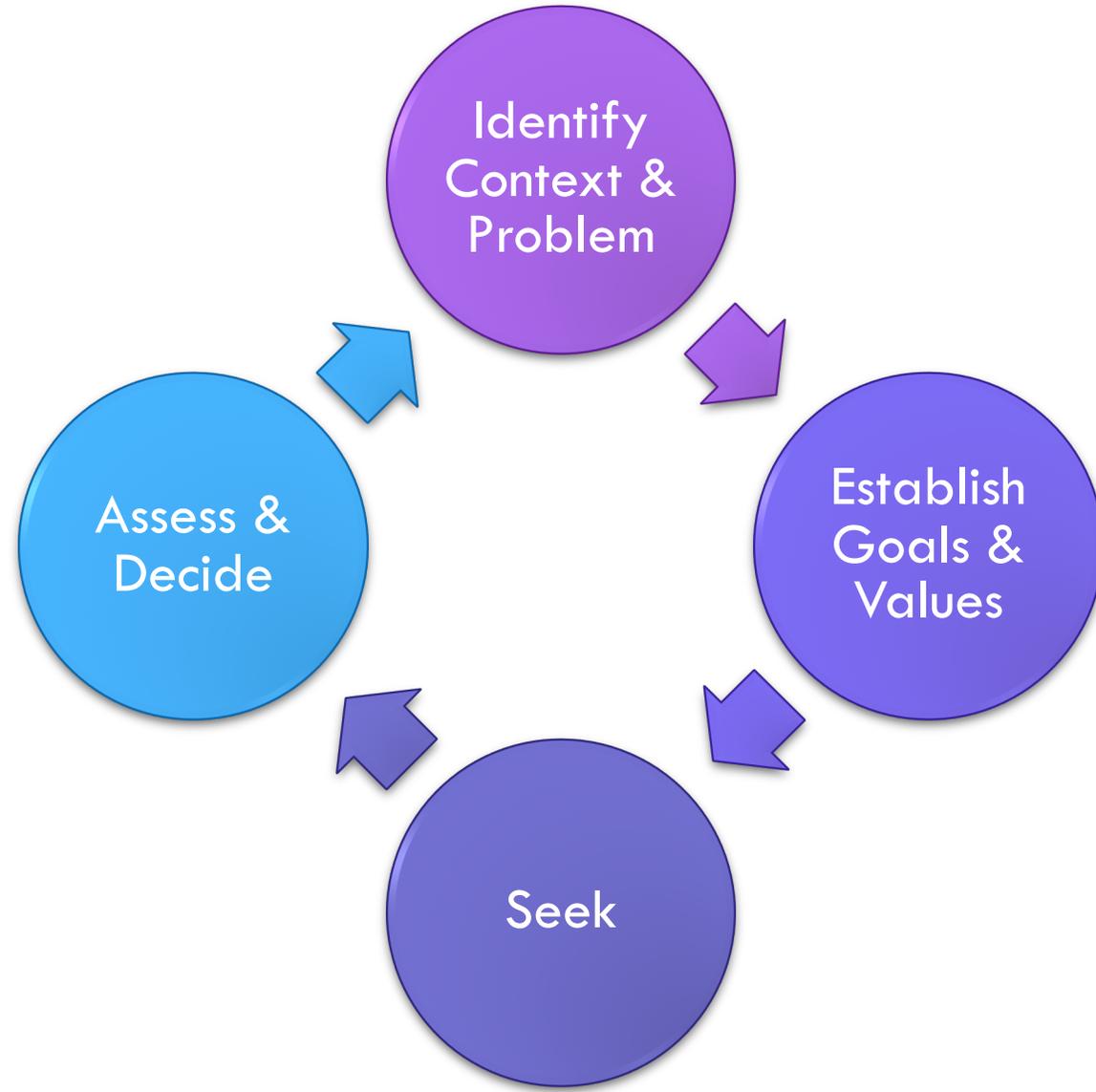
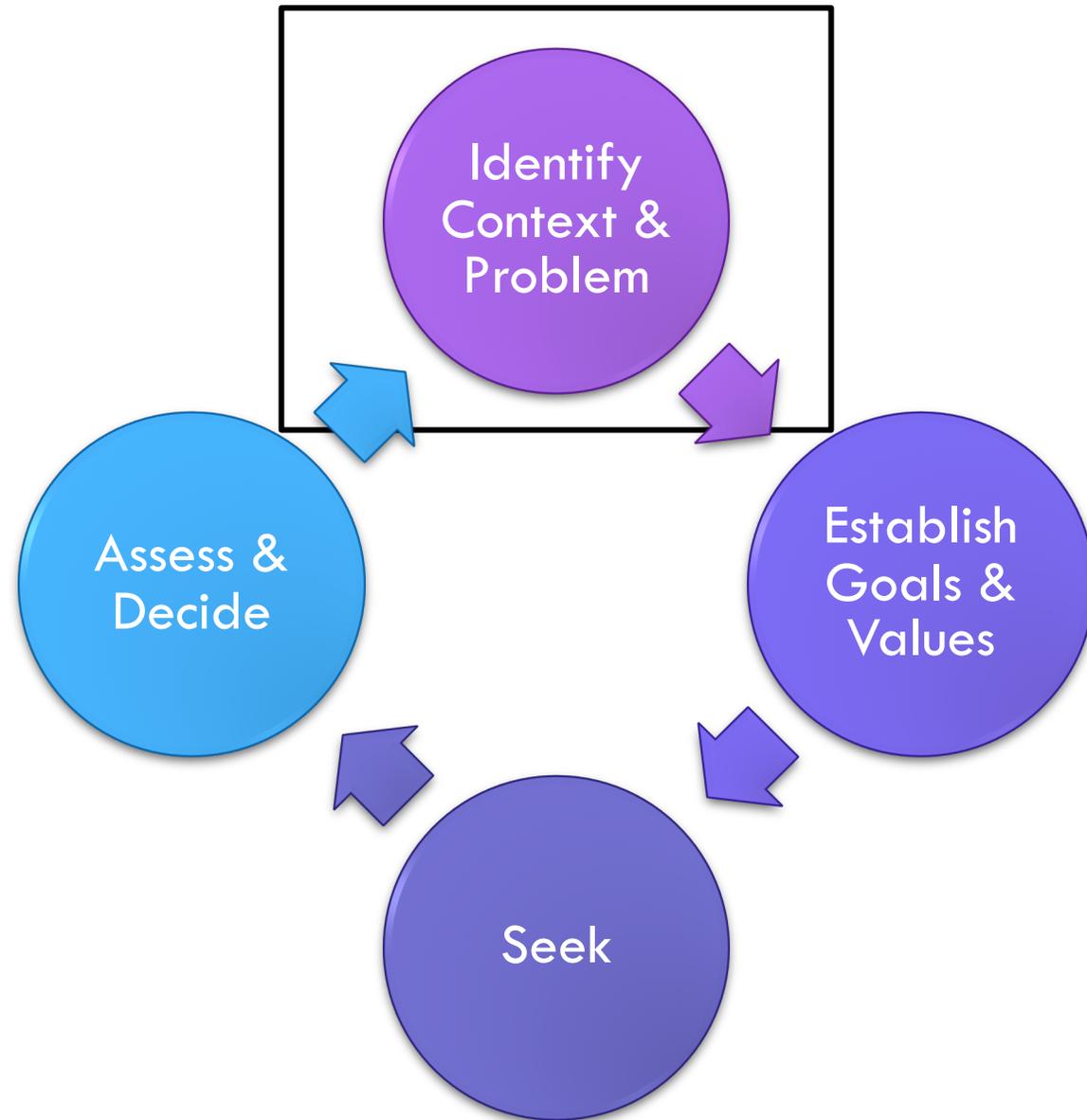


