

# WHO ARE OUR LEARNERS

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January 2017



# WORKSHOP OUTCOMES

By the end of this workshop, you should be able to:

- Articulate your understanding about learner characteristics in the Waterloo classroom
- Plan a teaching strategy to accommodate the diversity of learner characteristics in **your** University of Waterloo classroom



# OUTLINE

- Icebreaker: First Day of Class Bingo
- Learning – What is it?
  - » In your discipline
  - » What factors affect learning?
- Waterloo Context
- Learning Approaches
- How do we use this information in our classrooms?



# FIRST DAY OF CLASS BINGO

## Aims:

- To meet at least 5 others in the room, have some conversations, and begin to make connections.

## Activity:

- Talk to at least 5 others in the room and find a name for each item on the list. When you have filled up all 5 squares, call out “Bingo” as loudly as possible.

## Rules:

- You can't use someone's name more than once.
- You can only write down someone's name if you've actually spoken to him or her (i.e., no eavesdropping!).
- You can't use your own name.



# FIRST DAY OF CLASS BINGO – DEBRIEF

- Why did we do this game?
- What did you notice about the game?
- Why might we do this game with our students?



# WHAT IS LEARNING?

In your table groups address the following questions:

- What does learning mean in the context of your discipline, and how do you think it occurs?
- What do successful students do in order to learn in your discipline?
- What hampers students in their learning?



# DEFINITION OF LEARNING

Learning is “a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning.”

Source: Ambrose, S.A., Bridges, M.W., DiPietro, M., Lovett, M.C., Norman, M.K. (2010). How learning works: Seven research-based principles for smart teaching. San Francisco, CA: Jossey-Bass.



