

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.

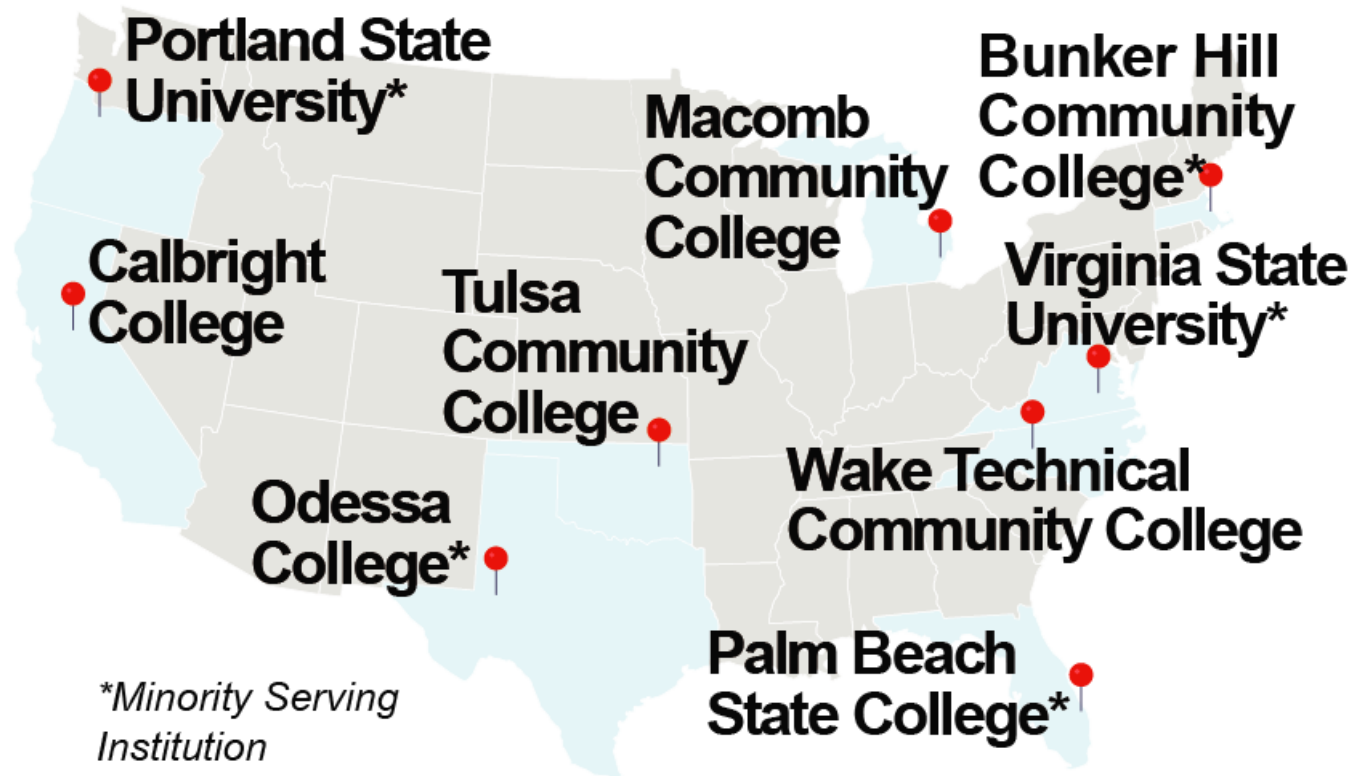
Postsec Collab: Who Are We?



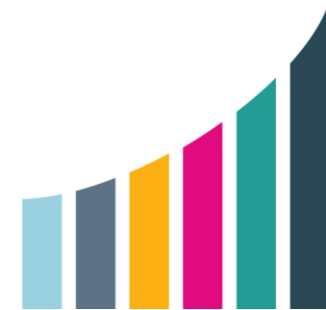
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Why This Focus?