ACTIVE LEARNING: ENGAGING INTERNATIONAL STUDENTS

Sarah Mayes Tang
University of Toronto
May 2, 2019





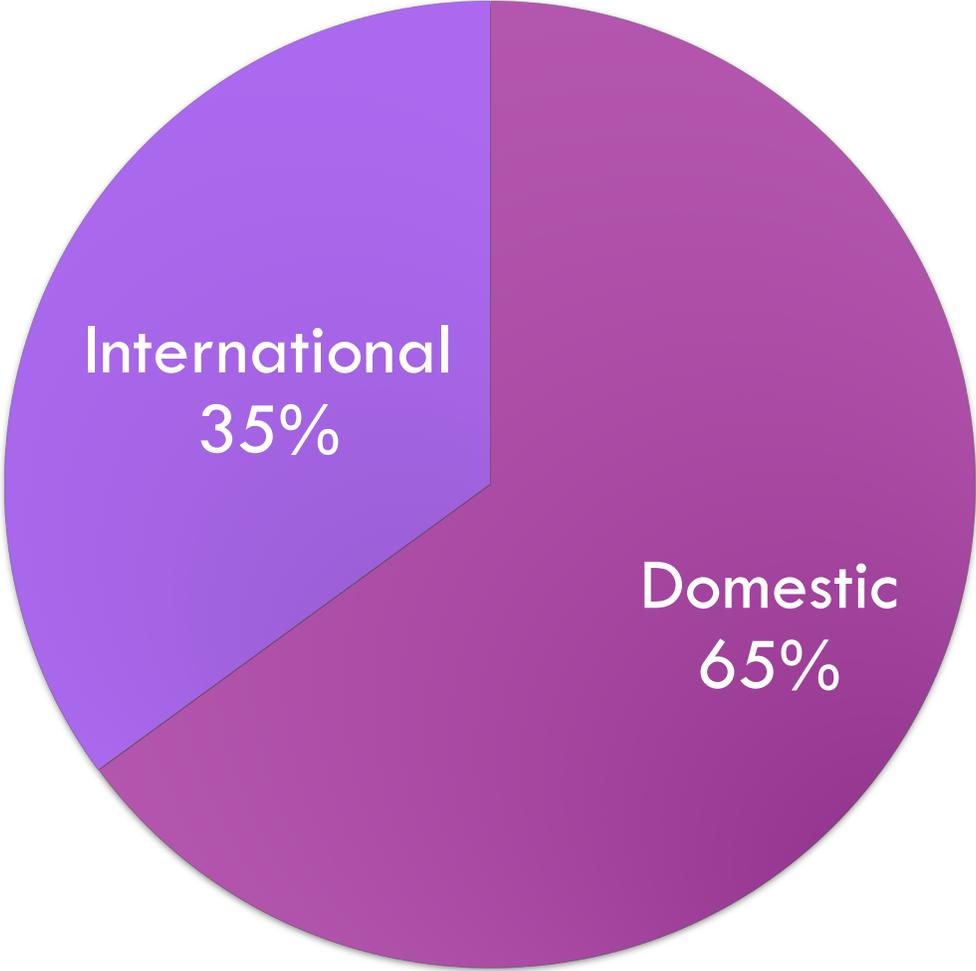
Classroom environments in which students are provided opportunities to engage in mathematical investigation, communication, and group problem-solving, while also receiving feedback on their work from both experts and peers, have a positive effect on learning... we call on institutions of higher education, 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