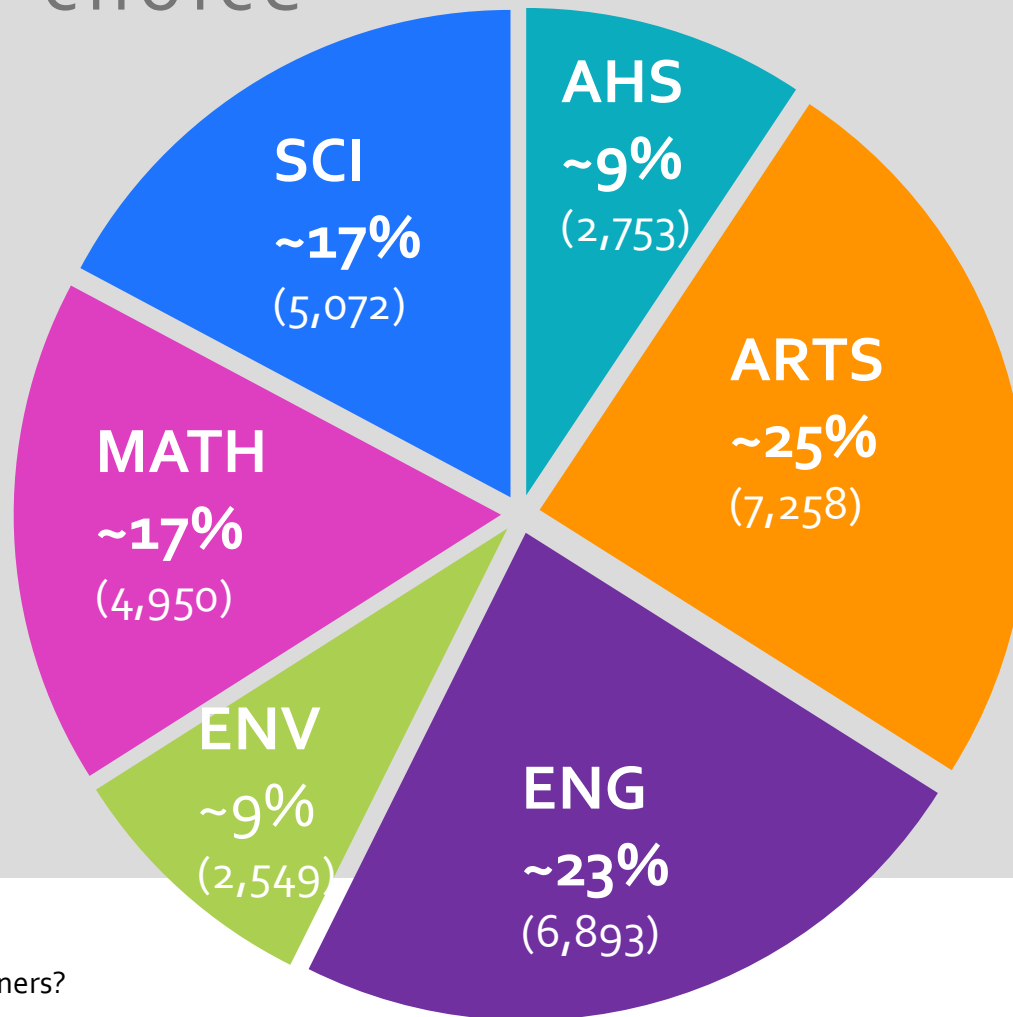
# (SOME) FACTORS THAT AFFECT LEARNING

- Motivation and interests
- Developmental stage
- Life circumstances
- Prior knowledge and experience





# MOTIVATION AND INTERESTS: Faculty choice



~30,000



# MOTIVATION AND INTERESTS:

What motivates / interests Waterloo students  
(marketed skills)

## Faculty of Arts

### Transferable Skills:

- analytical reasoning
- communication
- leadership
- creative thinking
- global awareness

## Faculty of Science

- research
- understanding concepts (technical)
- entrepreneurship (experiential, synthesis, collaboration)

## Applied Health Sciences

- apply knowledge and research to human health (synthesis)
- prevent illness, promote health, optimize quality of life

## Faculty of Engineering

- synthesis of knowledge (application of Science and Math)
- problem solving
- design
- experiential learning (entrepreneurship)

## Faculty of Mathematics

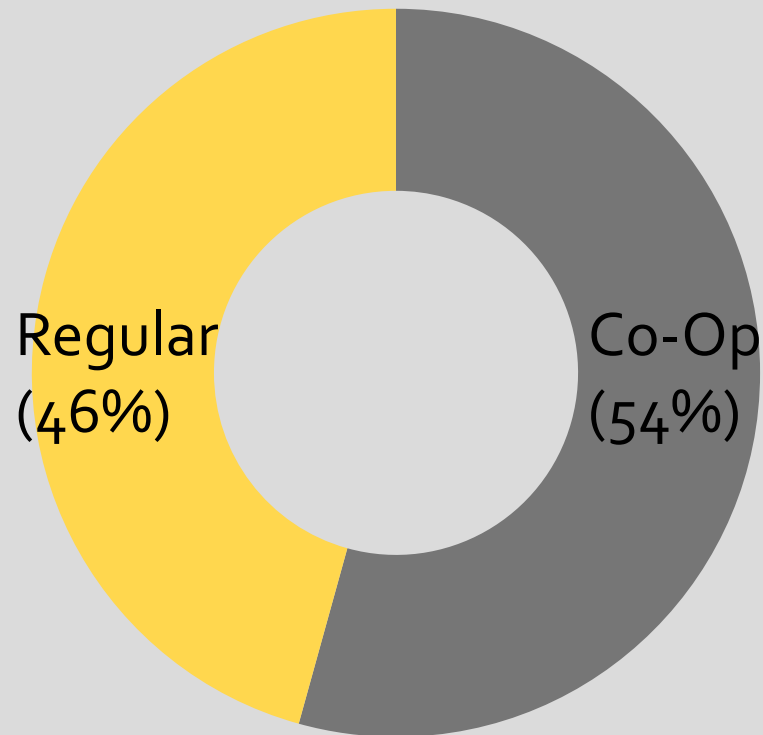
- application of theories
- problem solving
- asking the right questions
- proving things (logic, reason)

