Using Self-Directed Learning to Improve Online Learning

38th International Self-Directed Learning Symposium

March 12–14, 2025

University of South Florida, Tampa

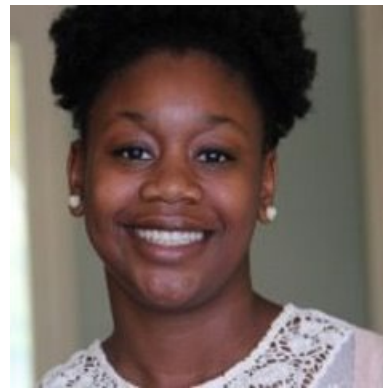International Society for Self-Directed Learning

Welcome!

Postsecondary
Teaching with Technology
Collaborative

Authors

Louise Yarnall
SRI Education
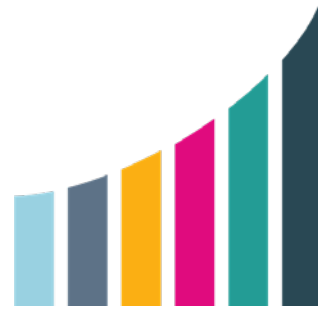
Krystal Thomas
SRI Education

Susan Bickerstaff
Community College
Research Center
(CCRC)

Hannah Cheever
SRI Education

For today's session we will...

Share a brief overview of the Collaborative & SDL

Describe our SDL framework & instructional strategies

Describe instructor and student perceptions

Discuss takeaways and supports for instructors

Postsecondary Teaching with Technology Collaborative:
An Overview

Postsecondary
Teaching with Technology
Collaborative

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.
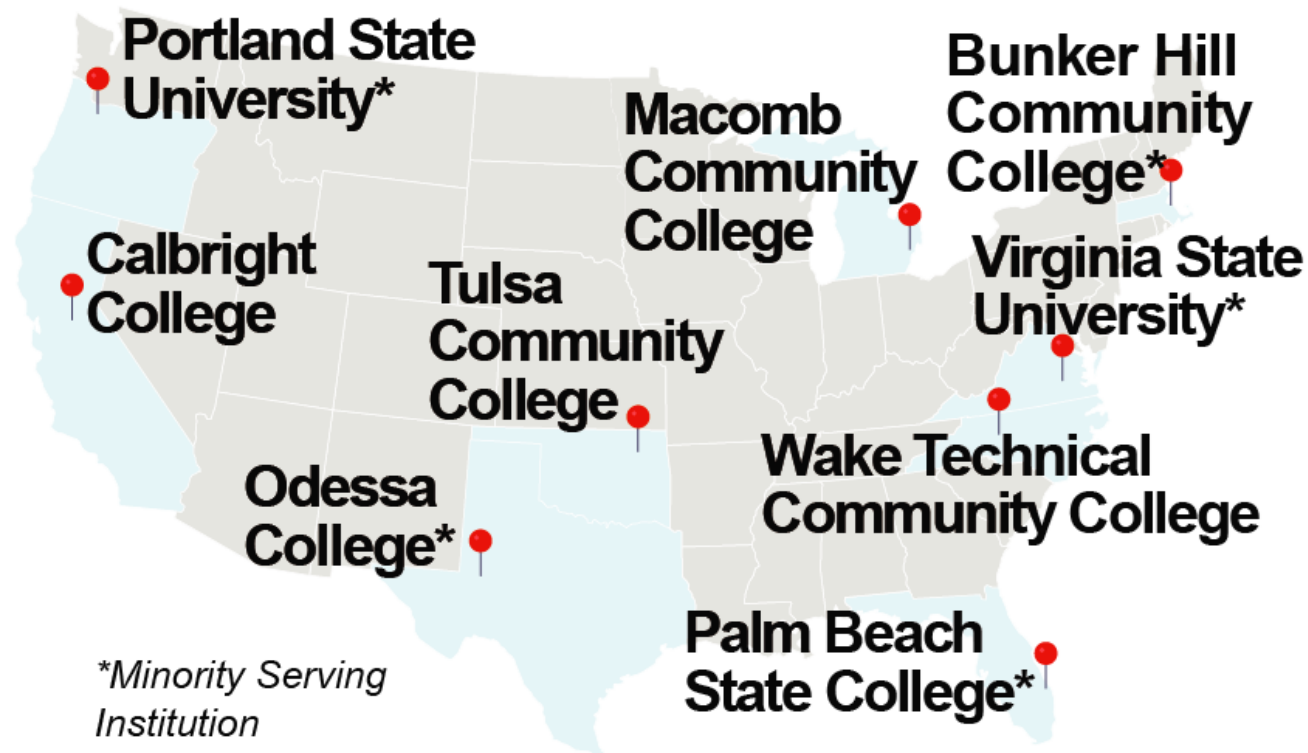
The Collaborative: Who we are
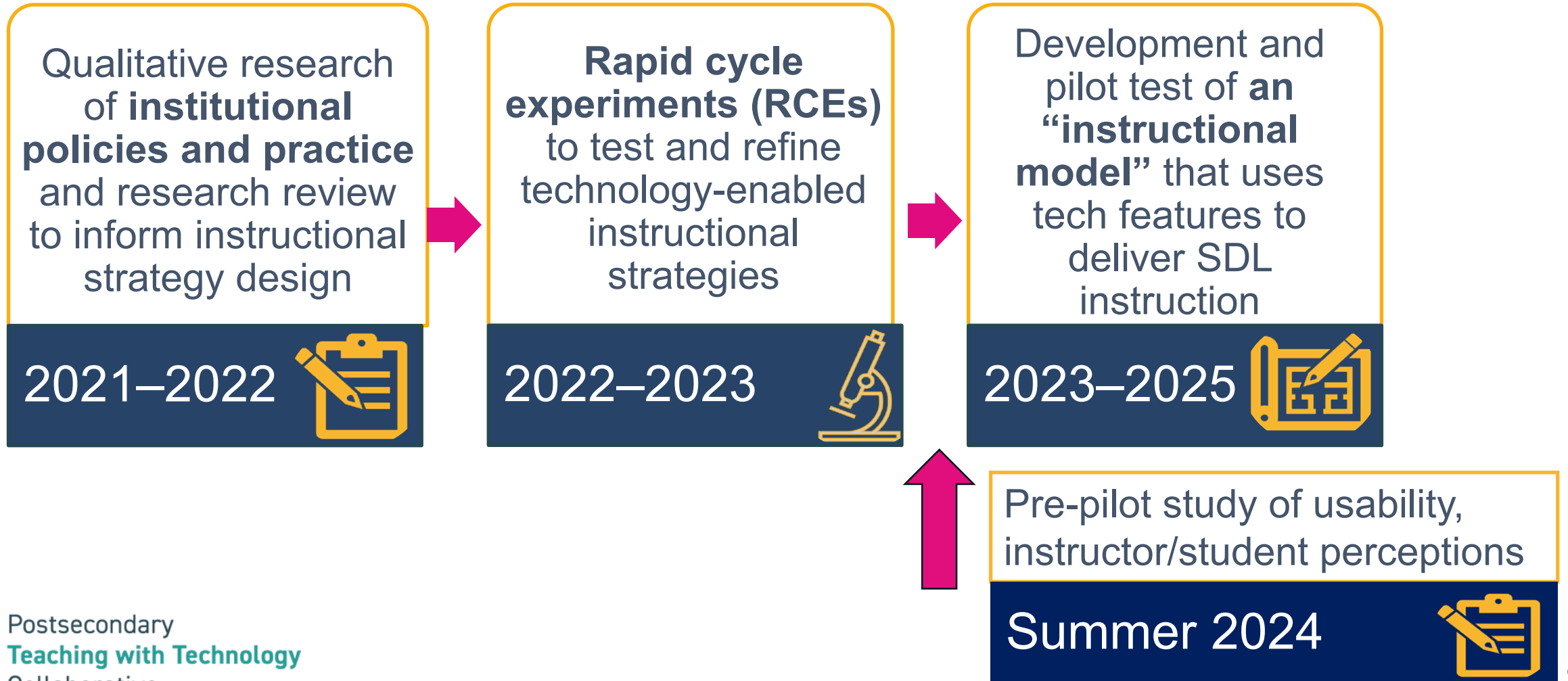
SRI Education™
A DIVISION OF SRI INTERNATIONAL

