

# Creative Strategies to Support SDL in Online Intro STEM Courses

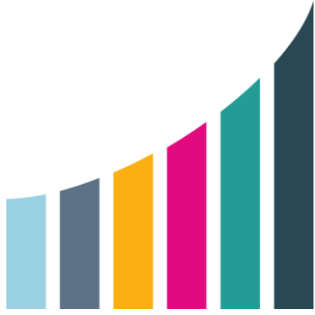
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November 4, 2022



# Agenda



- Background on the Postsecondary Teaching with Technology Collaborative
- Examples of Creative SDL Instructional Strategies
- Discussion

# Background on the Postsec Collab



# What is the Collaborative?



A research and capacity-building center that aims to study and improve how faculty **teach** and use **technology** to help students apply and strengthen **self-directed learning skills** to increase their success in online courses.

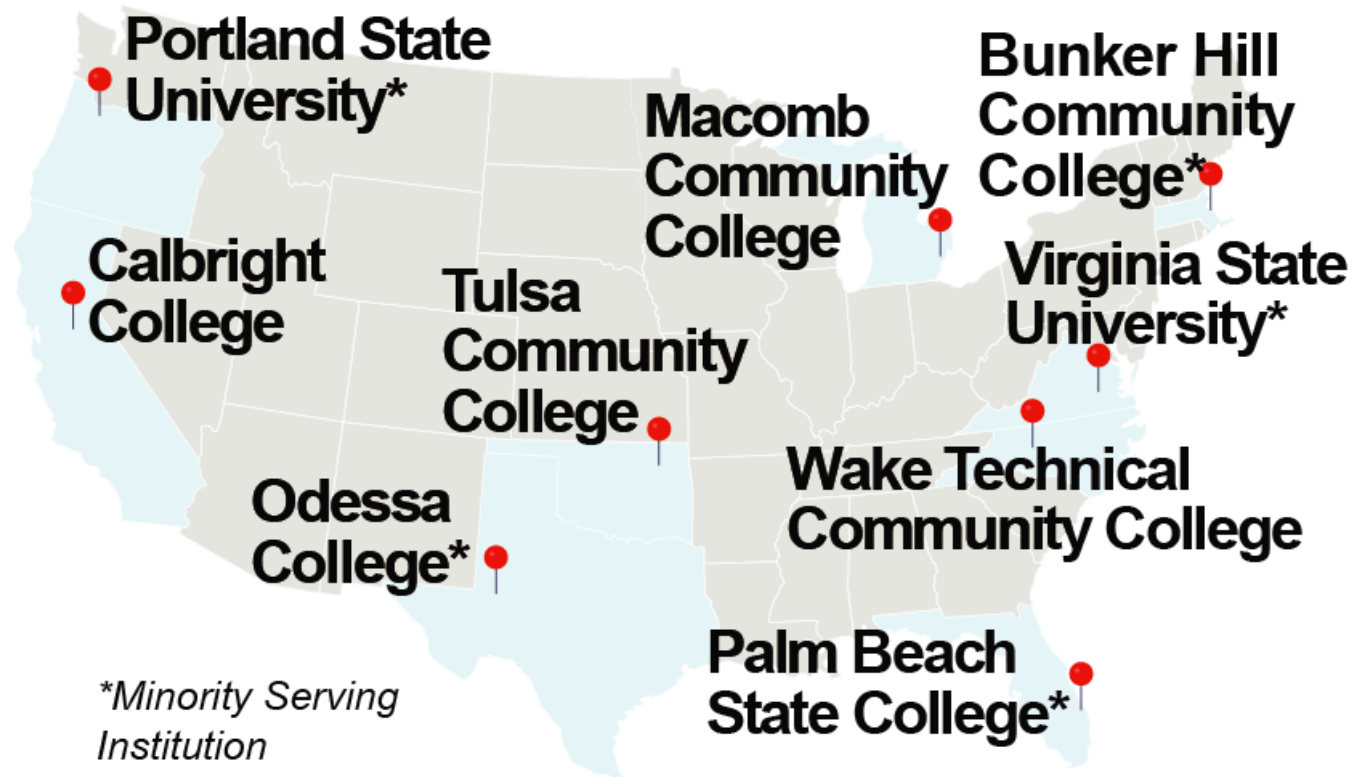
# Postsec Collab: Who Are We?