## Faculty of Environment

- collaborative community
- inspire change (leadership, activism, entrepreneurship)
- knowledge integration/ application, tackling big problems
- experiential learning

# MOTIVATION AND INTERESTS:

## Program choice



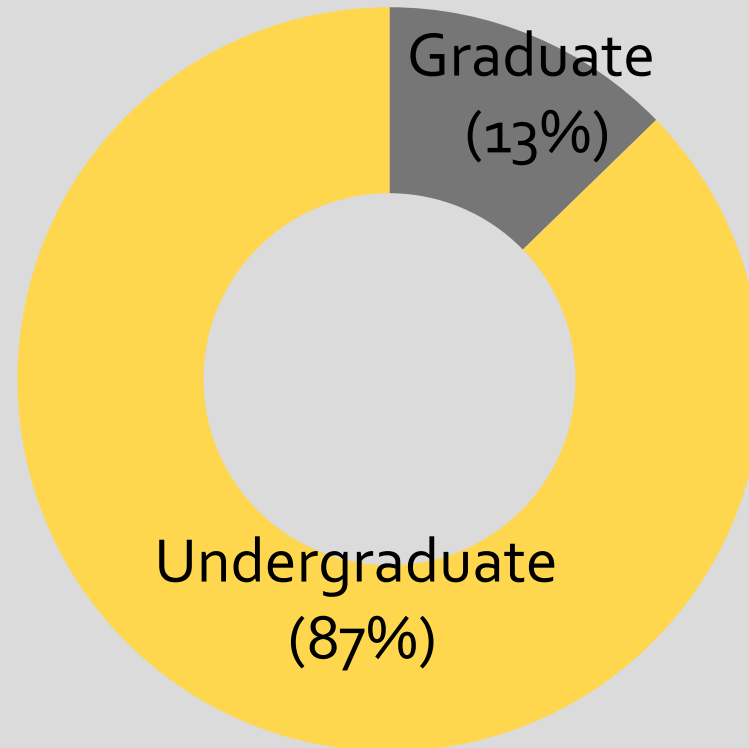
# MOTIVATION AND INTERESTS:

What is often common amongst Waterloo students?

- Scholarships
- Hoping to please parents
- Coop and Experiential Learning Opportunities
- Aiming for acceptance to professional programs
- Looking to align skills learned with those most often cited in job postings