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

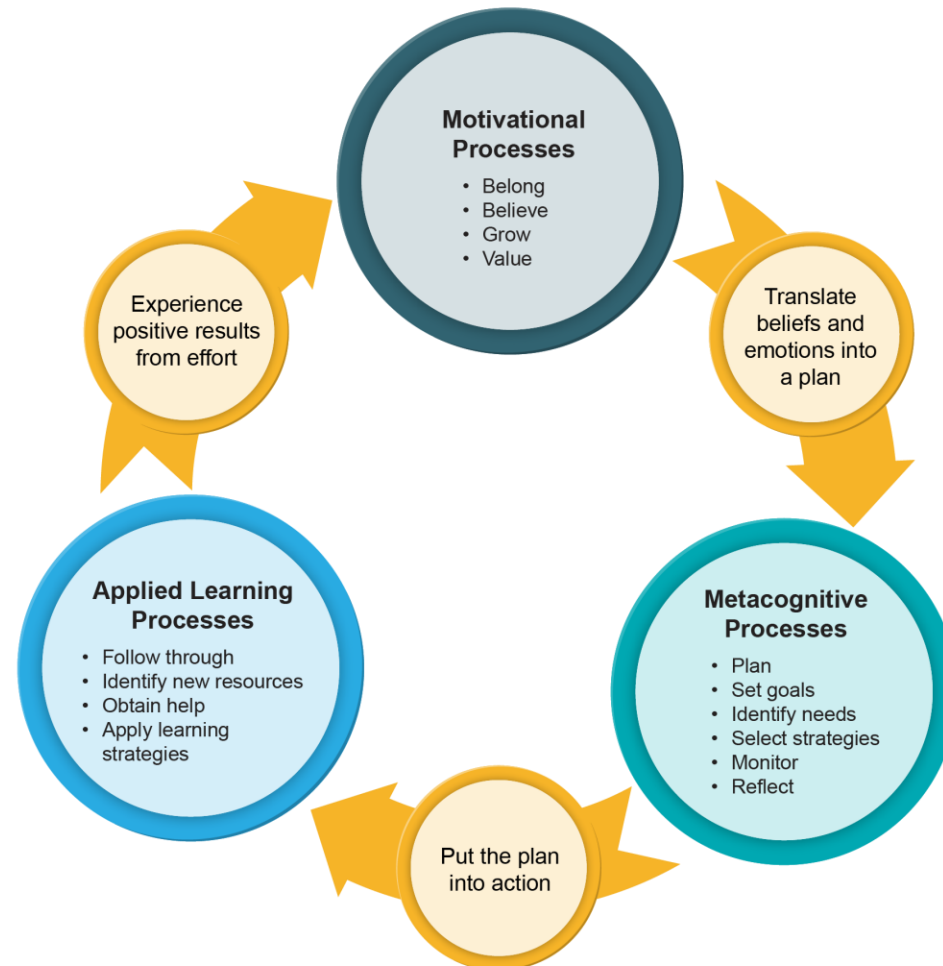


Higher education needs more information about strategies to improve equitable outcomes in online courses