**SRI Education™**  
A DIVISION OF SRI INTERNATIONAL

**CCRC** COMMUNITY COLLEGE  
RESEARCH CENTER  
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

**Achieving  
the Dream**



# Why This Focus?



COVID has increased the urgency for research and support to improve teaching and learning in online courses

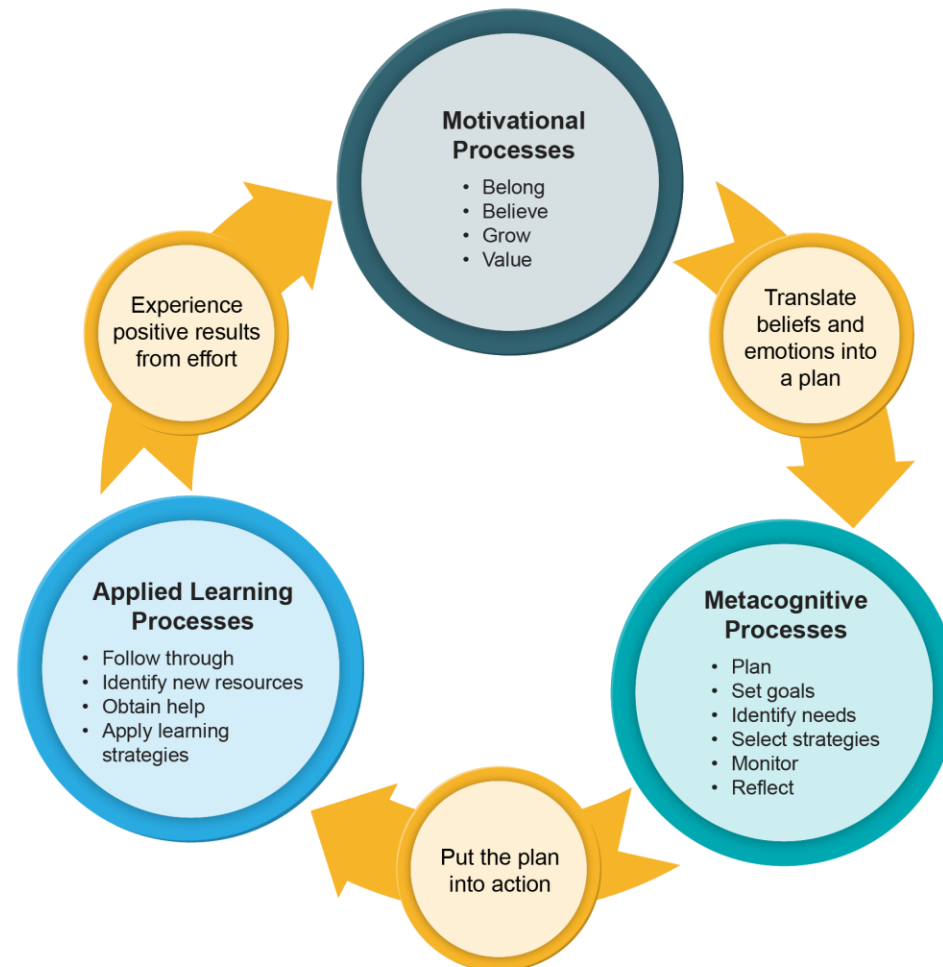


Higher education needs more information about strategies to improve equitable outcomes in online courses

