

Turning to the Research: Understanding the Science Behind Best Practices

-  **Module 2 Overview**
 - **Guiding question**
 - How can learning science research support my teaching?
 - **Guiding question description**
 - Embarking on any teaching journey can feel overwhelming. The good news is, a rich and developing field of research from the social sciences and neurology has continued to expand our knowledge around best practices in the classroom. Learning science research is an enormous asset in supporting our transition from experts in our discipline, to experts in how to pass on the knowledge of our discipline in the classroom. In this module we'll examine how learning science research findings can both support, and at times interrogate the efficacy of our tried-and-true teaching methods – many of which we've gathered from our own experiences in the classroom.
 - **Activating your prior knowledge**
 - Chances are you've already been the subject of a strategic application of learning science research. In fact – it's happening to you right now! Activating prior knowledge is a research-backed strategy that kicks off a learning experience with personalized interest and helps learners situate themselves in the new information to come. In your own studies, you've probably noticed that quizzing yourself is a better study strategy than simply re-reading your notes. If so, you've applied a neurological concept known as retrieval practice. If you've ever used a language learning app on your phone, you've also been a student of spaced-repetition, interleaving, and prediction—all ideas straight from the neuroscience of learning. In this module we'll explore how these strategies applied to lesson planning and assignment design can help create optimal conditions for learning. (Ambrose et al., 2023,

Chapter 2; Lang, 2021).

- **Module Outcomes**
 - Describe how small, research-based adjustments in teaching practices can improve student learning.
 - Apply at least one evidence-based strategy from the research to a lesson, activity, or assignment in your own course.
 - Reflect on how an understanding of how learning works can shape your approach to teaching, feedback, and student engagement.
- **Invitation to 1:1 (questions to raise around 1:1)**
 - With your teaching, administrative, and scholarly duties, it can be challenging to remain up to speed with the growing body of learning science research. Instead, you can lean heavily on your institution's teaching and learning center – The Center for Teaching and Scholarly Excellence (CTSE). Here are some guiding questions to kick off a conversation related to this module's ideas:
 - My students seem to be forgetting all of the early semester content by the final exam. How can I support their long-term retention?
 - Students are choosing their phones and computers over my lectures. How can I keep their attention in the room?
 - My students are having a hard time understanding why my content is important to them. What are some ways I can help them connect with the assignments?

Remember, consultations are simply a space to brainstorm ideas with a colleague. You don't have to face every question by yourself. Often, instructors report that they leave these sessions feeling affirmed and motivated to try something new.

- **References**

Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., Norman, M. K., & Mayer, R. E. (2023). *How learning works: Seven research-based principles for smart teaching* (2nd ed.). Jossey-Bass.

Lang, J. M. (2021). *Small teaching: Everyday lessons from the science of learning* (2nd ed.). Jossey-Bass.

-  **CTSE Perspectives**

- Lecture 1- From the Research: Strategies to Support Learning (13 mins)
 - [Slide Deck](#)
- Lecture 2- Myths in Teaching and Learning (7 minutes)
 - [Slide Deck](#)

-  **Readings & Materials**

[Classroom Assessment Techniques Handout from Cornell](#) (2 pages)

- For additional activities that support retrieval and predicting.

[Active learning break examples – Teaching at its Best, 5 edition, pg 181- 183](#) (2 pages)

- For additional active learning activities to create retention and application breaks during a lecture.

-  **Module 2 Activity**

 **Independent Activity**

In Lecture One, we explored several research-based principles about how people learn. For this assignment, choose one idea or principle from the lecture that resonated with you. Then, design a learning activity that applies this principle to your own teaching.

For example, you might:

- Focus on the idea that asking students to make a prediction primes learning and increases engagement by designing a warm up activity to introduce an important topic in your class;
- Apply the benefits of retrieval practice to design an activity preparing students for an upcoming exam, or;
- Compose a series of reflection prompts to distribute throughout your lecture that ask students to connect new ideas to other areas of their learning.

You may either:

- Create a new activity that didn't previously exist in your course, or
- Revise an existing activity to better reflect the research principle you selected.

Describe your new activity in one page or less. Write clearly enough that someone unfamiliar with your course could understand what the activity is and why it supports learning.

Shared Asynchronous Activity

This activity will ask you to contribute to and learn from the teaching community around you. Begin by jotting down a few of your own ideas for Active Learning Breaks like the ones shared in Lecture 2. Head to the digital tool for this activity – Padlet. Write your ideas and view those of others. Try to avoid redundancies. What new ideas spark inspiration in your own classroom?

-  Module 2 Reflection
 - [Redundant, sprinkled throughout and built into the independent activity]