CCRC COMMUNITY COLLEGE RESEARCH CENTER
Teachers College, Columbia University

Achieving the Dream

Portland State University*

Calbright College

Odessa College*

Tulsa Community College

Macomb Community College

Bunker Hill Community College*

Virginia State University*

Wake Technical Community College

Palm Beach State College*

*Minority Serving Institution

Postsecondary **Teaching with Technology** Collaborative

The Collaborative's research activities

Qualitative research of **institutional policies and practice** and research review to inform instructional strategy design

2021–2022

Rapid cycle experiments (RCEs) to test and refine technology-enabled instructional strategies

2022–2023

Development and pilot test of **an "instructional model"** that uses tech features to deliver SDL instruction

2023–2025

Pre-pilot study of usability, instructor/student perceptions

Summer 2024

Postsecondary
Teaching with Technology
Collaborative

8

Self-Directed Learning Skills: A Framework for Supporting Student Success

Postsecondary
Teaching with Technology
Collaborative

Research shows

Student outcomes are generally worse in online courses and degree programs than in comparable face-to-face ones

In some cases, achievement gaps are wider in online environments

Key factors: Greater demands on students' self-directed learning capacities; need for belonging and community

Source: Xu & Jaggars, 2014; Xu & Xu, 2020.

Postsecondary
Teaching with Technology
Collaborative

Students encounter numerous barriers to success in STEM

Unwelcoming environment

Belonging uncertainty

Individual sink-or-swim culture

Stereotype threat

Content heavy

Inequitable opportunities to develop self-directed learning skills

Unclear personal relevance
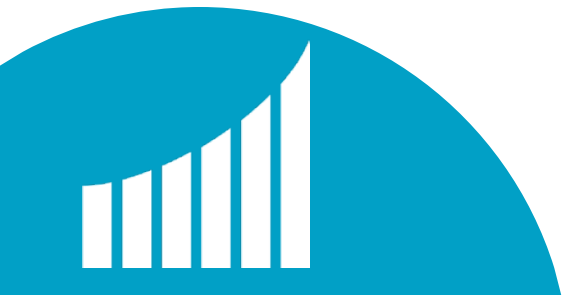
Feelings of isolation exacerbated in online formats