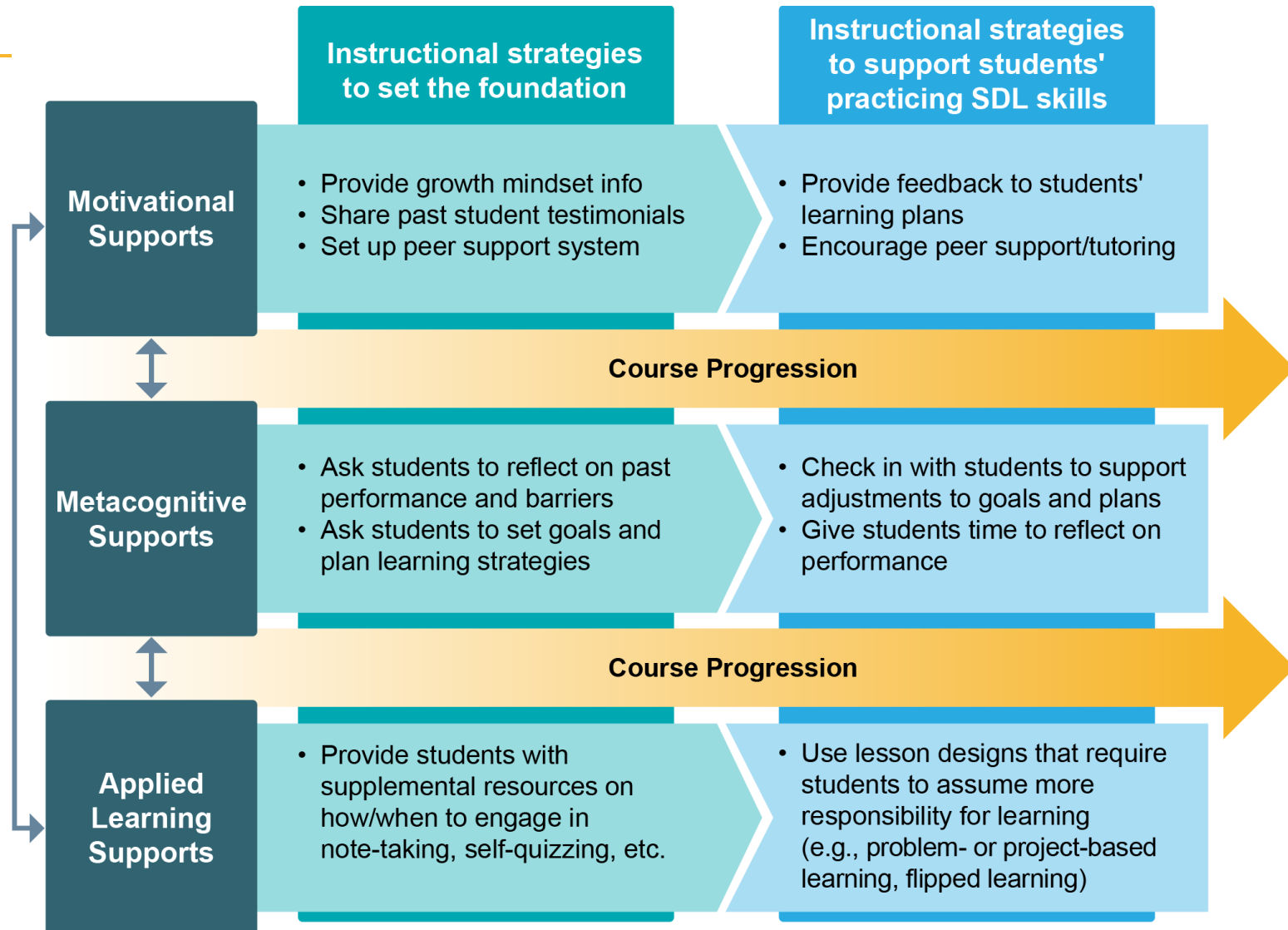
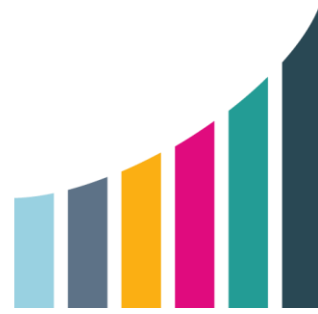