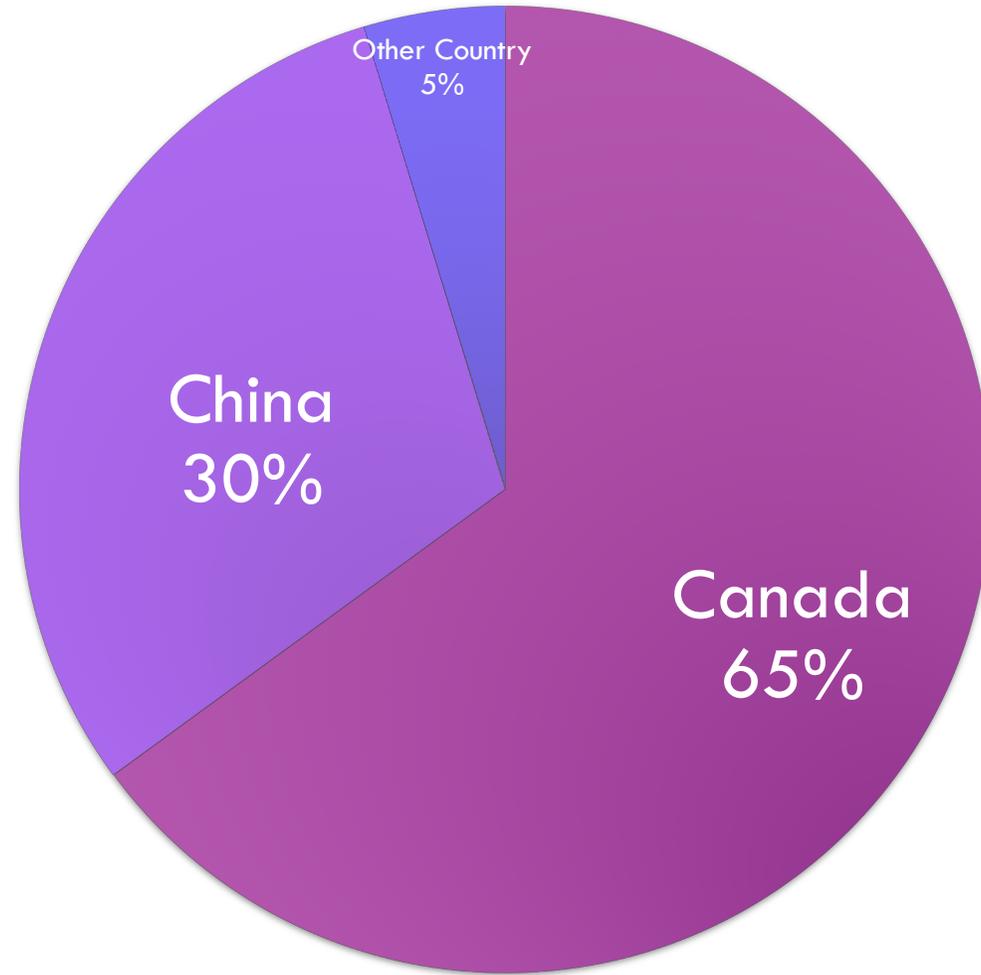
Statement on Active Learning

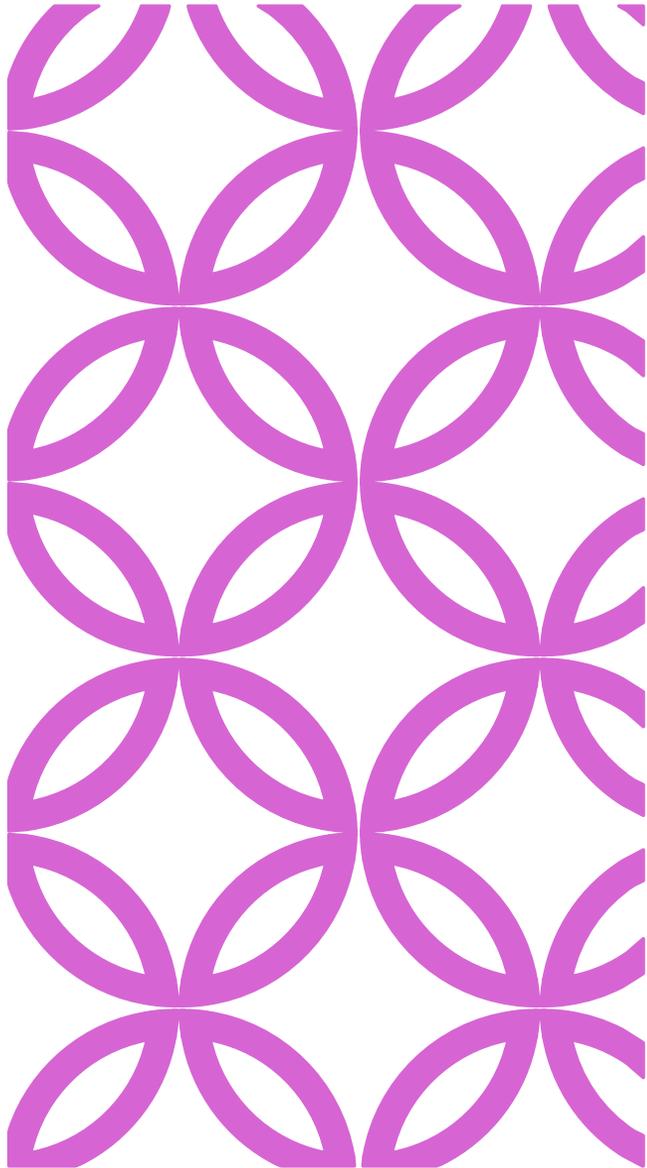


MAT135/136 Students



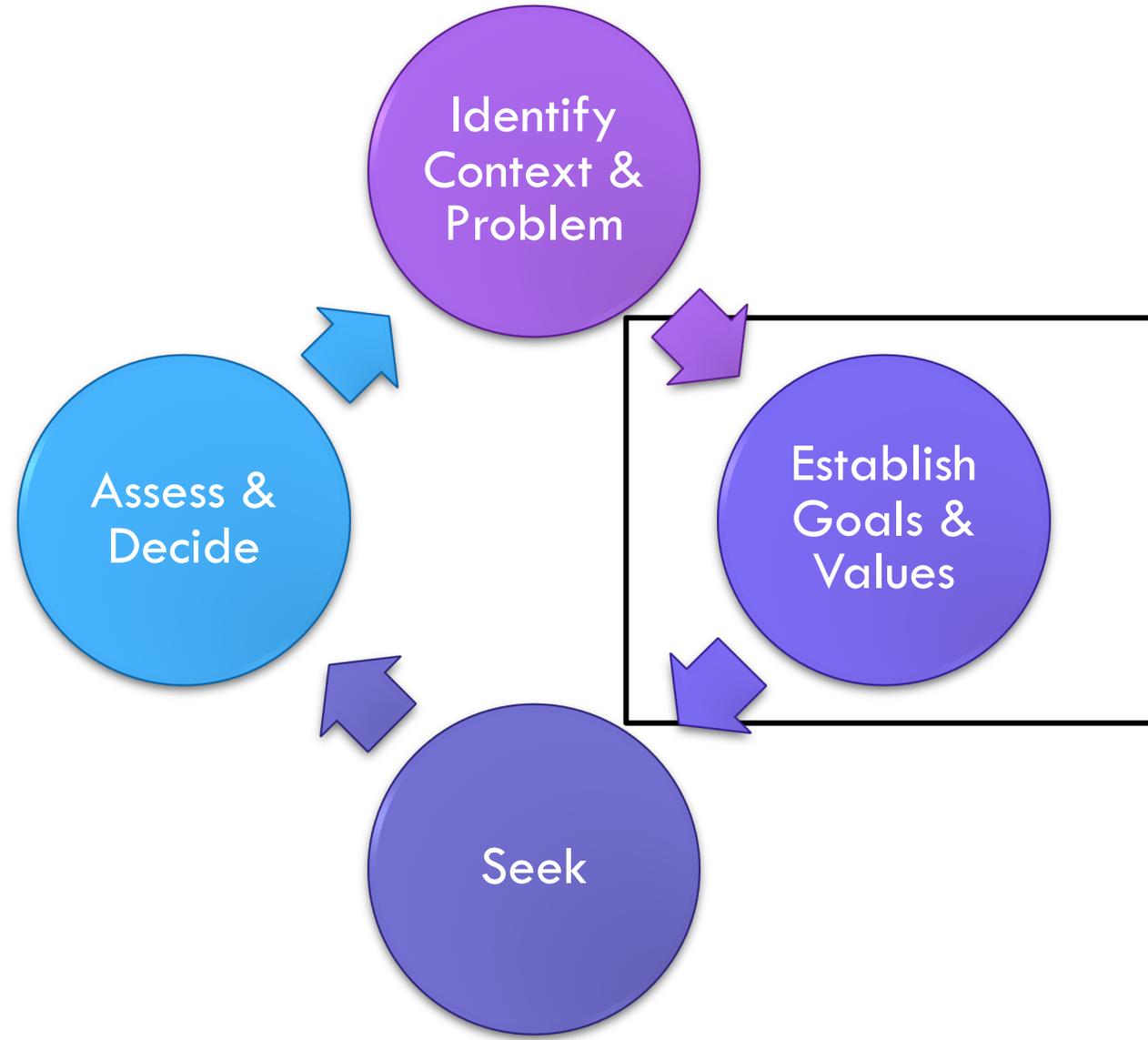