Source: NASEM, 2016; Walton et al., 2023.
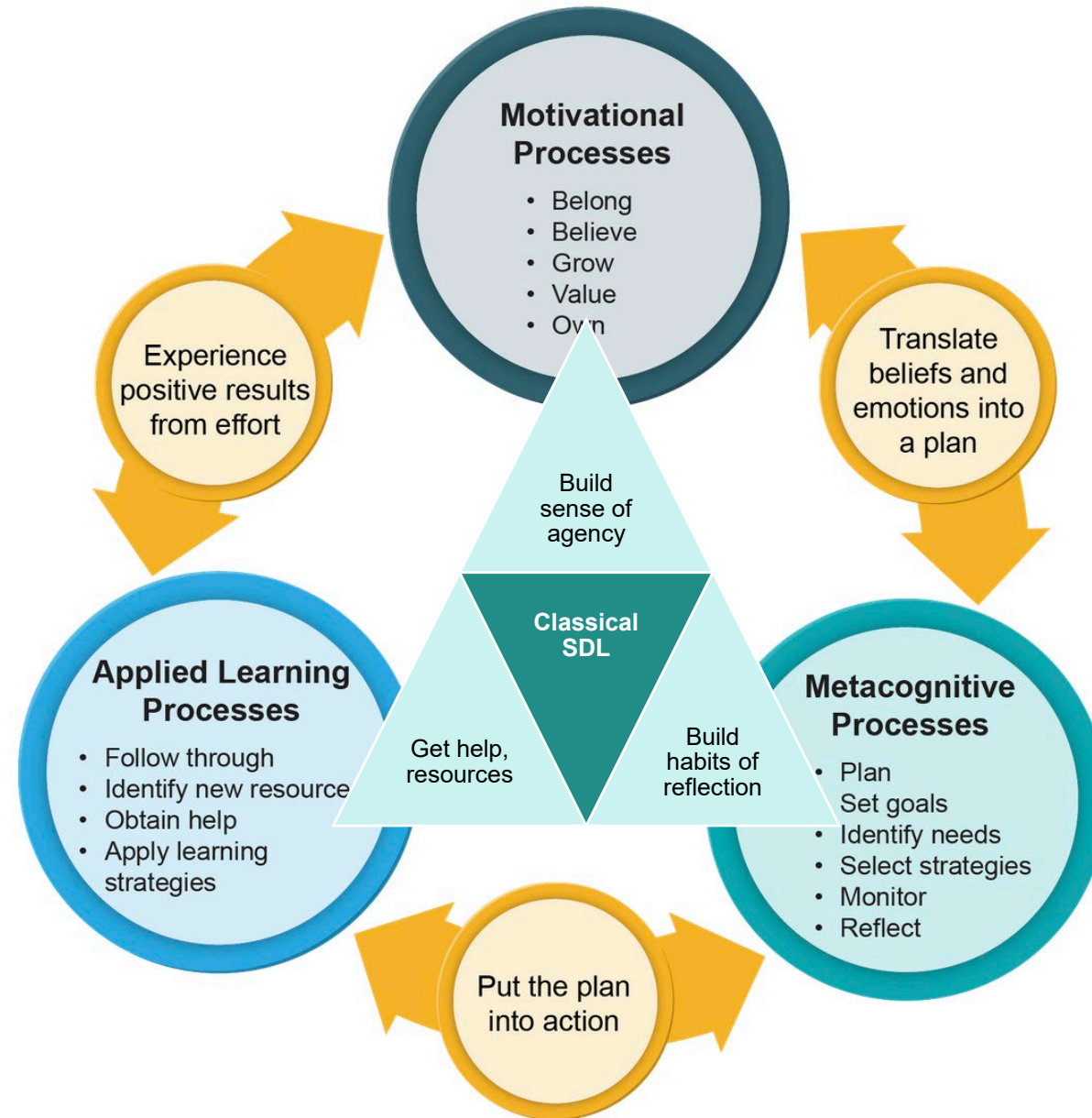
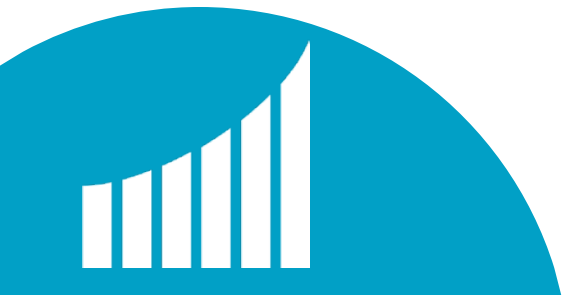# Self-directed learning (SDL) framework
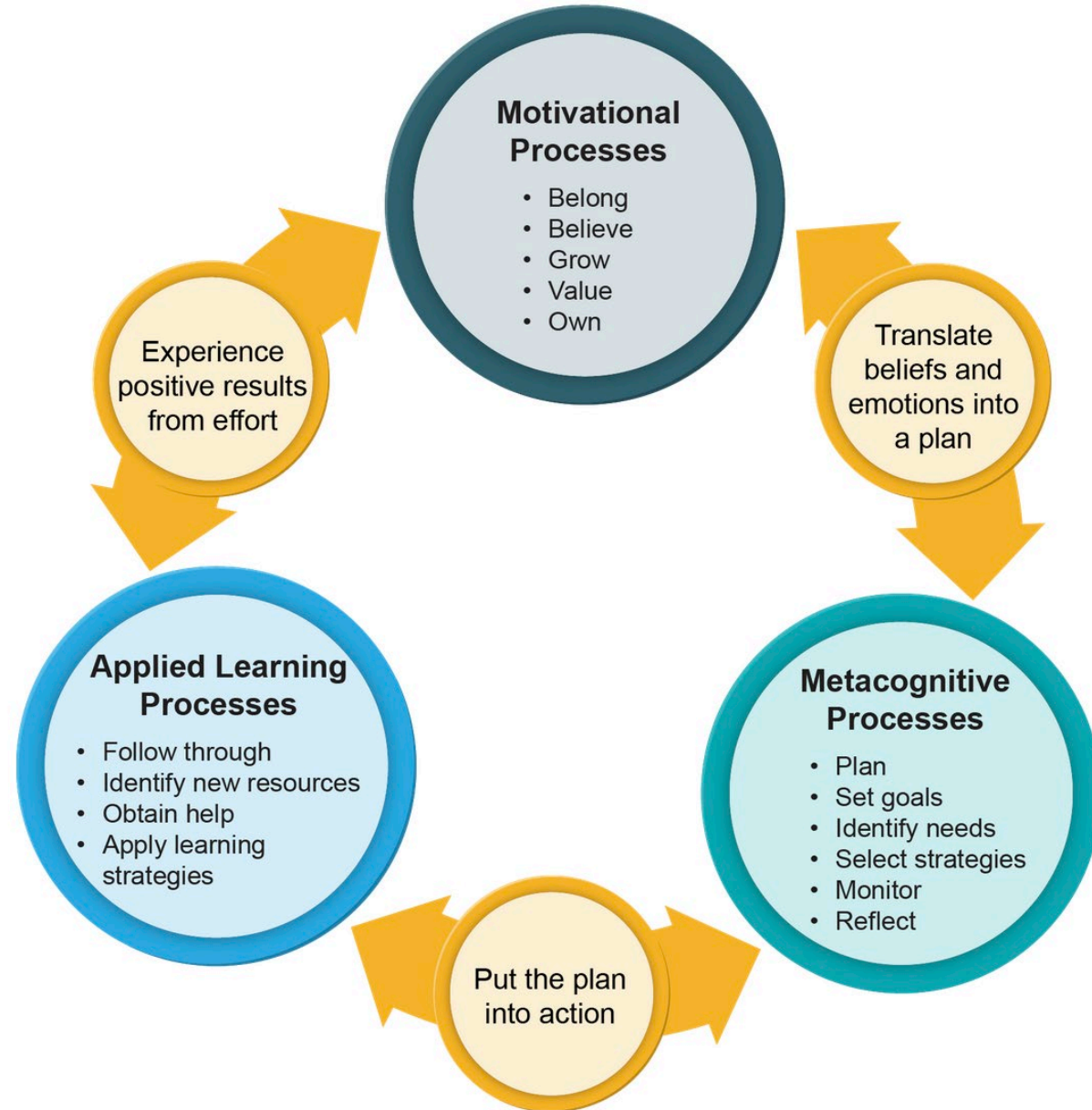
Source: Yarnall et al., 2023.