The need for strong self-directed learning skills may be more profound in online courses, especially in STEM

# Self-Directed Learning Skills



# SDL Instructional Support





# Examples of Creative SDL Instructional Strategies



# Sp22 Faculty Course Tour Research



Course tours with 12 faculty at 8 institutions

- 5 bio faculty, 4 math, 3 other STEM (chem, environ sci, geology)
- 8 online asynch courses, 2 online synch, 2 hybrid

The screenshot shows a Blackboard course interface. On the left is a dark sidebar menu for 'Principles of Biology' with options like 'Course Entry Quiz', 'Announcements', 'Getting Started', 'Faculty Information', 'Lessons (lecture)', 'Textbook (online version)', 'Odigia (labs)', 'Course Café', 'Course Resources', 'Email', 'Schedule a meeting', 'My Grades', 'Tools', and 'Student Support'. The main content area is titled 'Week 1 - Course Introduction - How to succeed in this class (June 3-5)'. It features a 'Lesson Overview' section with 'Lesson Learning Outcomes' and a target icon, followed by a list of 7 outcomes. Below this is a 'Tasks for this Lesson' section with a checklist icon and a list of 7 tasks, each with a due date. At the bottom is a 'Weekly preview video' section with a VidGrid logo.

Principles of Biology

Course Entry Quiz

Announcements

Getting Started

Faculty Information

Lessons (lecture)

Textbook (online version)

Odigia (labs)

Course Café

Course Resources

Email

Schedule a meeting

My Grades

Tools

Student Support

Week 1 - Course Introduction - How to succeed in this class (June 3-5)

Lesson Overview

Lesson Learning Outcomes

Upon completion of this lesson, students should be able to:

1. Understand the role of student-student interaction and the course's collaborative environment.
2. Understand the role of student-instructor interaction and its impacts on student success.
3. Understand how assignments will be assessed in BIO 111.
4. Understand the importance of time commitment and effective time management.
5. Learn and/or refresh note-taking skills.
6. Understand the way the lecture information will be conveyed this semester in BIO 111.
7. Use Microsoft Teams.

Tasks for this Lesson:

Review everything in this folder and:

- ☐ Complete the short "FERPA Release and Academic Honesty Agreement" (it's found at the bottom of the "Getting Started" area in Blackboard) to allow us to discuss you of your grades via wake tech official email ...).
- ☐ How to be a good student - Look over the resources in the Getting Started section of this course.
- ☐ Self-Evaluation (due by 11:59 pm Thursday, June 3).
- ☐ Action Plan (due by 11:59 pm Friday, June 4).
- ☐ Explore the research on note-taking and choose one note-taking strategy for the semester (found in "Getting Started" --> "How to be a good student").
- ☐ Say hello on the general channel of MS Teams and vote for the class icon.
- ☐ Complete the case study "Do I Belong in STEM" (due by 11:59 pm Saturday, June 5).
- ☐ Upload a video for the Weekly Reflection assignment (due by 11:59 pm Sunday, June 6).

Weekly preview video

VidGrid

# Motivation through Reflection in Principles of Biology



Weekly reflections using Flip video discussion app

- Students share videos with peers and respond to each other
  - Supports sense of belonging
- Professor responds to videos
  - Provides encouragement, guidance

