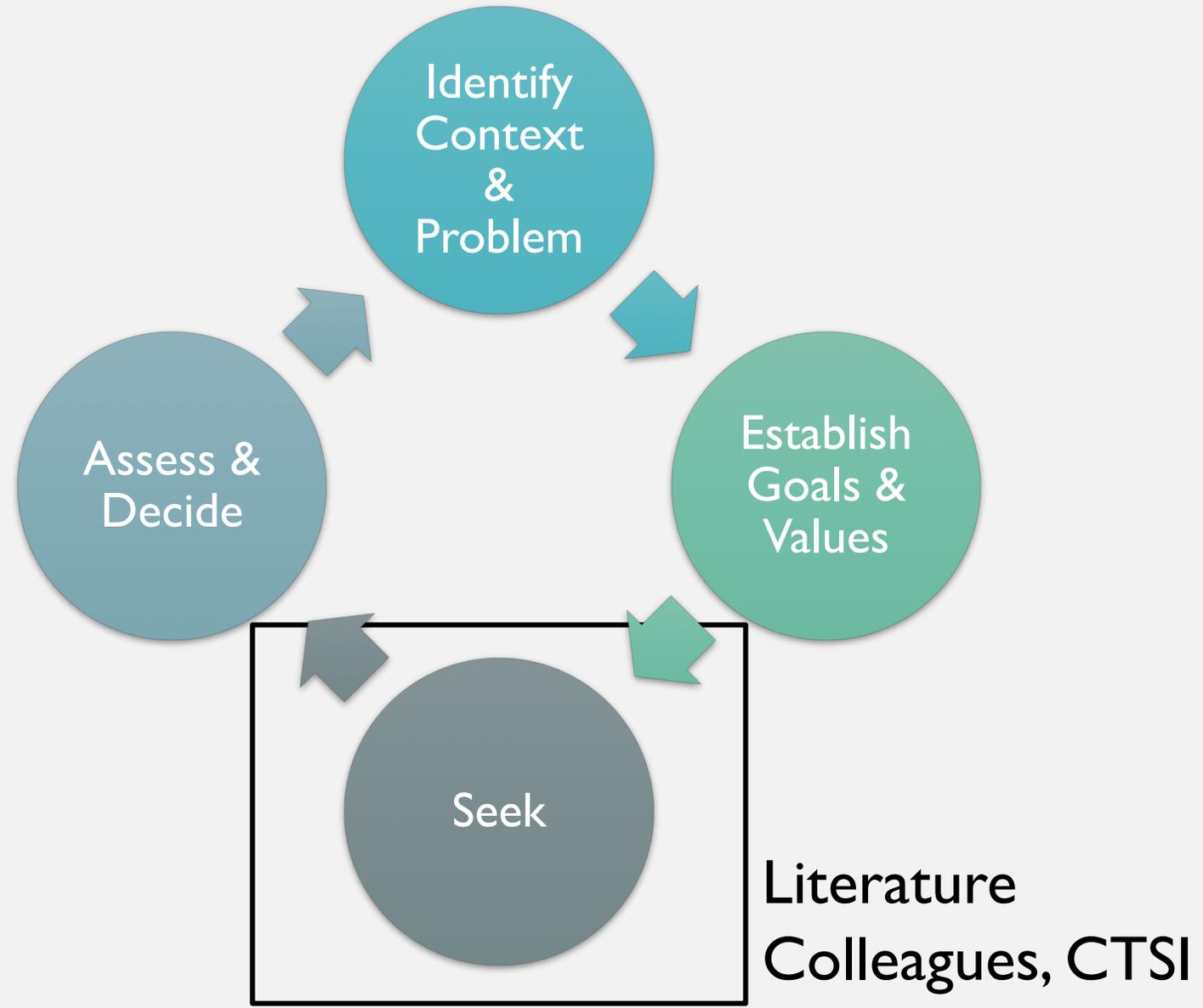
Keep Student Learning Central



Promote Equity



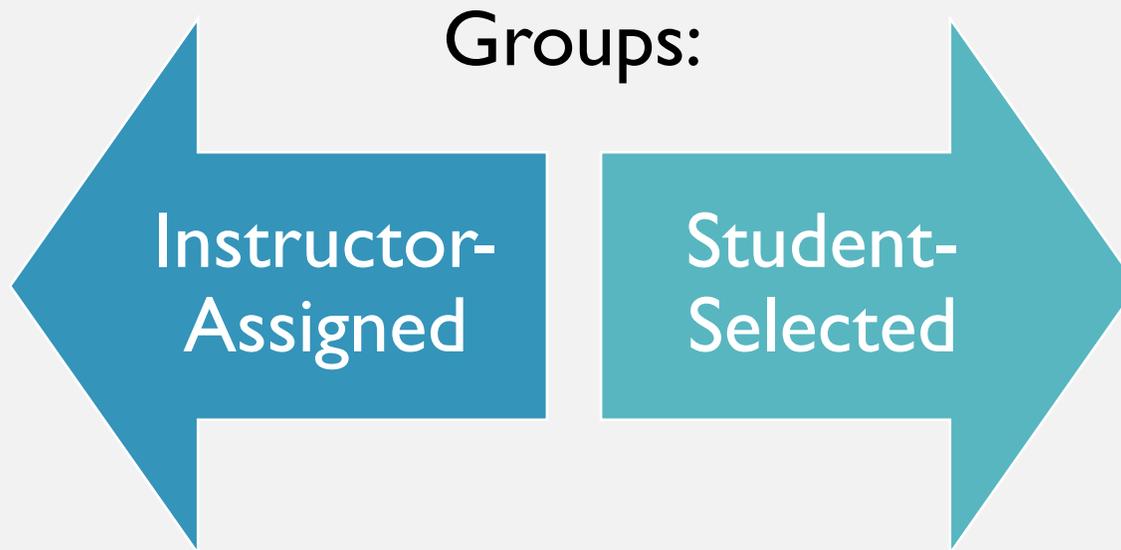
Leverage Advantages of Physical Space



“Classroom community has been shown to play an integral role in the advancement of student learning”

- Summers & Svinicki, 2007

“More likely to present social, communication, and organizational challenges that groups will need to overcome by exercising or developing team skills.”



More harmonious experiences

“These base support groups promote a sense of trust and inclusion, and serve as support structures during the formal classes at the university.”

- Rolheiser & Hundey, 1995

WHEN ACTIVE LEARNING IS NEW
STUDENTS OFTEN FEEL...



SURPRISED



**SHY /
NERVOUS**



BETRAYED



FEEARFUL

through Student-Centered Learning Activities

Vicki Zhang, Assistant Professor, Teaching Stream
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Background:

Even after the recent financial crisis, current insurance firms continue to provide products and services that do not meet the needs of consumers. This is due to several pedagogical experiments in an introductory course.

1. **Play the role of a prospective consumer:** interact with local insurers to find information to select a hybrid insurance finance product.
2. **Play the role of a prospective consumer:** gather data on a variable annuity product, compare it with a traditional fixed annuity product.
3. **Compare and contrast a green mortgage and a regular mortgage** in terms of both financial and social and environmental considerations.
4. **Research and present a real-life bond** that is designed to deliver social or environmental benefits.

Project Deliverables:

1. Critical thinking and written communication component - produce a short paper on the major findings and share reflective thoughts
2. Software-assisted research component - an Excel workbook showing all relevant calculations
3. Oral communication component - a short video presentation

Project design considerations and restrictions:

- (1) Compel students to use beyond standardized exams, apply new knowledge in the real world, engage them to ways of "reimagining finance" to deliver social goods
- (2) Team-based projects provide opportunities for student collaboration and peer-teaching, which can be especially beneficial for a student body with large segments of international students.