MAT135/136 Students: Country





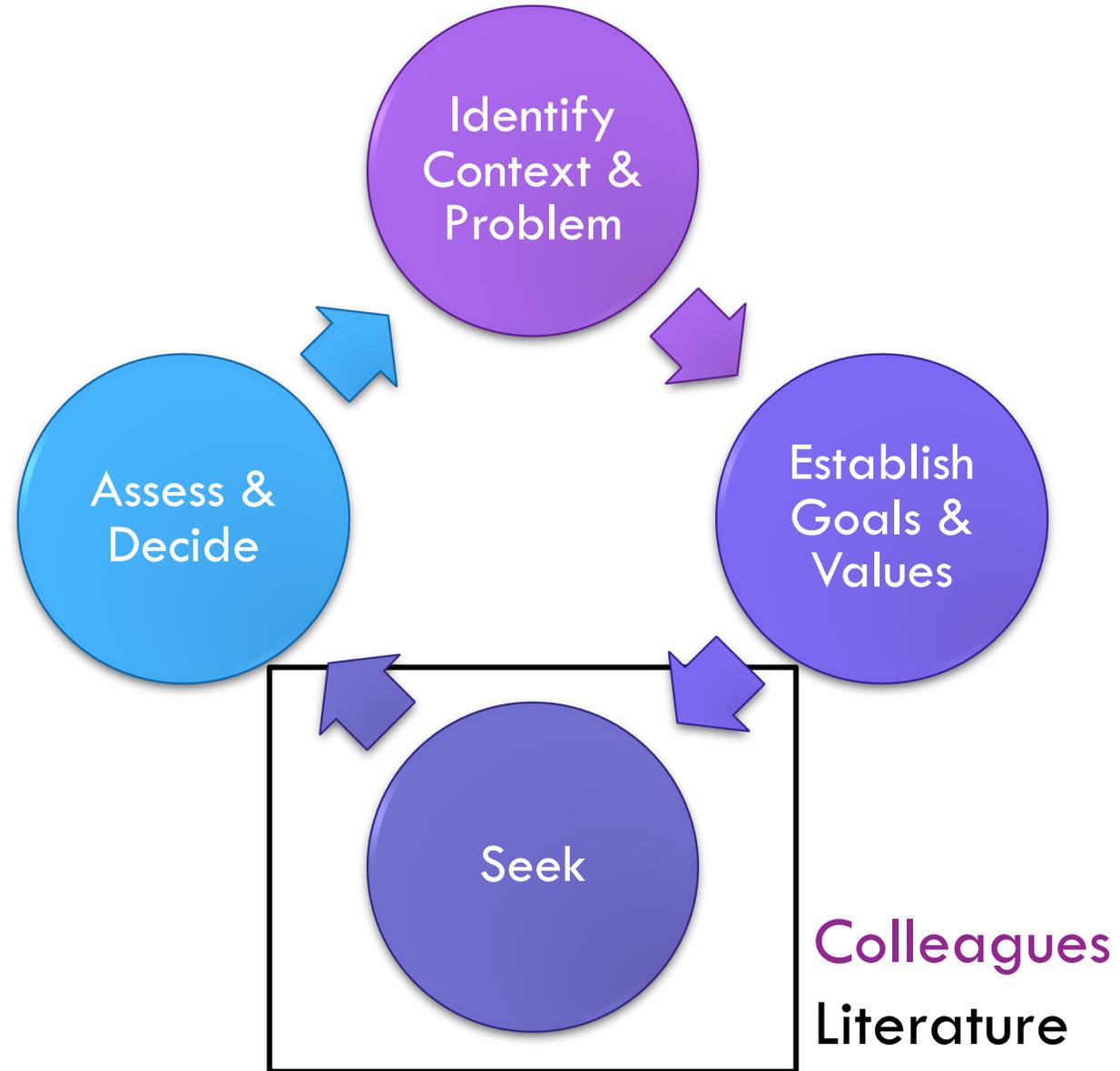
What are the best practices for helping international students learn in my Active Learning Classroom?