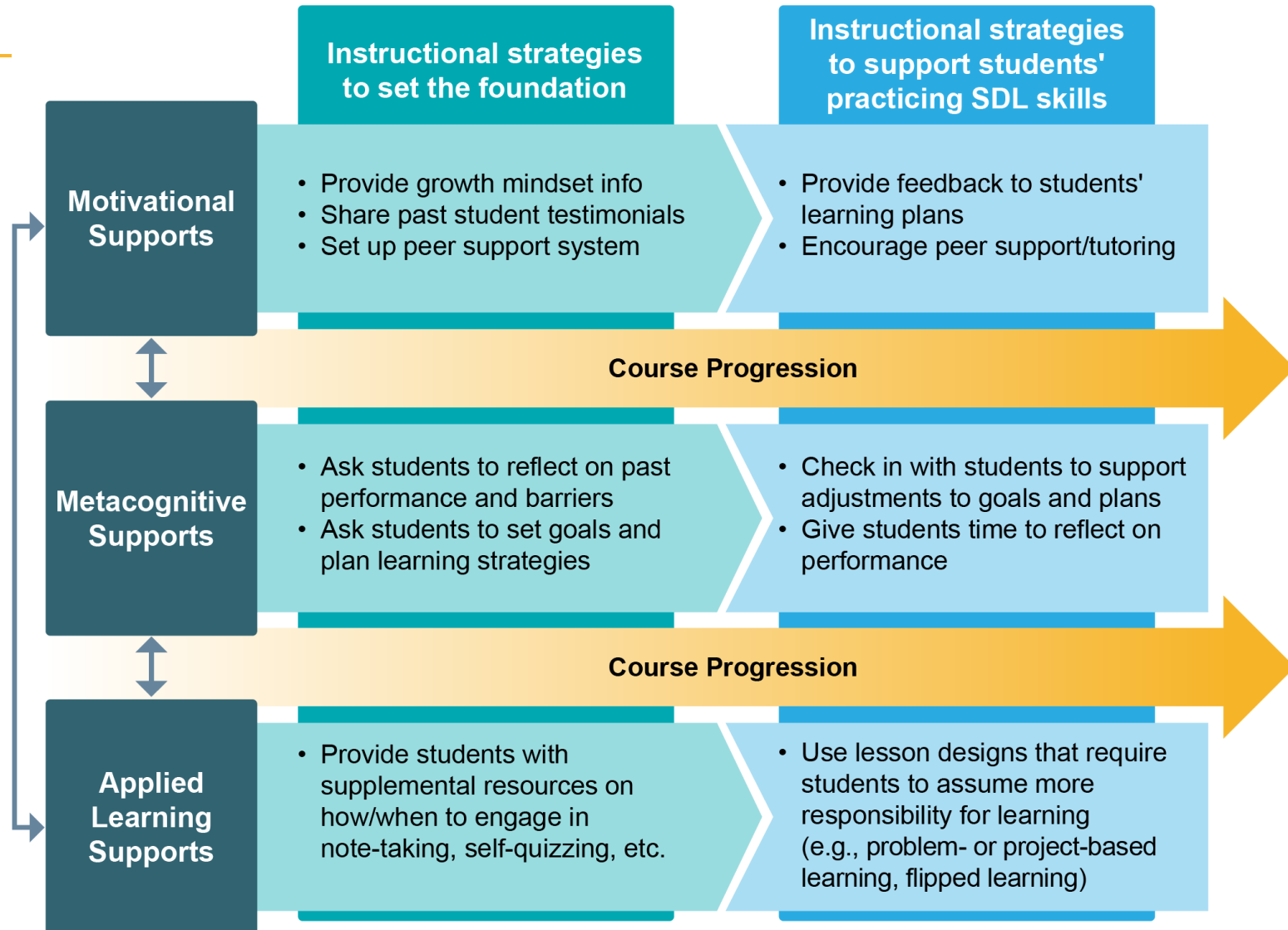


The need for strong self-directed learning skills may be more profound in online courses, especially in STEM

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 list of 7 outcomes. Below that is a 'Tasks for this Lesson' section with a checklist of 7 tasks, including completing a FERPA agreement, reviewing resources, self-evaluation, action plan, note-taking research, saying hello on MS Teams, completing a case study, and uploading a video for a reflection assignment. At the bottom, there is a 'Weekly preview video' section with a VidGrid logo.