To learn more, read our white paper at https://postseccollab.org/teaching-and-designing-online-stem-courses-to-support-sdl-skills/.
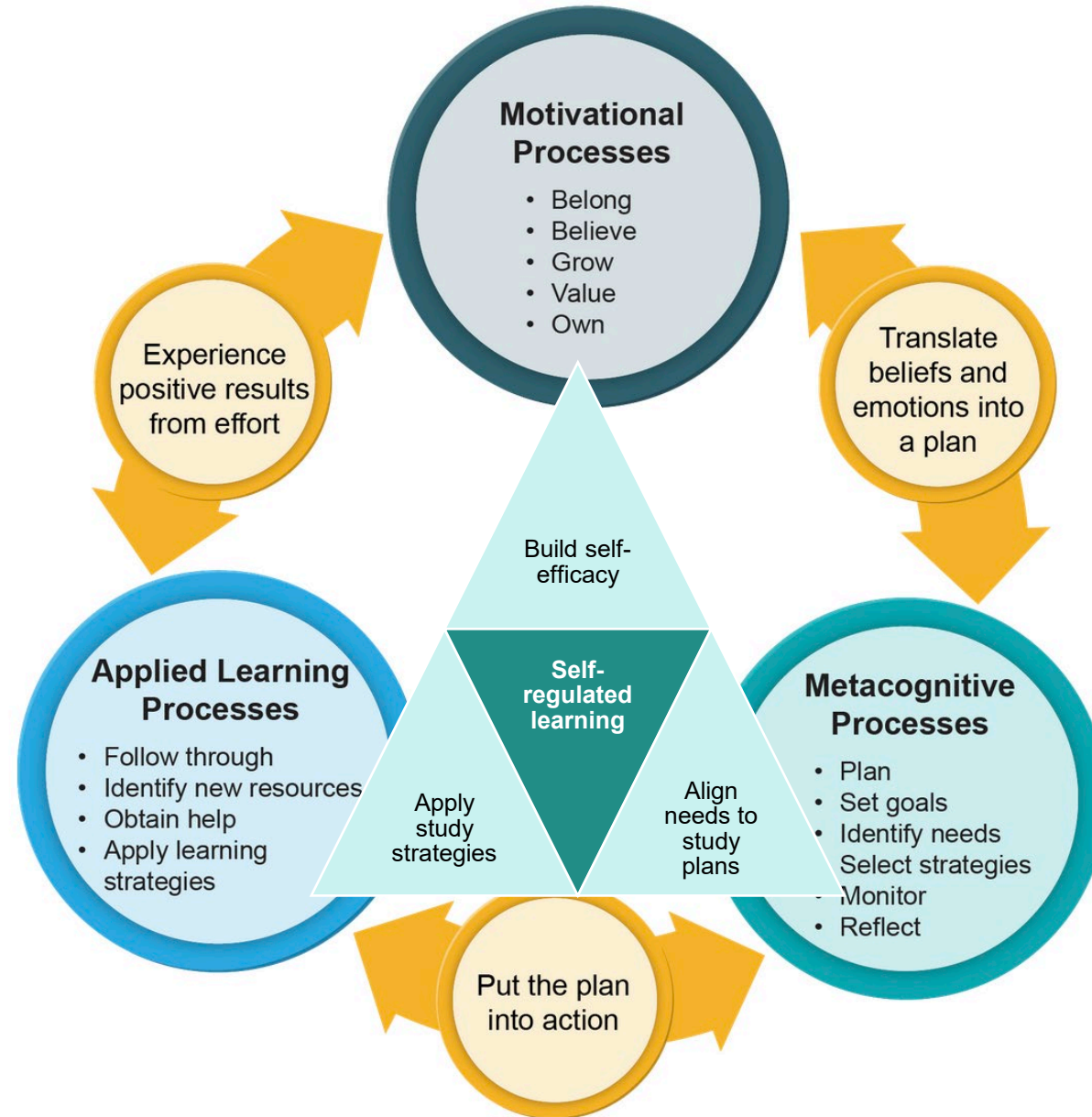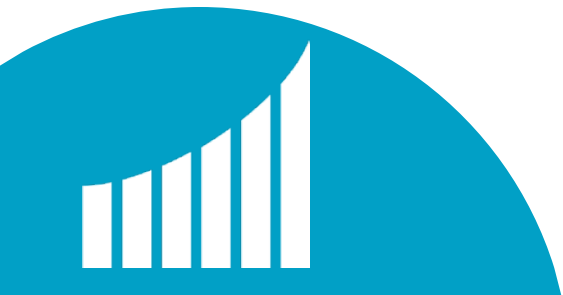
"Classical SDL" ideas