QUESTION



Confidence	Build confident & capable users and communicators of mathematics
Learning	Keep student learning central
Equity	Promote equity in mathematics, using practices best for underrepresented groups
Context	Leverage our advantages, including physical space & large international student population

**MY GOALS
(I WANTED
TO...)**



through Student-Centered Learning Activities

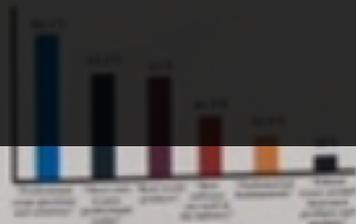
Vicki Zhang, Assistant Professor, Teaching Stream
University of Toronto, Canada
vickijing.zhang@utoronto.ca

Background:

Even after the recent financial crisis, current insurance firms

VICKI ZHANG,
DEPARTMENT OF
STATISTICAL
SCIENCES: SELF-
SEGREGATION OF
CHINESE STUDENTS

Topics you want to see covered in the course



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 well-informed 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.
- (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 see 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-learning, 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 tucked the 15% "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.
- "I'm 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

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:

- A series of assignments on the history of insurance market and the evolution of an insurance regulatory approach. Students are required to write a policy-based system that may involve a mix of public and private law, writing, editing and its oral presentation.
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Capstone Course:

Students are given with access to

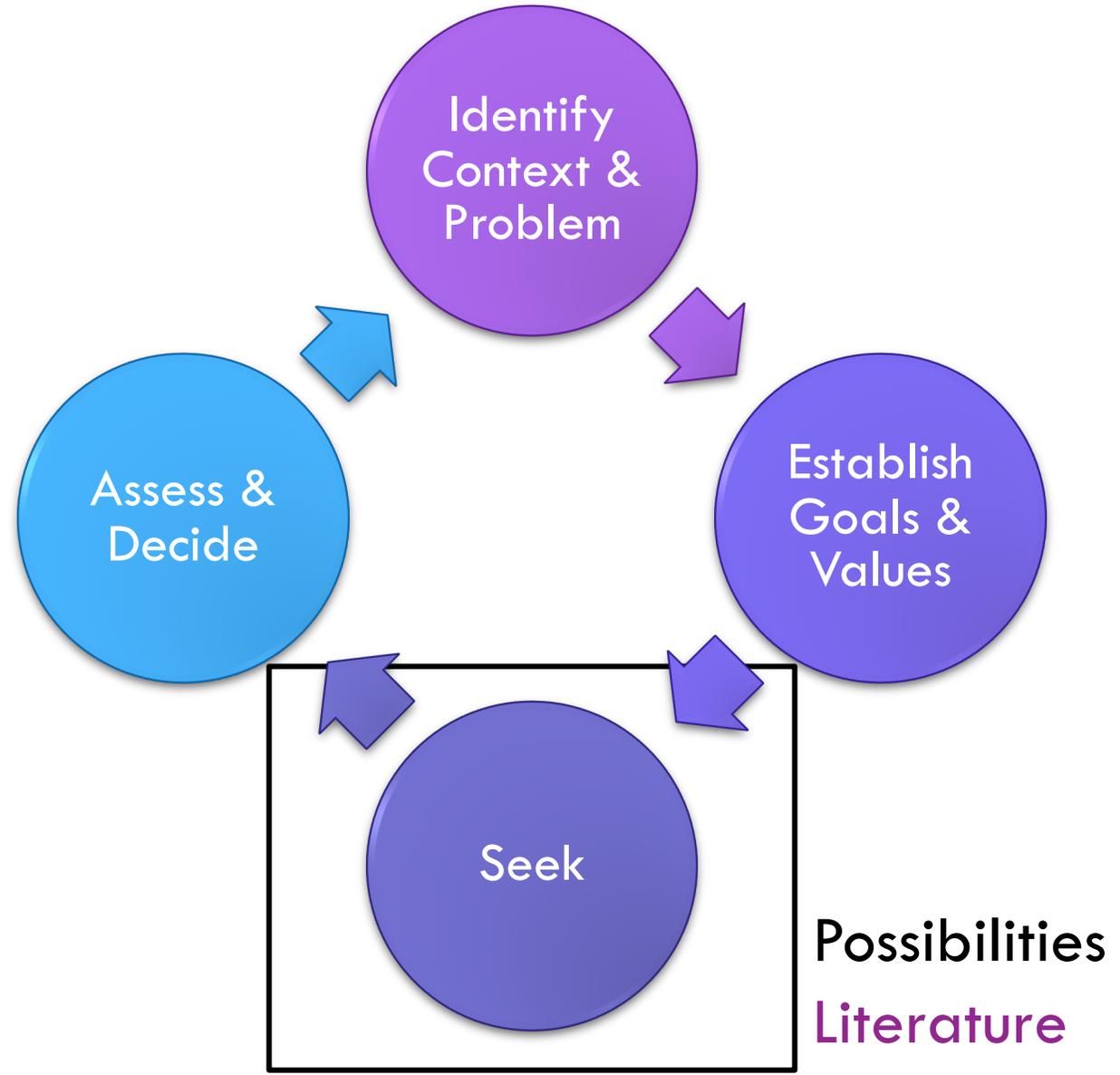
... discussed in this course. My... of critical thinking skills."... four years. It was all really... was challenging but I understood... I was missing from my education in

... of course in my second year. It... impact of my chosen profes... to further explore

... aspects of his... education,...