- (3) This is a tightly regulated course - curriculum mapped to Canadian Institute of Actuaries' (CIA) exams, evaluation structure mandated to be 80% based on CIA exam materials. I took the 20% "free evaluation space" to my pedagogical experiments.

Preliminary Findings from Introductory Course:

The following reflective comments were obtained through reading students' team papers and video presentations. They showed that despite of the aforementioned self-selective nature of the student body, students are open to exploring complex ethical issues given proper guidance.

• "I didn't realize how difficult it'd be for regular consumers to shop for insurance! Almost all teams reported that it was very difficult to navigate the insurance market or to gather sufficient information from insurance agents to make decisions. A lot of them believe regulators should intervene and make the market more transparent. We also engaged work to design more policyholder-friendly products when enter the profession in the future."

• "These insurance products seemed to be designed for the sole purpose of profit for insurers..." Many concluded that the more popular products in the market failed to provide real benefits to policyholders. Instead, these are products that charge large fees for insurance agents and create barriers to understanding for regular consumers.

• "Green mortgages make sense for the environment, but really it seems like a way out in Canada." A number of teams called on Canadian government to subsidize for private institutions to continue their green mortgage programs, questioned the limitation of relying on private sector to provide public goods.

• "It is glad to see that bonds can be used for the social good." Teams reported of programs that "reimagine" finance to achieve social goals. A common theme in the discussions when it comes to using finance as a tool to be

Students also cited personal and cultural pressures, economic outlook, job insecurity as top issues on their mind. The major finding is that students enrolled in these programs are self-selected to be driven by intrinsic, financial motives and wanted to take the shortest route to achieve academic and career goals. This poses a major challenge to a plurivocal pedagogy.