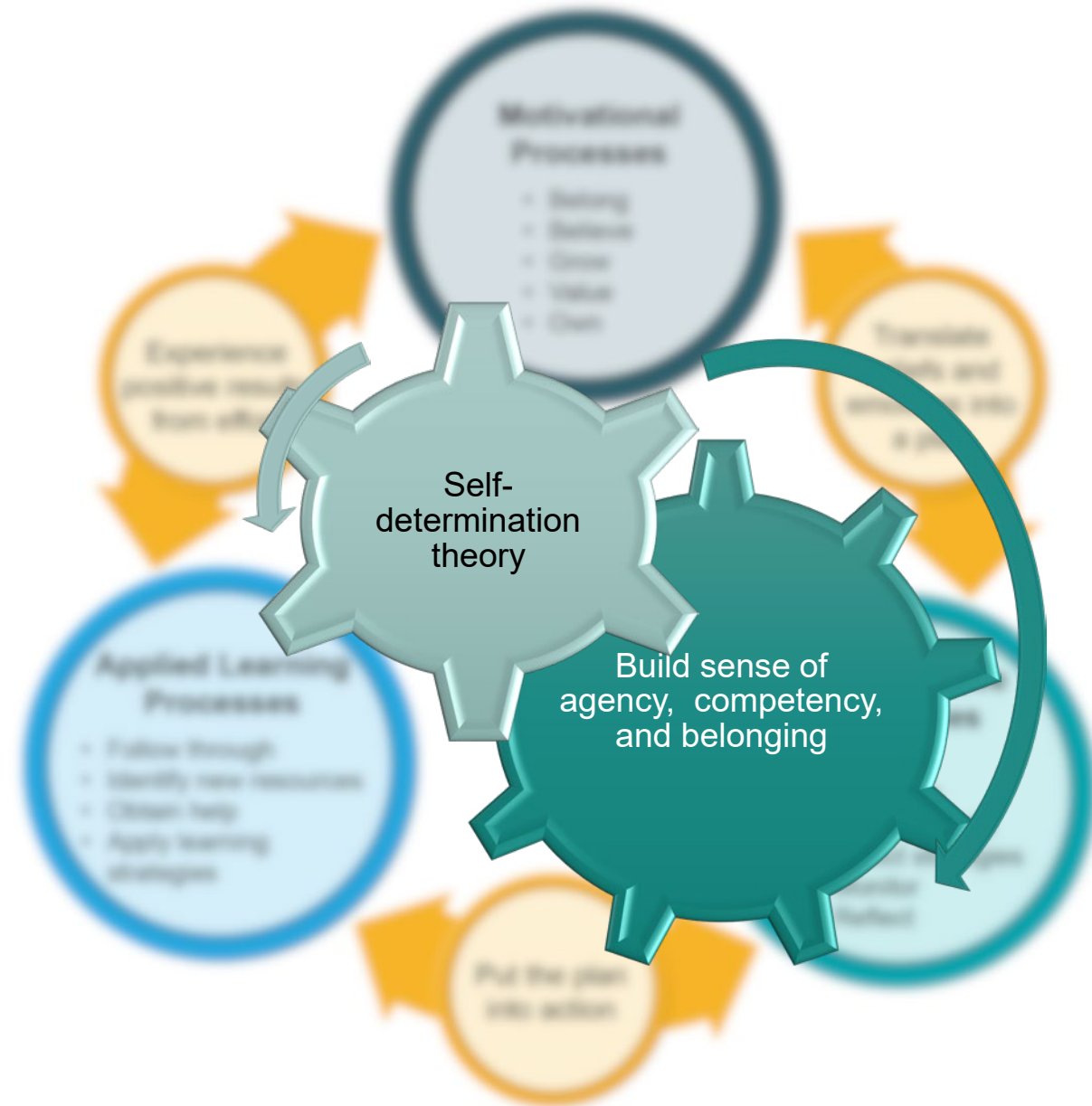*Source: Merriam, 2001; Merriam & Caffarella, 1999; Morris, 2023.*