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

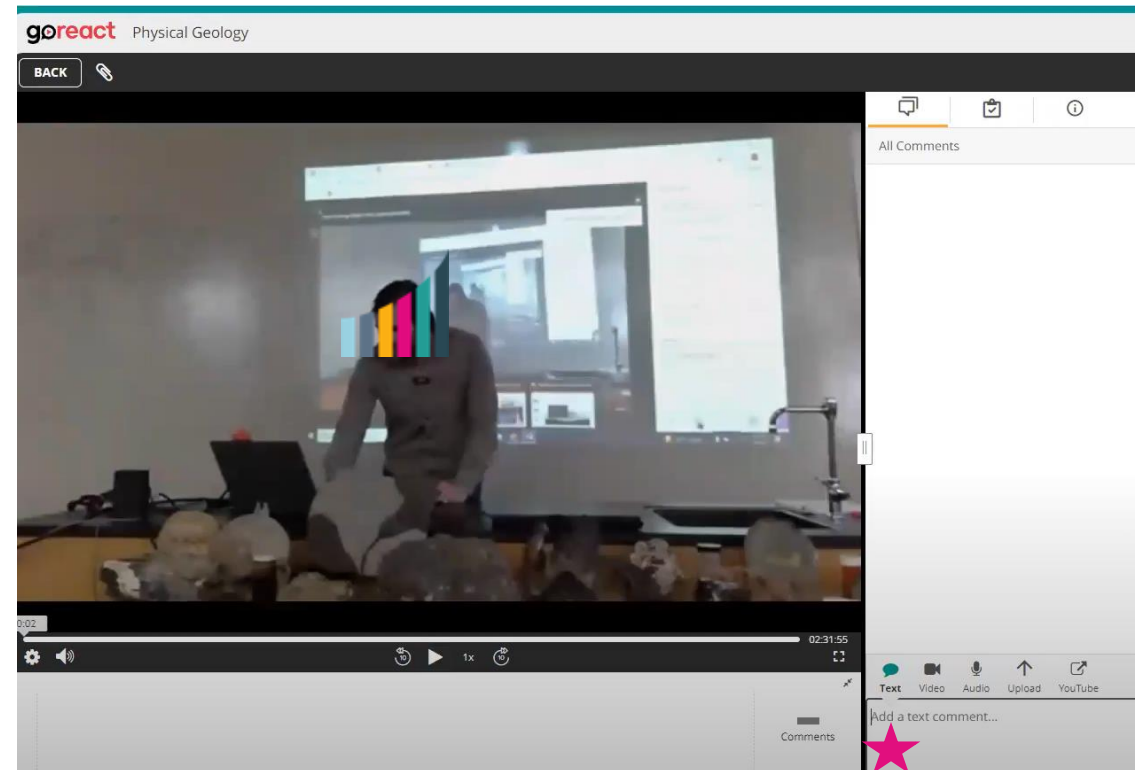


Potential

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

The screenshot displays two parts of the learning management system interface. The top part shows a multiple choice question: "Which type of secretion has an extracellular...". The options are "Endocrine" and "Exocrine". Below the question, there is a "Rate your confidence to submit your answer." section with buttons for "High", "Medium", and "Low". A progress indicator shows "0 of 41 Concepts completed" and an estimated time of "1 hour, 14 minutes". A callout box states: "Progress is made by completing concepts. The number of questions you get is influenced by your accuracy." The bottom part of the screenshot shows a "Reading Assignment Chapter 7. Bone Tissue (7.1-7.5)" dashboard. It includes "Overall Class Performance as of May 6, 2022" with four charts: "How are learners progressing?" (Not Started 16%, In Progress 0%, Completed 84%), "How long did learners take to complete?" (Estimate 41m to 1h 01m, Actual 1h 33m), "How aware are learners of their knowledge?" (Metacognition: Weak to Strong), and "How many concepts were challenging?" (31 of 34). It also features an "Individual Learners" section with a search bar and a "Time Spent" section with a bar chart showing "Overall Time Taken" for three completion time categories: "< estimated" (2 learners), "as estimated" (6 learners), and "> estimated" (13 learners). A "Time spent in Learning Activity" donut chart shows "Questions 71%" and "Resources 29%".