**Rose**



Success

**Thorn**



Challenge

**Bud**

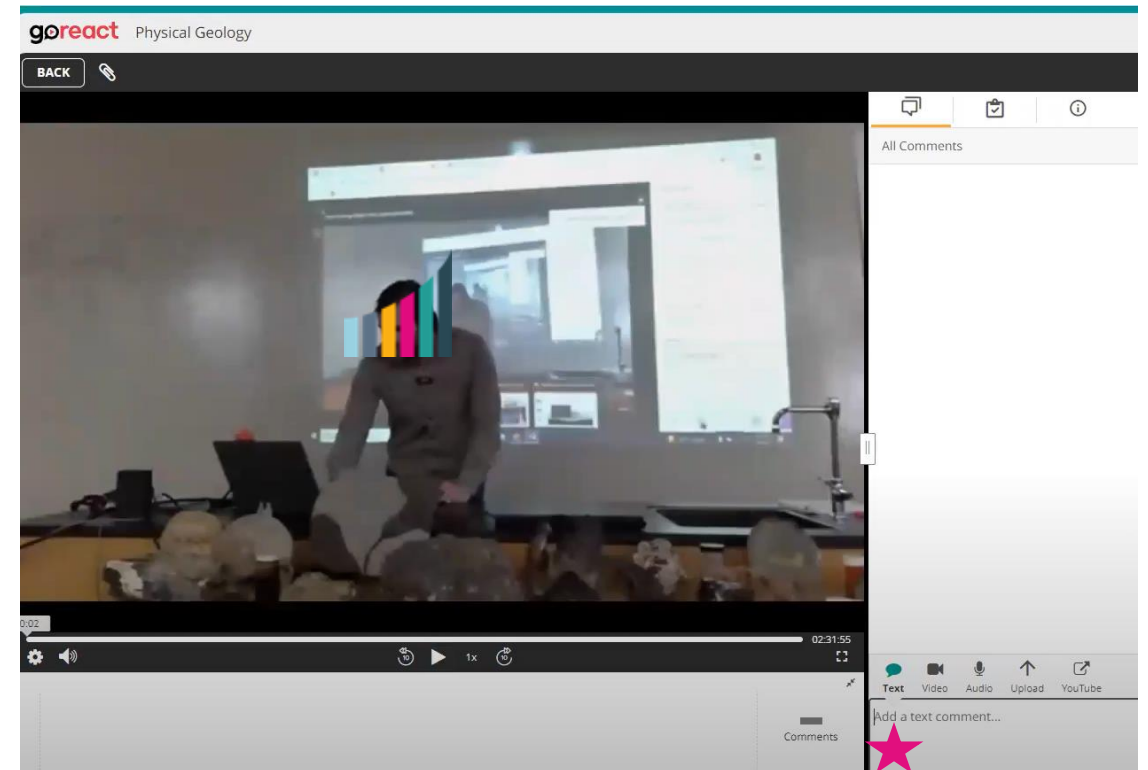


Potential

# Guidance on Notetaking and Real-Time Discussion in Physical Geology



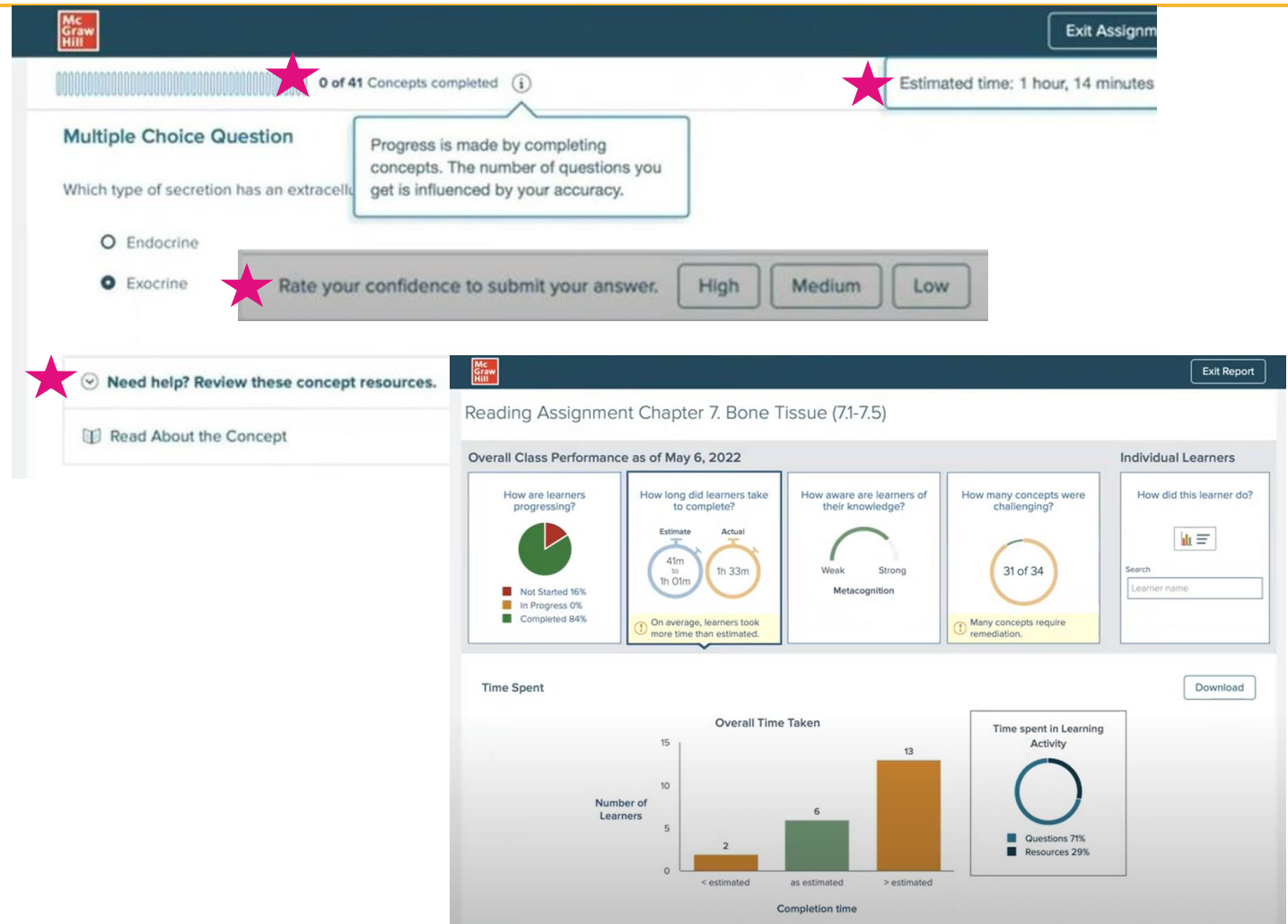
- Discussions/questions about lecture content in real time using GoReact video feedback tool
  - Fosters peer support and help seeking
- Contextualized instruction on notetaking
  - Supports students' use of applied learning strategies



# Supporting Planning and Study Skills in Anatomy & Physiology I



- Pre-course tech tutorial videos
  - Lessens tech barriers and bolsters student confidence
- Adaptive learning assignments: time estimation, key concepts, confidence assessment for each response
  - Supports time management and review
  - Data dashboards guide future instruction for faculty



# Postsec Collab Goals



- ☑ Increase awareness of the importance of self-directed learning skills and of culture and context in supporting these skills
- ☑ Improve online instruction and/or use of technology for instructional purposes
- ☑ Advance educational equity by building colleges' and universities' capacity to improve instructional quality in ways that support their diverse student bodies
- ☑ Strengthen feedback loops among researchers, practitioners, and education technology developers