**PAOLA BOHORQUEZ,
ENGLISH LANGUAGE
LEARNING PROGRAM**





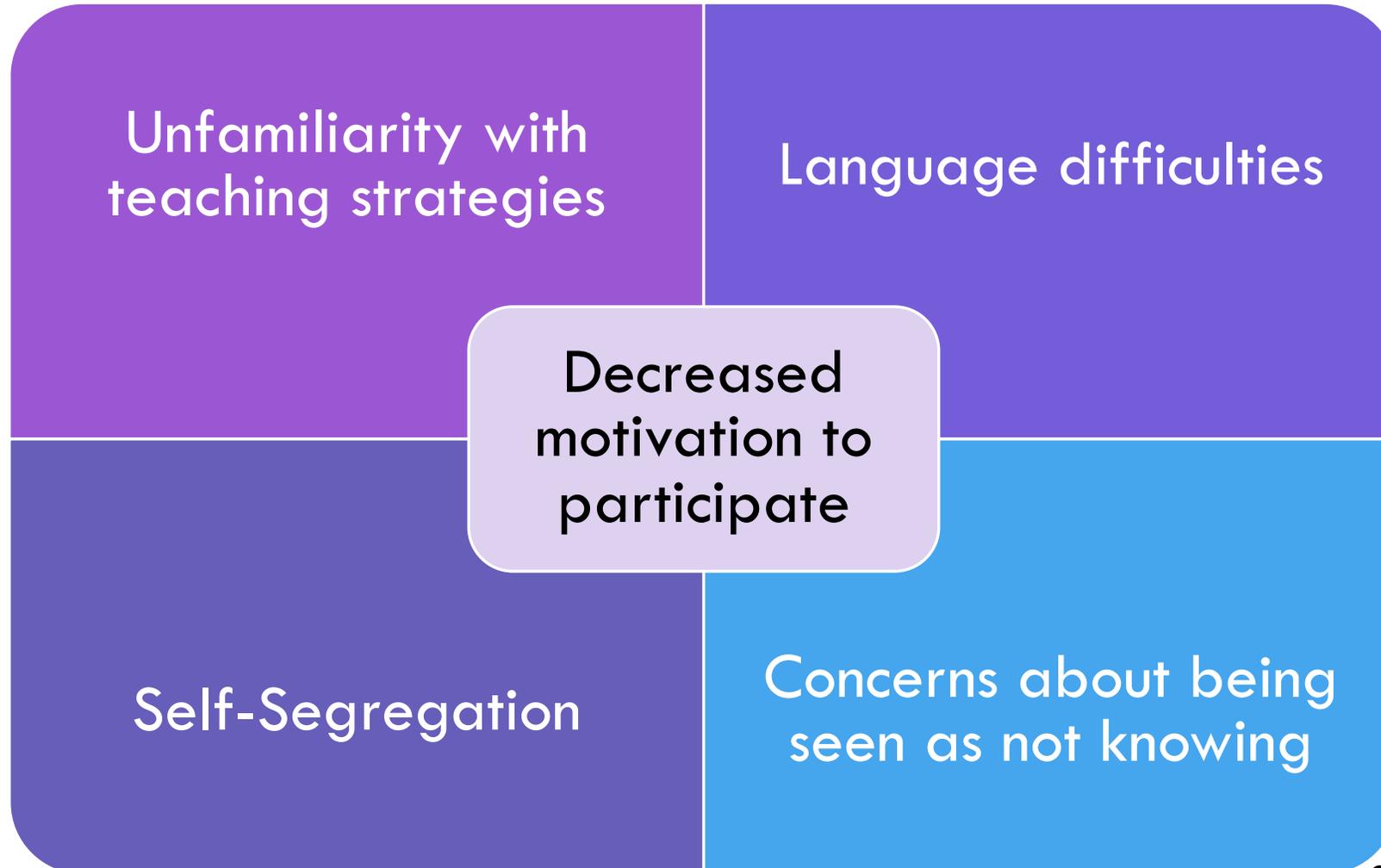
“Classroom community has been shown to play an integral role in the advancement of student learning”