Self-regulated learning ideas

Source: Boekaerts et al., 2000; Pintrich & Schunk, 1996; Winne, 2010; Zimmerman, 2002.
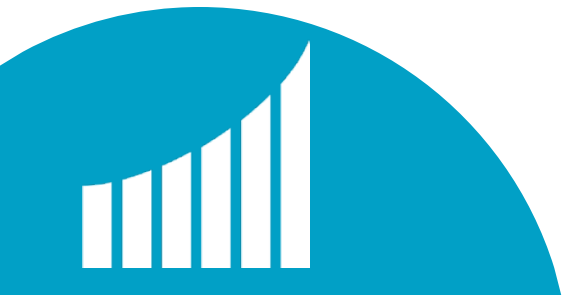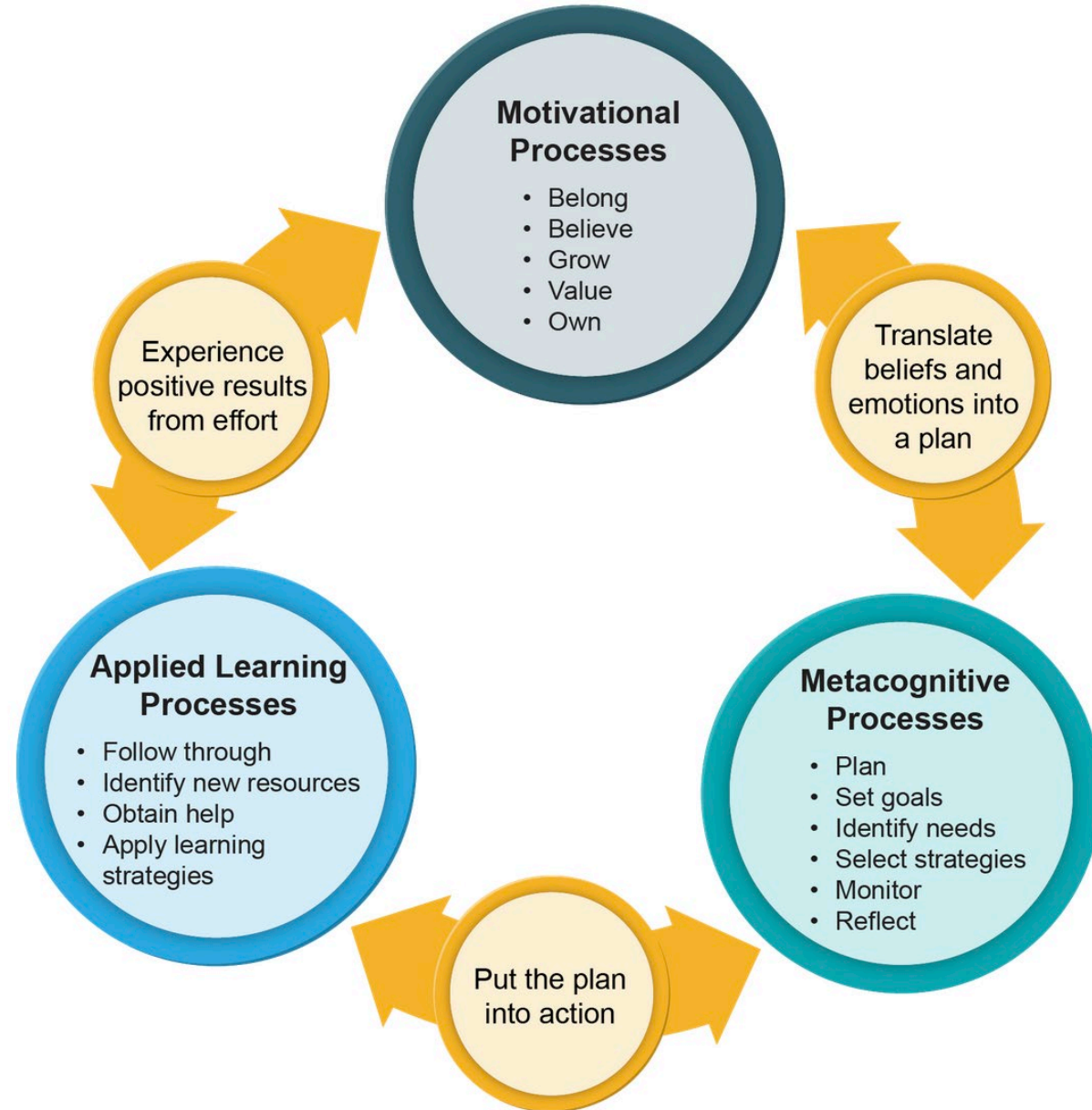
Self-determination ideas

Source: Ryan & Deci, 2000.