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

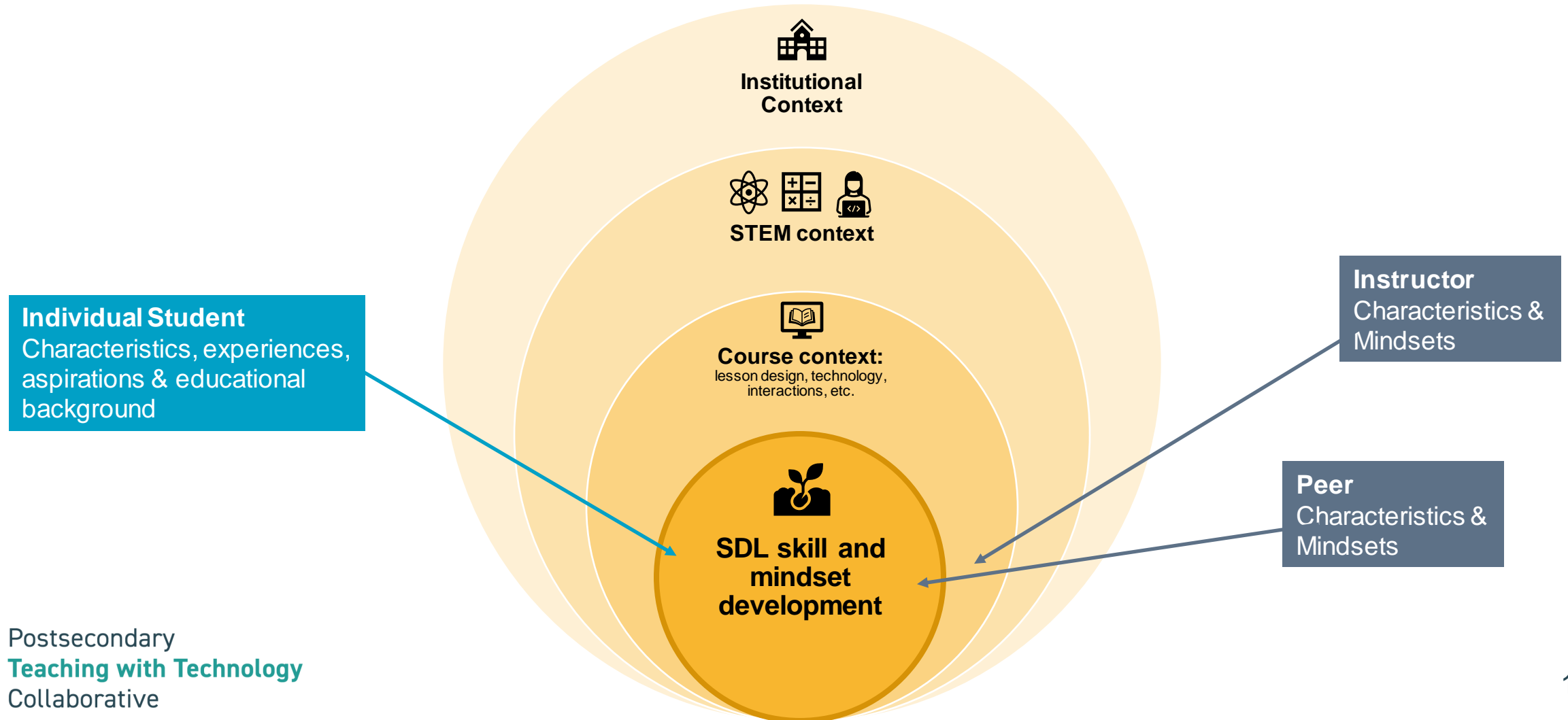
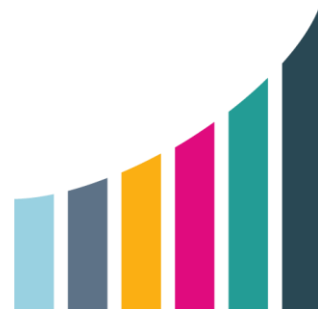


Incorporating SDL Instruction in Online Intro STEM



- 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



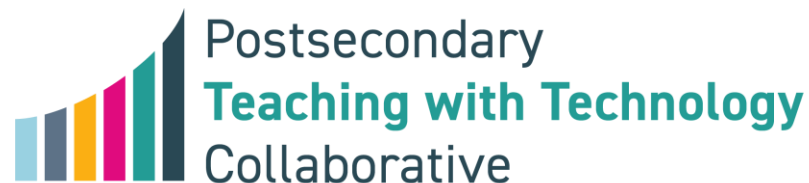
- What resources are available to support SDL skills and mindsets at your institution (e.g., student success courses, coaches, advising, tutoring)?
- What types of supports do you need to implement SDL strategies in your courses?

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The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305C210003 to SRI International. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.