- Summers & Svinicki, 2007

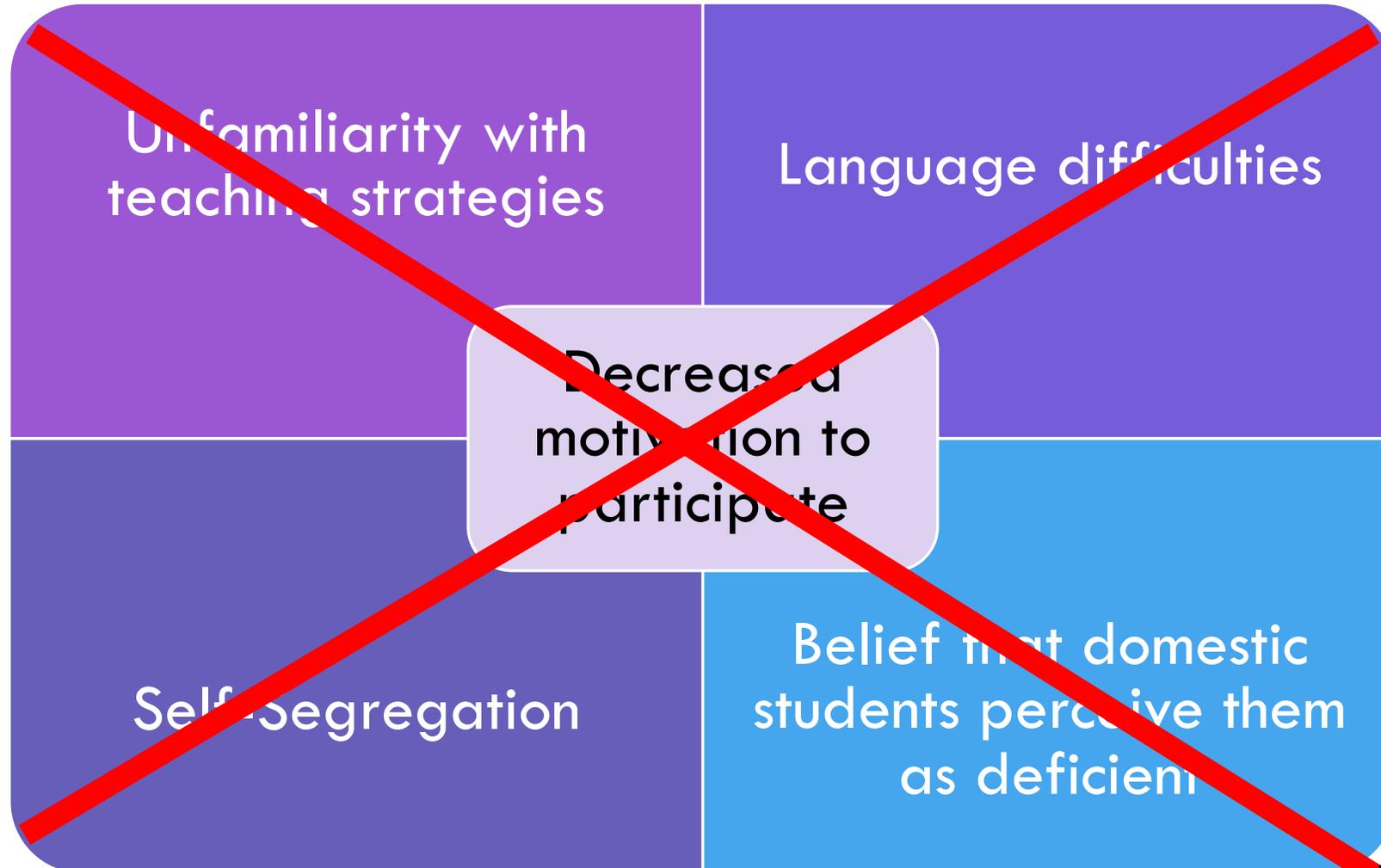


Bledsoe et al, 2014

CHINESE STUDENTS IN ACTIVE LEARNING CLASSROOMS: PERCEIVED CHALLENGES



CHINESE STUDENTS IN ACTIVE LEARNING CLASSROOMS: PERCEIVED CHALLENGES



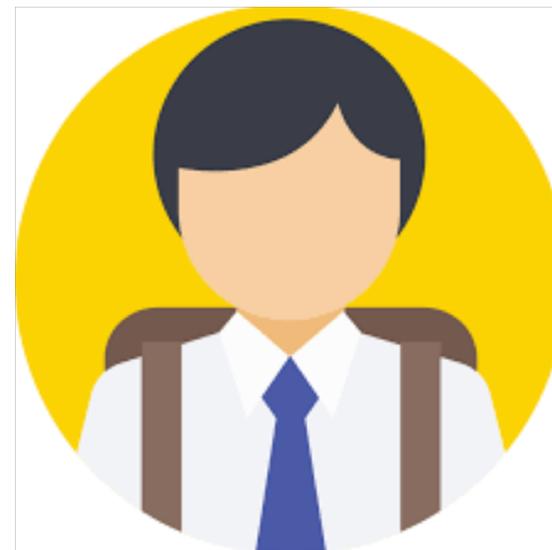
When Active Learning is New....

Professors often Feel...

- Surprised
- Uncertain
- Skeptical
- Loss of Control

Students often Feel...

- Surprised
- Shy / Nervous
- Betrayed
- Fearful



SELF-SEGREGATION AT UNIVERSITY OF TORONTO

Why? 3 Reasons (among many)

Large cultural gaps

Off-Campus tutoring services targeting Chinese students

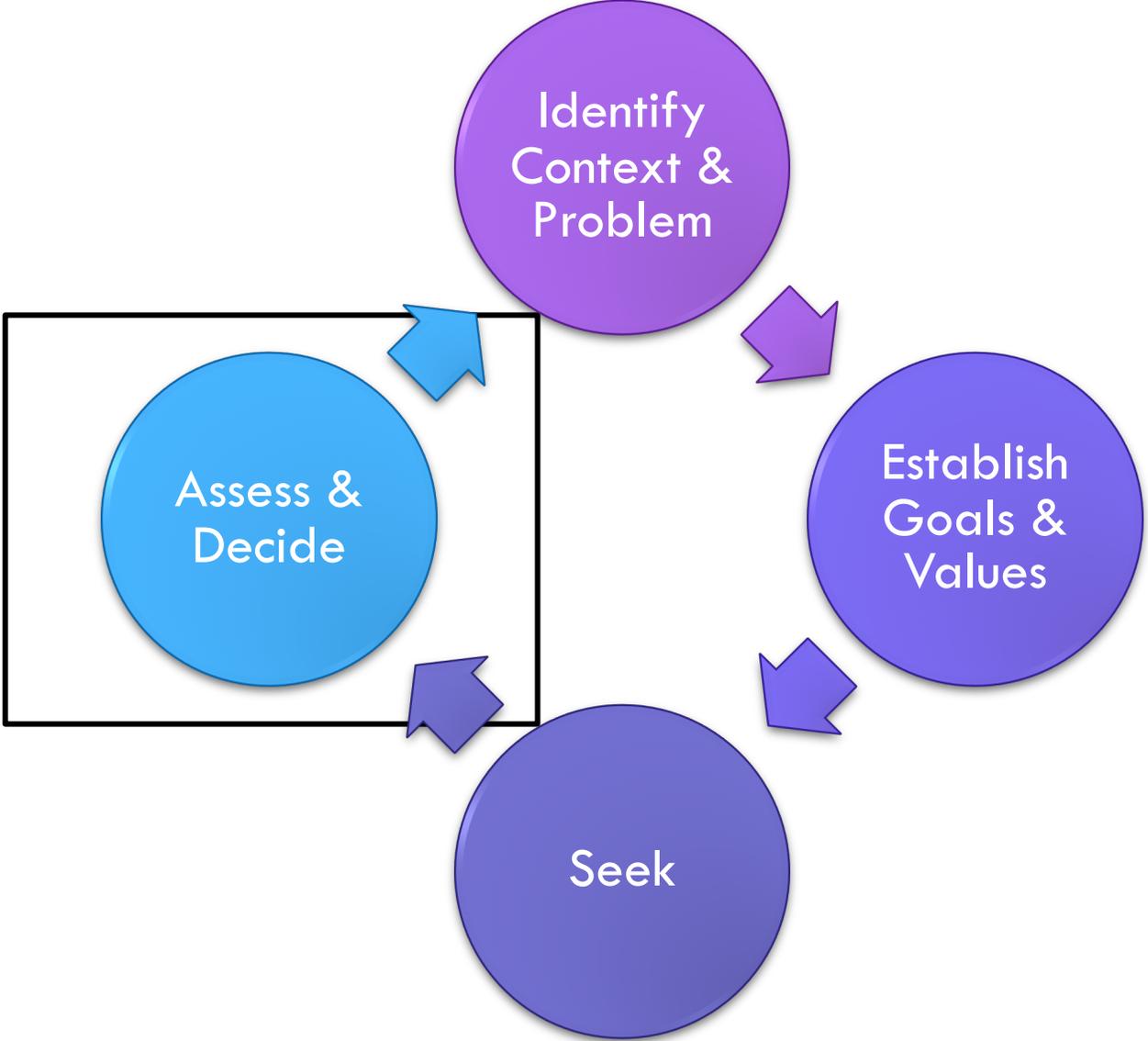
Learning English and content at same time