# DEVELOPMENTAL STAGE:



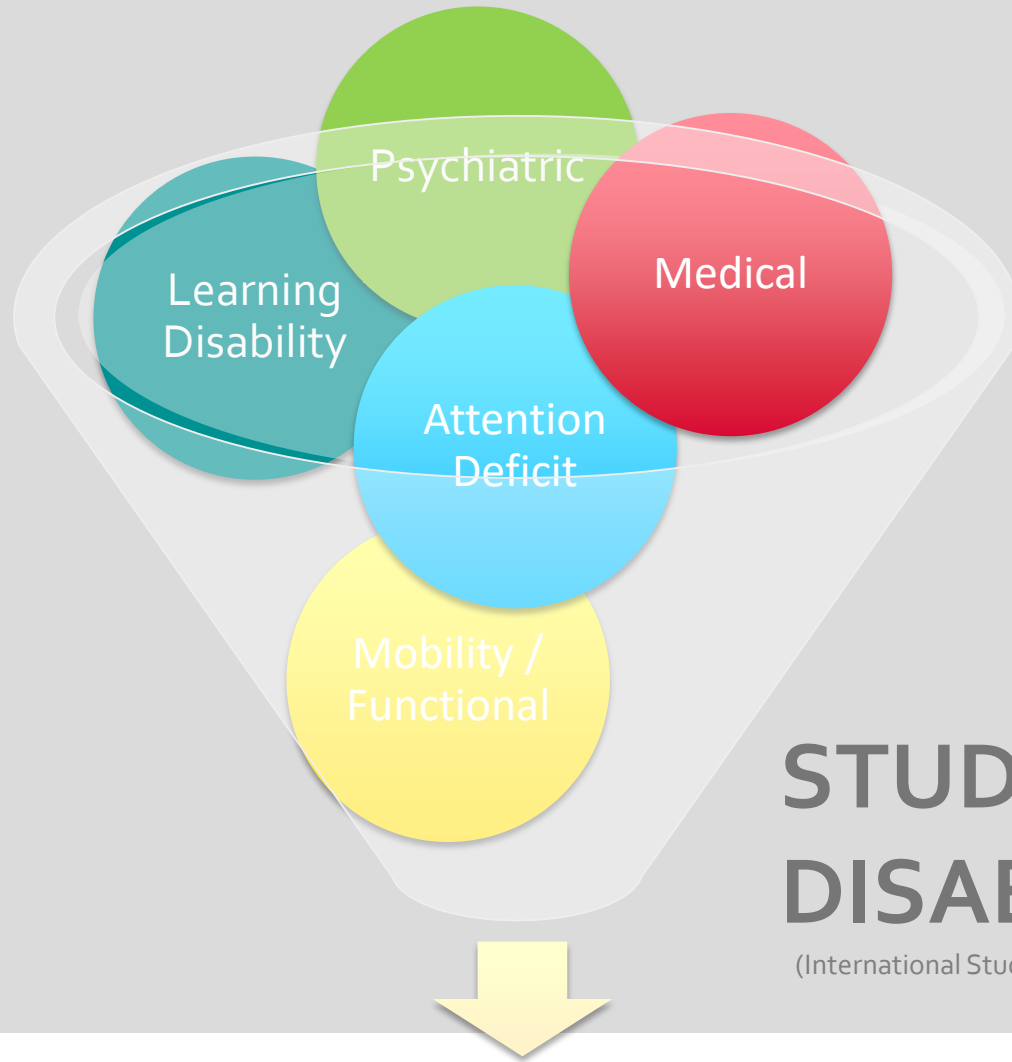
# DEVELOPMENTAL STAGE:

What is often common amongst Waterloo students?

- Mostly first-time post-secondary
- Mostly in late teens / early 20s



# LIFE CIRCUMSTANCES



90% of students registered with AccessAbility have invisible disabilities.

# STUDENTS WITH DISABILITIES

(International Student Experience, 2013)

~ 7% supported by  
Accessibility Services



Who Are Our Learners?



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**WATERLOO**

# LIFE CIRCUMSTANCES:

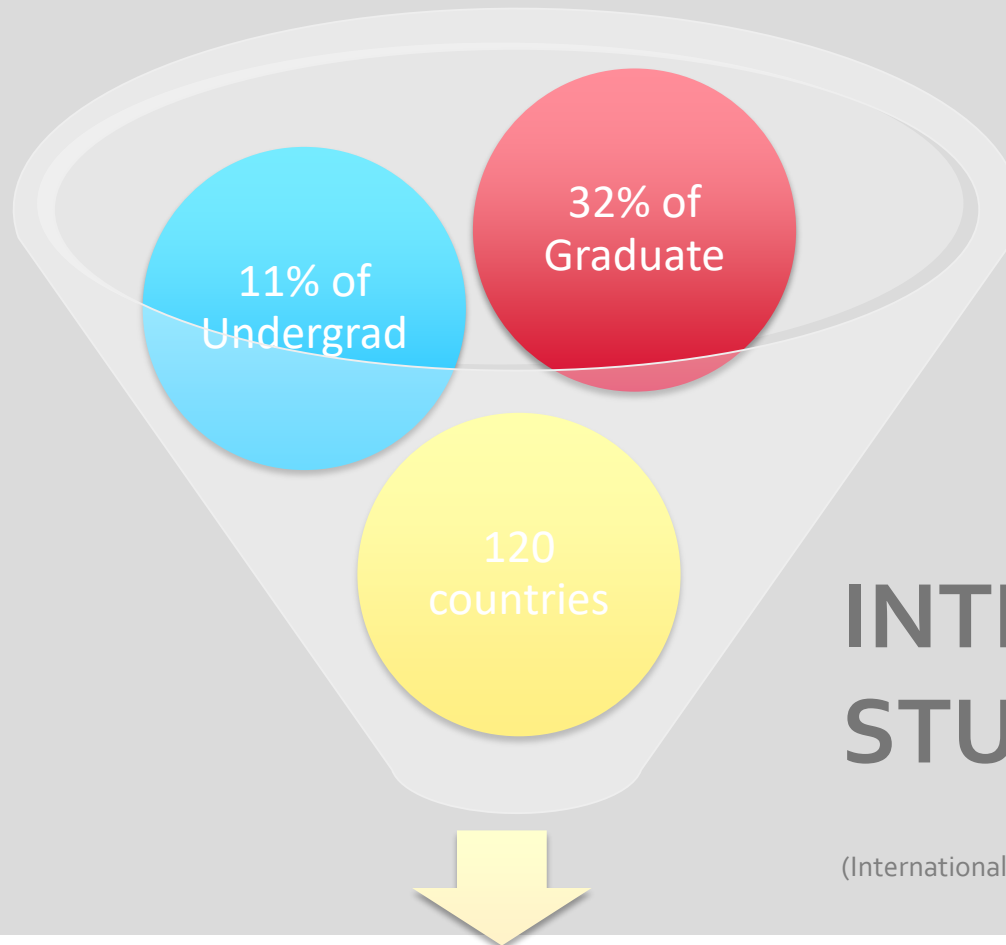
What is often common amongst Waterloo students?