# Discussion



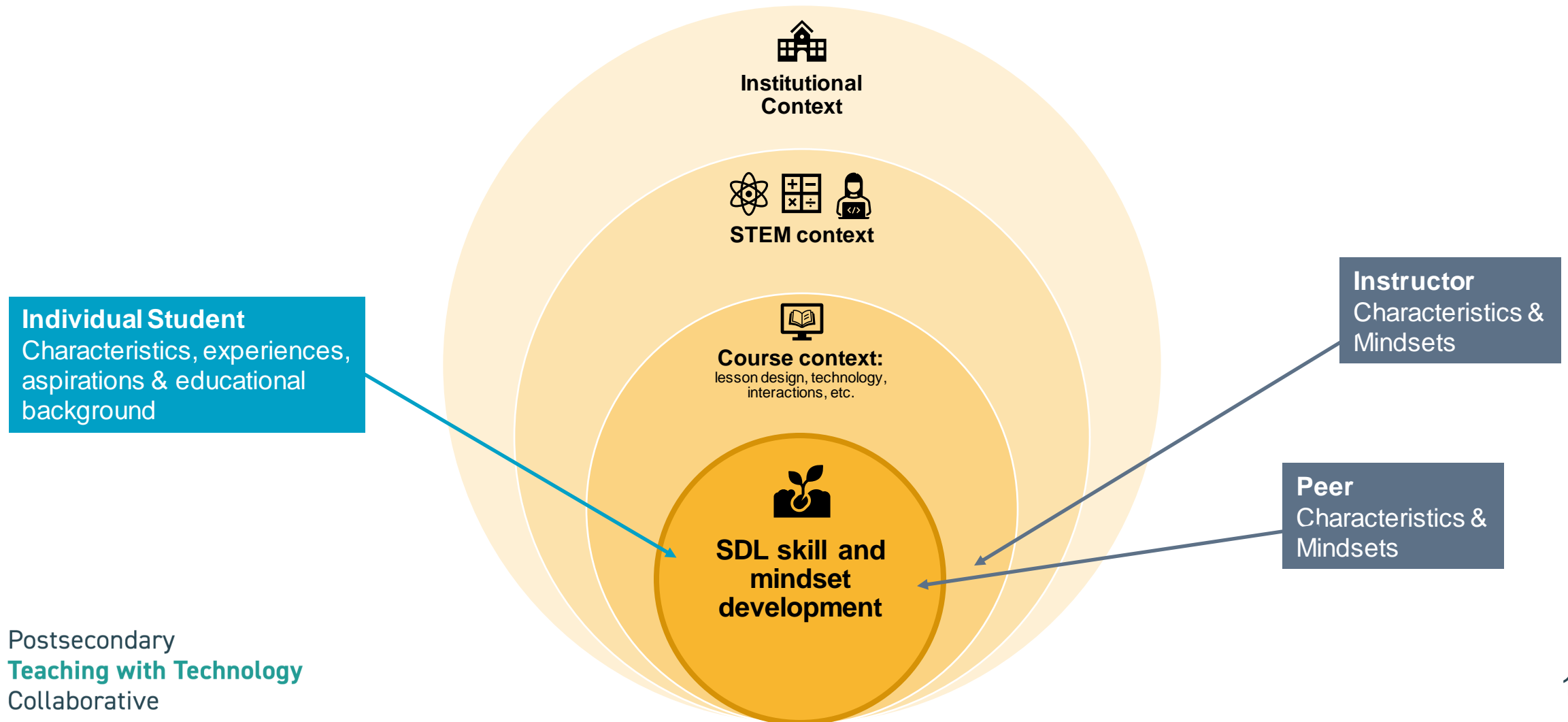
# Incorporating SDL Instruction in Online Intro STEM



- Have you incorporated SDL skills and mindsets in your online courses?
- In what ways?



# Ecological Perspective of SDL Development [draft version]



# Context, Culture, and Learning



- How do you think about how context and culture shape student learning and SDL skill development?

# Scaling and Strengthening SDL Instruction



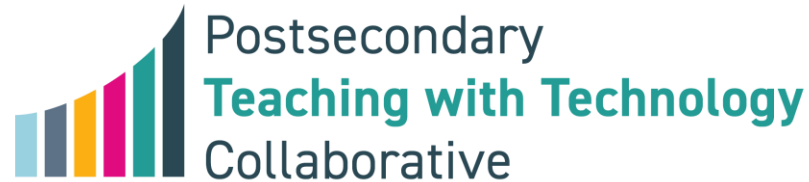
- What resources are available to support SDL skills and mindsets at your institution (e.g., student success courses, coaches, advising, tutoring)?
- What types of supports do you need to implement SDL strategies in your courses?

# Thank you

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