Consequences

Canadian students do not benefit from relationships with international students

Chinese students not able to achieve some goals of studying in Canada

Communities and groupings not as heterogeneous



3 STRATEGIES



Develop a consistent "toolbox" of activities and be persistent



Use seating to encourage sustained and heterogeneous groups



Use strategies developed for English Language Learners to benefit all students

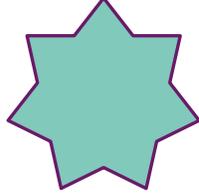
MY TOOLBOX OF ACTIVE LEARNING STRATEGIES

Activity	Benefits
Round Robin	Participation by everyone
Voting (Top Hat)	Split votes encourage discussion
iPad Passing & Projection	Motivation for working in groups; illustrates benefits of working with others
Hard-Copy Worksheets	Concrete steps to completion; 1-2 per table encourages collaboration

Seating and Groupings



Consistency

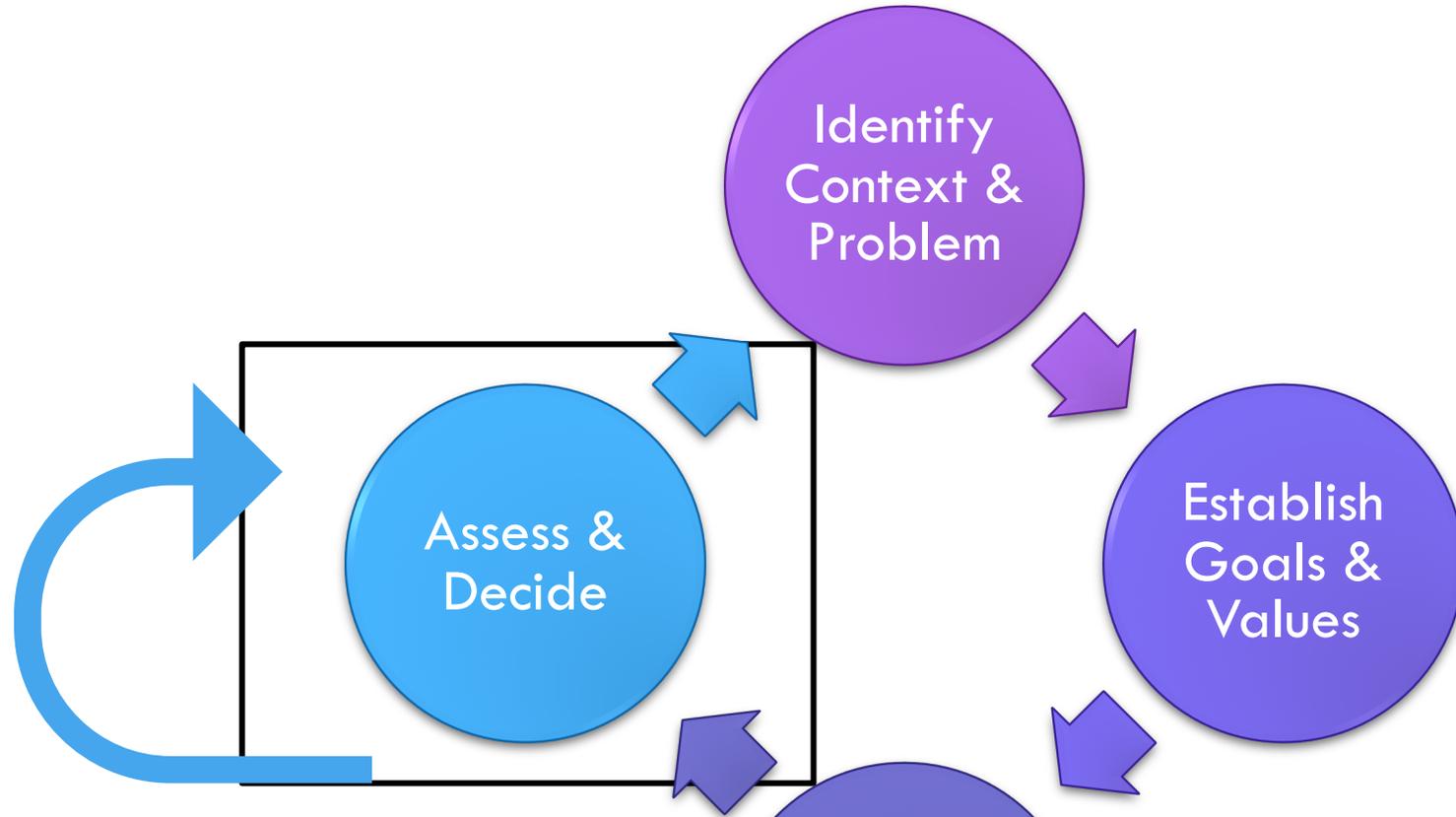


Allocation

Permanent Groupings

Allocation Process:

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



Regular Assessment

- Critical Incident Questionnaires
- Classroom Assessment Techniques

Summative Assessment

- End-of-Term Survey

EMERGING PROBLEM: FINDING KEY POINTS

Problem: Students could not identify key points from the reading) and did not see the purpose of it

Literature: Strategies for English Language Learners are useful for *all* students

Solution:

Tell students about the focus on finding key points

Scaffold, using toolbox of activities

Beginning: Fill-in-the-blank worksheet of key points

Middle: Rank importance of key points via voting

End: Round-Robin generation of key points

KEY TAKEAWAYS

Every class is different

Diversity is an advantage

Use best practices for teaching international students and English Language Learners to improve learning of *all* students

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