- Marks-driven
- Switching degrees is not uncommon
- High levels of student anxiety and stress





# PRIOR KNOWLEDGE & EXPERIENCE:



## INTERNATIONAL STUDENTS

(International Student Experience, 2013)

~ 17% International  
(54% from China)



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# PRIOR KNOWLEDGE & EXPERIENCE:

What is often common amongst Waterloo students?

- ~70% of students (both international and domestic students) went to HS in Ontario
  - » Consistent curriculum and policies (overall)
- Entering undergraduate education with above 85%



# SO WHAT?

Learner characteristics in the Waterloo classroom

- Motivated to connect their experiences to 'what's next' (but bad at doing this!)
  - » **CONTEXT:** Students struggle to articulate the 'skills' they are learning in your classroom.
  - » **STRATEGY:** Use examples to link the curriculum to practical applications

... what else could/do you do?



# SO WHAT?

## Learner characteristics in the Waterloo classroom

- Young, first-time post-secondary learners
  - » **CONTEXT:** Not only learning course content, but also, how to learn and apply knowledge effectively at the post-secondary level.
  - » **STRATEGY:** Consider giving your students specific 'study tips' for how to be successful in your course.

... what else could/do you do?



# SO WHAT?

## Learner characteristics in the Waterloo classroom

- Marks-driven learners who have high levels of stress
  - » **CONTEXT:** Most students, G and UG, reported a moderate to high stress level before the Fall Break
  - » **STRATEGY:** Have your deadlines throughout the term planned and clearly articulated in your course outline and on LEARN. Space out the workload (where possible).



# SO WHAT?

## Learner characteristics in the Waterloo classroom

- Differences in their past cultural and academic experiences
  - » **CONTEXT:** Will have very different experiences than you did in your high-school / post-secondary education
  - » **STRATEGY:**
    - Expectations
    - Communication



# EXPECTATION STRATEGIES

## HIGH SCHOOL and 'Growing Success' Policies and Practices

- Widespread practice of marking all student work without penalties, even if the work is submitted on the last day of the semester.
- Feedback is often delivered in descriptive, written forms daily for each student.
- Students redo part or all of the assignment/assessment or complete an alternate assignment/assessment when caught plagiarizing.