Pedagogical Experiments in an Introductory Course (second-year, large-classroom, mandatory core course *Introductory Financial Mathematics*, 130+ students)

Four team-based projects:

- (1) Play the role of a prospective consumer, interact with local insurers to find information to select a hybrid insurance finance product.
- (2) Play the role of a prospective consumer, gather data on a variable annuity product, compare it with a traditional fixed annuity product.
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Pedagogical Experiments in a Capstone Course (fourth-year, new seminar course: *Insurance Market, Products, and Regulation*, 25 students)

For the graduating class, the objectives of pedagogical experiments go beyond mere exposure to crucial ethical issues. Instead, I sought to provide a systematic and holistic understanding of the industry and its socio-economic impact. Course activities include:

- **Engage students on the history of insurance market and its evolution:** explore an insurance regulatory approach that is based on a team-based system that may increase transparency in policy writing, claims and its associated costs.

(1) to model and understand hybrid products

(2) to compare a green mortgage and a regular mortgage in terms of both financial and social and environmental considerations.

(3) to research and present a real-life bond that is designed to deliver social or environmental benefits.

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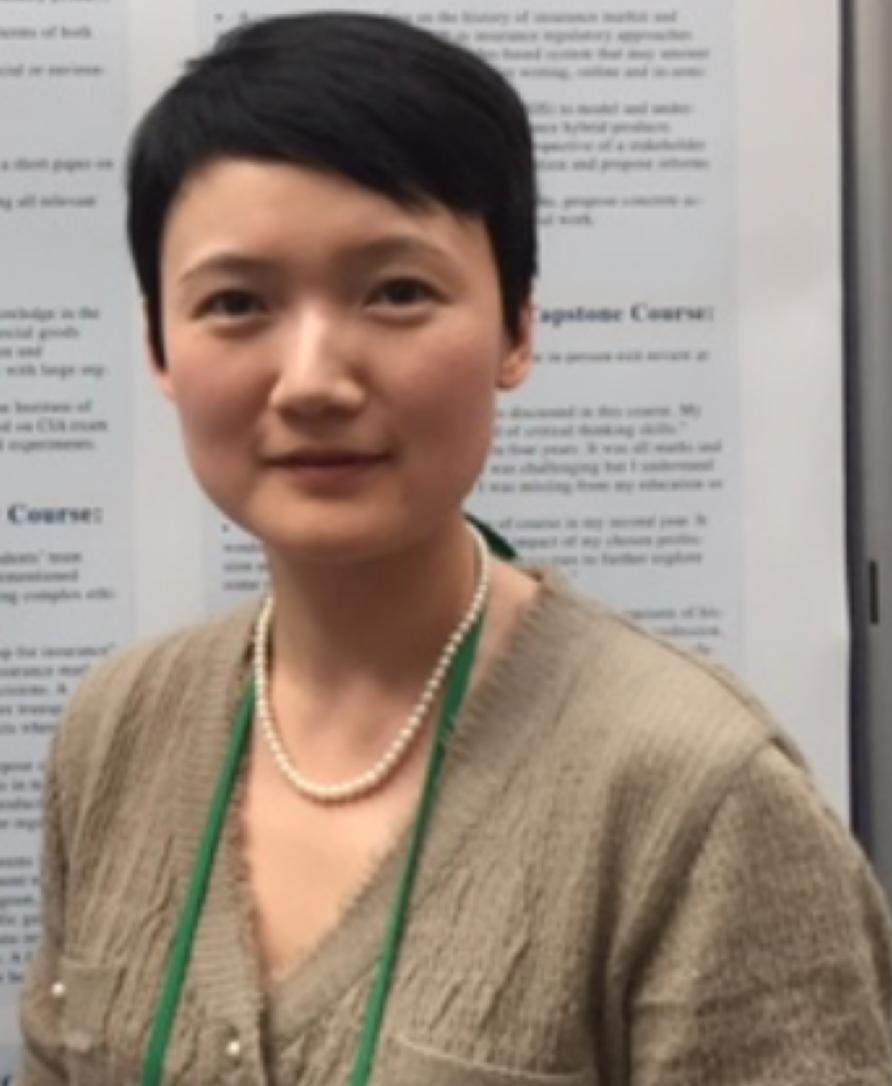
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VICKI ZHANG,
DEPARTMENT OF
STATISTICAL
SCIENCES



SELF-SEGREGATION AT UOFT

Why?