A mutually reinforcing SDL framework

Motivational Processes
- Belong
- Believe
- Grow
- Value
- Own

Translate beliefs and emotions into a plan

Metacognitive Processes
- Plan
- Set goals
- Identify needs
- Select strategies
- Monitor
- Reflect

Put the plan into action

Applied Learning Processes
- Follow through
- Identify new resources
- Obtain help
- Apply learning strategies

Experience positive results from effort

SDL instructional strategies

Strategies were identified via literature review and systematic database review,[1] and were co-developed/adapted for online courses with instructors at four partner institutions.
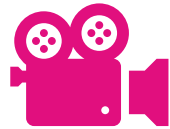
Assign **videos** to support sense of belonging, time management, and growth mindset.

Set up automated **prompts** focused on goal-setting, task-planning, and reflection; **exam wrappers** focused on exam pre-prep and post-reflection; and a **letter to a future student** at end of course to consolidate lessons learned.

Use technology to support student-peer interaction and networking (**SPIN**) and promote help-seeking.

Postsecondary
Teaching with Technology
Collaborative

Video series

| Sense of belonging | Time management | Growth mindset |

Each video follows a consistent structure:

- Overview of what students will learn
- Introduction to the SDL skill/mindset
- 2–3 strategies to develop the SDL skill/mindset
- Where to find additional resources

Each video includes a reflection activity:

- Self-rating on SDL skill/mindset
- Self-reflection on strategies presented in the video
- Planning for how to apply

Prompt strategy: Metacognitive supports

|	Reflective prompts	Timing
Academic behaviors	• What assignments and other coursework do you need to complete this week for this class? What information, resources, or help do you need to complete this week's coursework?	Starting at 1x/week
	• Have you scheduled a specific time to complete this week's work for this class? [If no] When will you complete this week's work for this class?	Starting at 1x/week
Checking gaps in understanding	• What questions from your last [assessment] did you not understand? What resources and strategies do you need to improve your understanding? • *[Includes customized list of resources for each institution]*	Starting with each major assessment
	• Which concepts from this class do you feel you mastered this week? Which concepts are you still struggling with?	Starting at 1x/week

Prompt strategy: Metacognitive supports

Exam wrappers & letter to a future student		Timing
Academic behaviors	• Pre-exam survey administered before the test, designed to ask students about their planning for exam. • Post-exam self-evaluation after students have received graded assignment, designed to ask students to self-reflect about exam.	Before and after major exam
Consolidating lessons learned	• The letter to a future student prompts students to describe all that they did to manage their learning and maintain their sense of belonging and self-efficacy.	End of course

Student-peer interaction and networking (SPIN)

Introductory Survey

Group-Work Activity

Small- or Whole-Class Discussions
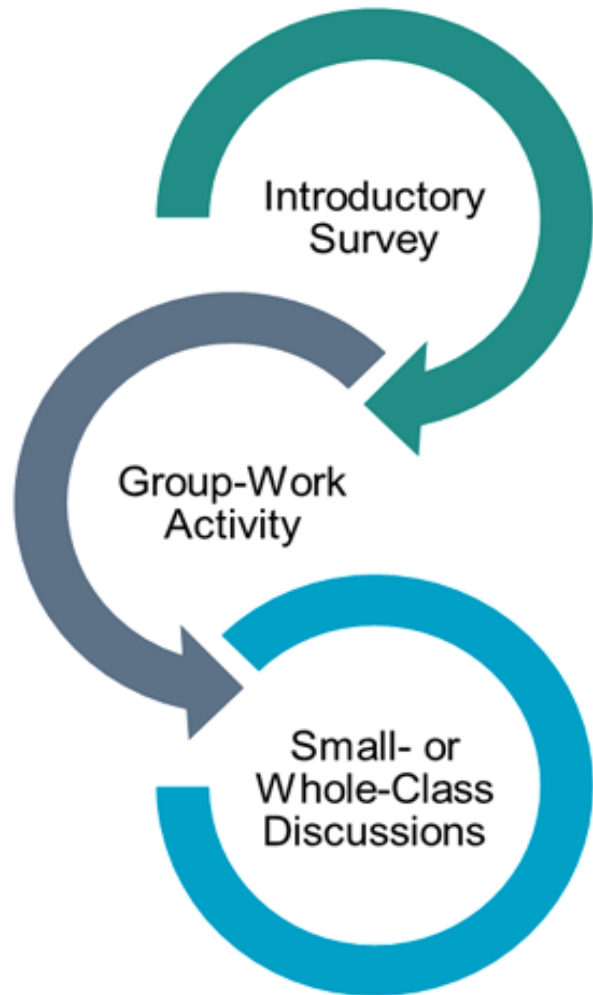
Introductory survey that instructors use to create an activity around students' shared nonacademic interests

Group-work activity facilitated by instructors

Class discussions for students to share concepts they understood or struggled with and resources

Pre-Pilot Study of Usability, Instructor/Student Perceptions

*Perspectives from Instructors and Students*

Research questions

- Conditions: What life factors shape and drive student online learning?