# EXPECTATION STRATEGIES

**Acknowledge the differences between high school and post secondary expectations early in the term:**

- 'Deadline' has different meanings:

## High School

- Flexible and negotiable
- Often no consequences for missing 'hard' deadlines

**VS.**

## Post Secondary

- Mark of zero, regardless of how soon after the deadline it was submitted





# EXPECTATION STRATEGIES

**Acknowledge the differences between high school and post secondary expectations early in the term:**

- Self Regulation and Independent Learning:

## High School

- Typically one topic/class with time for practice
- Frequent, descriptive, tailored feedback from instructor

**VS.**

## Post Secondary

- More material covered in a shorter amount of time
- Much of the learning happens independently outside of class hours



# EXPECTATION STRATEGIES

**Acknowledge the differences between high school and post secondary expectations early in the term:**

- Cheating/Plagiarism:

## High School

- Redo part or all of the assessment (including final exam)
- Complete alternate assessment

**VS.**

## Post Secondary

- Mark of zero on component
- Often a reduced percentage mark at end of term

... what else could/do you do?



# COMMUNICATION STRATEGIES



of Waterloo students  
check for emails  
from a Waterloo  
source daily

47%

don't read every email  
that comes from a Waterloo source

82% read email on a  
mobile device

1  
76%  
Professors

2  
55%  
Program co-ordinators/  
academic advisors

91% read email on a  
personal computer



## » STRATEGY:

1. USE LEARN ANNOUNCEMENTS
2. KEEP EMAILS BREIF

... what else could/do you do?

When I'm on my phone  
I can only see so much,  
so **make it concise** or put  
what's most important at  
the beginning.

– STUDENT



# KOLB'S EXPERIENTIAL LEARNING STYLE THEORY

A useful way to accommodate the diversity of learner tendencies

- David Kolb (developmental psychologist from Case Western University) developed a learning style inventory
- Identified **complete learning cycle** to include four specific ways of learning
- Most people develop **durable preference** for one way of learning
- **Mastery** is achieved only after all four ways of learning are experienced