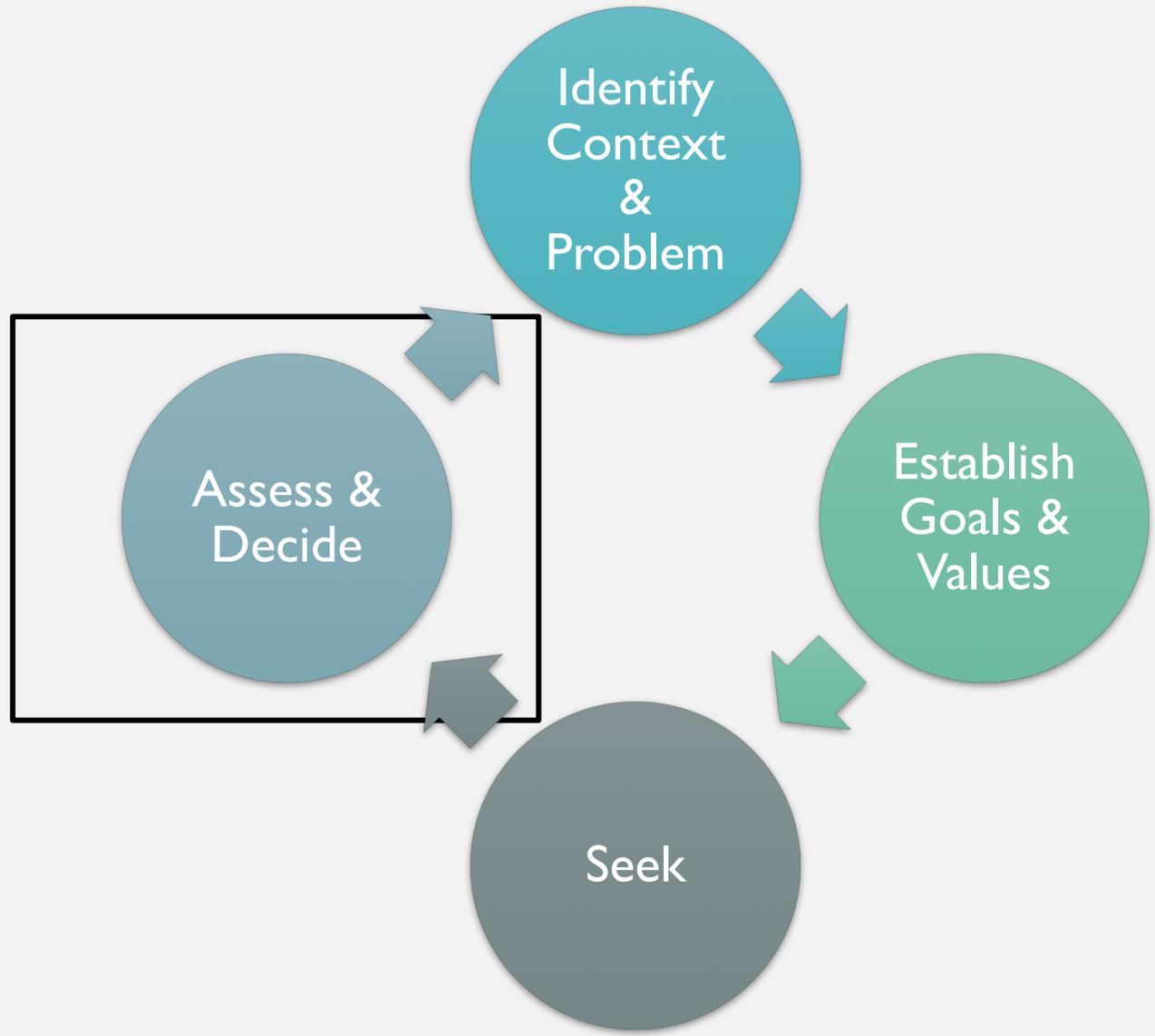
- Large cultural gaps
- Off-campus tutoring centres targeting Chinese Students
- Challenges learning English & content simultaneously

Consequences

- Groups not as heterogeneous
- Non-Chinese students do not benefit from getting to know Chinese students
- Chinese students do not achieve all goals of studying in Canada

TO BUILD COMMUNITY & SUPPORT STUDENTS...

- Recognize benefits of permanent groups
- Student-formed and Instructor-formed groups both have benefits
- Do not force international students to work with other students...
but make it easy for them to do so



Consistency



Student
Choice

Group Allocation:

1. 2-Day window to submit group choices
2. Random allocation of remaining students to groups

I-MINUTE PAPER

Write down...

- I Thing you learned
- I Idea you had to apply to your own teaching

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