- Usability: To what extent did instructors find the SDL strategies usable?

- Consistency with classroom practice: To what extent did instructors and students find the SDL strategies consistent with typical classroom practice?

- Efficacy and value: To what extent did instructors and students find the SDL strategies effective and valuable?

Pre-pilot sample

- 9 instructors, 5 students

- 3 institutions of higher education

  - 2 two-year, 1 four-year

- Mostly asynchronous online courses ranging from 4 to 8 weeks

- Subjects: statistics, mathematics, biology, anatomy & physiology, psychology

SDL instructional model
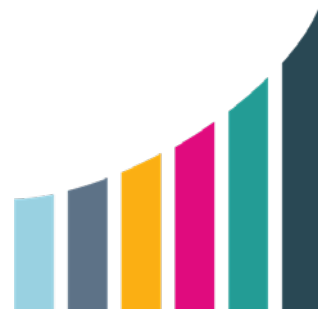
SPIN
- Week 1: Intro questionnaire
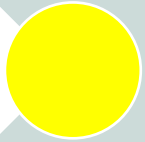
Reflective prompts
- Mid-course
- 2 times

Exam wrappers
- Before/after exam

Reflective prompts
- Letter to a future student

Videos
- Weeks 1 & 2: Sense of belonging & time management

Video
- After first major assignment: Growth mindset

SPIN
- Group activities, discussion thread

Findings: Student life-learning factors

➢ Time-pressed lives, competing job and family responsibilities

➢ Strong motivations to succeed in college to meet family needs

Postsecondary
Teaching with Technology
Collaborative

26

Findings: Mostly easy to implement, with some challenges

- ➤ Preparation took a couple hours on average

- ➤ Integrated through LMS or Google survey forms or discussion board posts

- ➤ Sometimes incentivized with credits but did not grade

- ➤ 4-week terms required trimming a couple strategies

- ➤ SPIN group activities were challenging

Postsecondary
Teaching with Technology
Collaborative
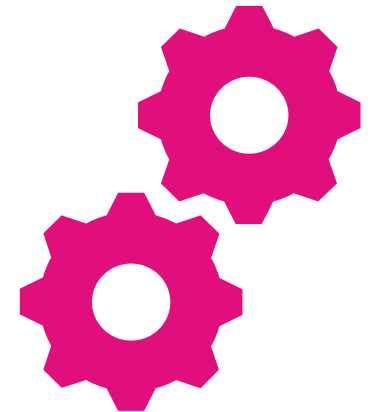
Findings: Consistency with typical instruction

➢ Reflective prompts and SPIN intro questionnaire seen as novel

➢ Videos and SPIN group activities seen as resembling other class activities

➢ Novelty seemed to increase the salience of a strategy's perceived value for SDL development

Postsecondary
Teaching with Technology
Collaborative

Findings: Efficacy and value

Students appreciated

Helped with:
- Coping
- Connecting
- Tracking progress

Instructors appreciated

Helped to:
- Identify student needs
- See students using SDL strategies

Individual learner considerations

- Seen as "redundant" by students already using SDL strategies
- Seen as valued by those lacking confidence
- Some concern about admitting they're "behind" to instructor

Group learning considerations

- Cons: Procrastination and low social interaction
- Pros: Social support and comparative progress monitoring

Postsecondary
Teaching with Technology
Collaborative

Discussion

How do these findings resonate with research and practice aimed at developing adults' SDL capacities?

What does our study say about the potential to integrate SDL supports into various online learning contexts?

Postsecondary
Teaching with Technology
Collaborative

Final thoughts

➢ Classroom strategies can support students' motivational beliefs and social relationships, not just academics (aligns with Patrick et al., 2007).

➢ Student social identity ("experienced, savvy" vs. "low confidence") informs students' attitudes and decisions about how much and how seriously to engage in the SDL activities (aligns with Cleary & Chen, 2009; Montalvo & Torres, 2008)

➢ Positive level of STEM instructor adoption and reception with minimal professional development (contrasts with Zumbrunn et al., 2011).

Postsecondary
Teaching with Technology
Collaborative

Tell your colleagues!
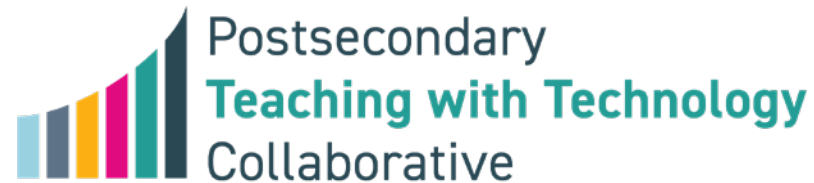
**Access to resources
and guidance**

Thank you!

Visit us at
Postsecondary Teaching with Technology Collaborative

Follow us on Twitter (X): @PostsecCollab