# Concrete Experience

*Feeling*

- Learning from experiences
- Relating to people

Processing

Perception

# Reflective Observation

*Watching*

Careful observation and viewing things from different perspectives

# Abstract Conceptualization

*Thinking*

- Logical analysis of ideas
- Systematic planning

# Active Experimentation

*Doing*

- Practical
- Influencing people and events through action



# KOLB'S EXPERIENTIAL LEARNING STYLE THEORY

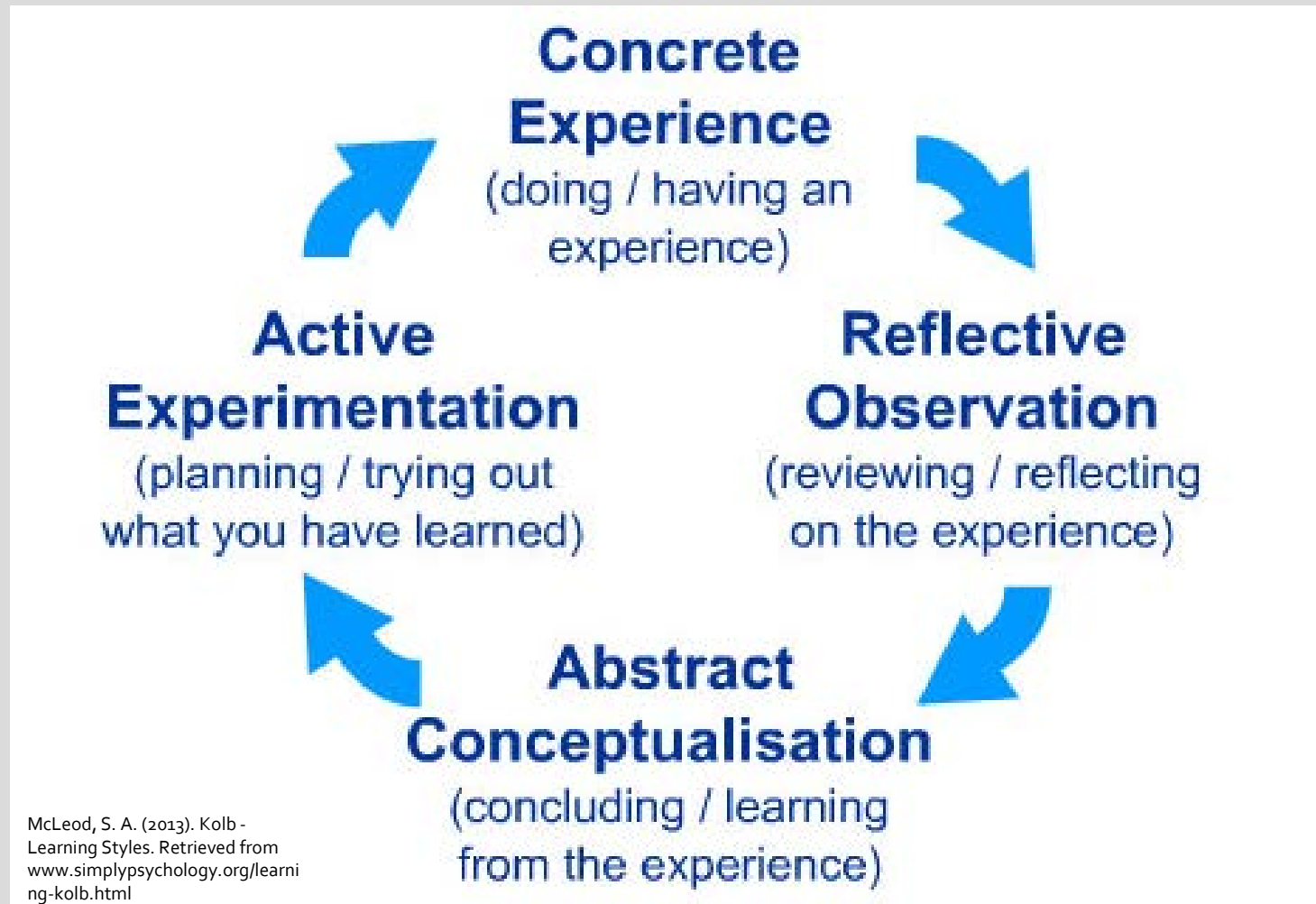
A useful way to accommodate the diversity of learner tendencies

Kolb's experiential learning theory works on two levels:

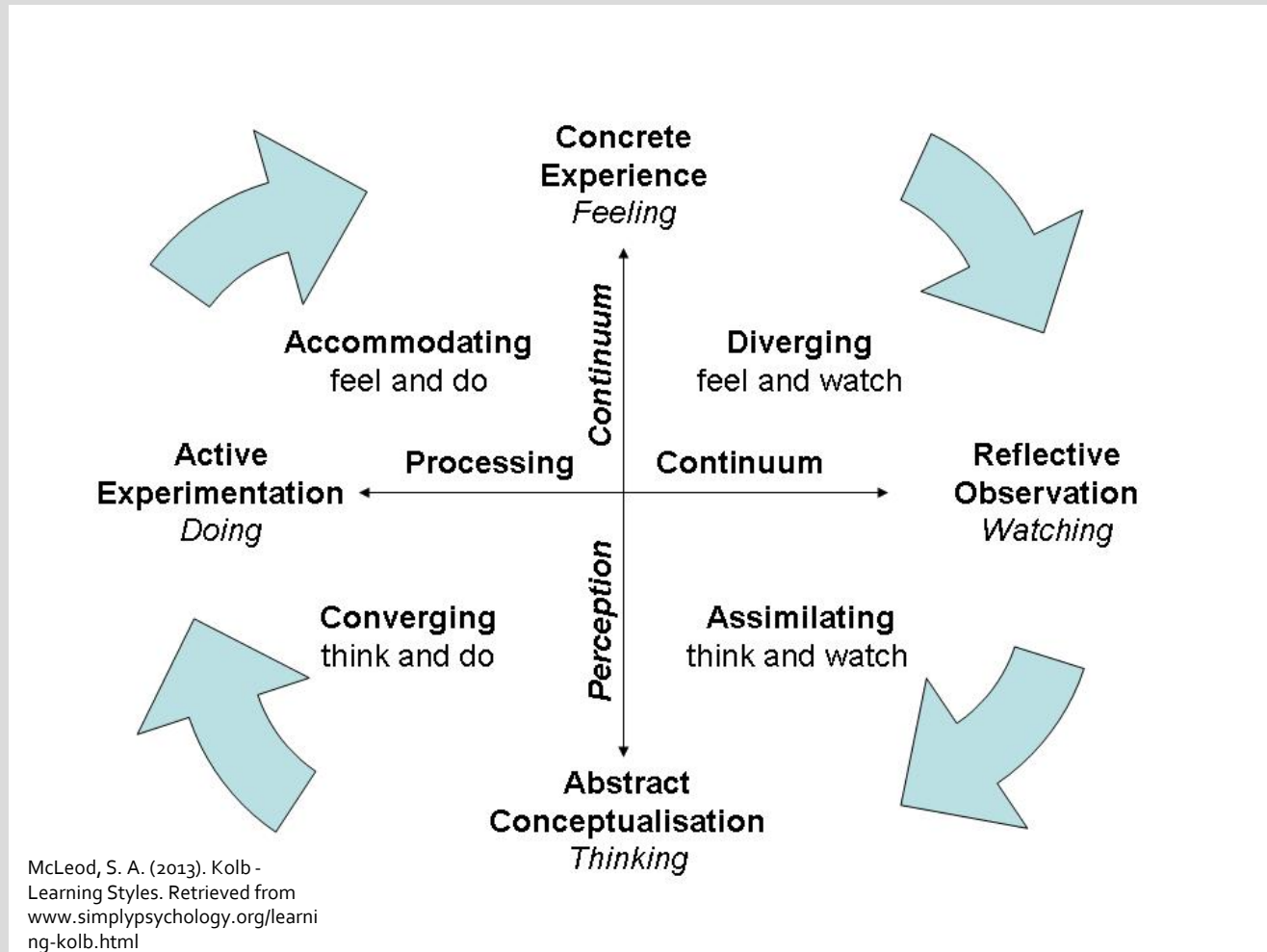
- as a four stage cycle of learning
- as four separate learning styles



# KOLB'S EXPERIENTIAL LEARNING CYCLE



# KOLB'S SPECIFIC WAYS OF LEARNING





# Concrete Experience

Feeling

## Accommodator

*feel and do*

- Likes "discovery" learning
- Approach problems in trial and error manner

## Diverger

*feel and watch*

- Learn in groups by discussion
- Good at brainstorming

**Active Experimentation**

Doing

## Converger

*think and do*

- Practical application of ideas
- Problem solving using deductive reasoning

## Assimilator

*think and watch*

- Excel at integrating different approaches
- Problem-solving using inductive reasoning

**Reflective Observation**

Watching

**Abstract Conceptualization**

Thinking



# PAIR ACTIVITY:

One of your assignments requires students to work in groups. With your neighbour:

- Brainstorm a few class activities or teaching strategies to help group members appreciate different learning stages/learners within their group



# TAKE-HOME MESSAGES FROM KOLB:

- There is no “right” way to learn
- Little evidence for “matching” learning styles to method
- Varying teaching methods ensures all students can access your material
  - » beneficial for students (Freeman et al., 2014; *PNAS*)



# CONCLUDING THOUGHTS

- Meet students where they are
- Make connections – student to material, to others, to you
- Make things explicit
- Model learning processes – forming associations, organizing information, constructing framework
- Vary teaching methods
- Use Universal Design for Learning
  - » Multiple means of representation
  - » Multiple means of expression
  - » Multiple means of engagement



# TRY USING WHAT WE HAVE DISCUSSED IN OUR OWN TEACHING...

'Put it into practice' homework task:

1. Describe a learning challenge that is a result of the diversity in experiences, background, motivation and/or learning preference of your students at the University of Waterloo.
2. Generate a strategy to address this challenge in your classroom and outline how you might put it into practice.



# THANK YOU

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