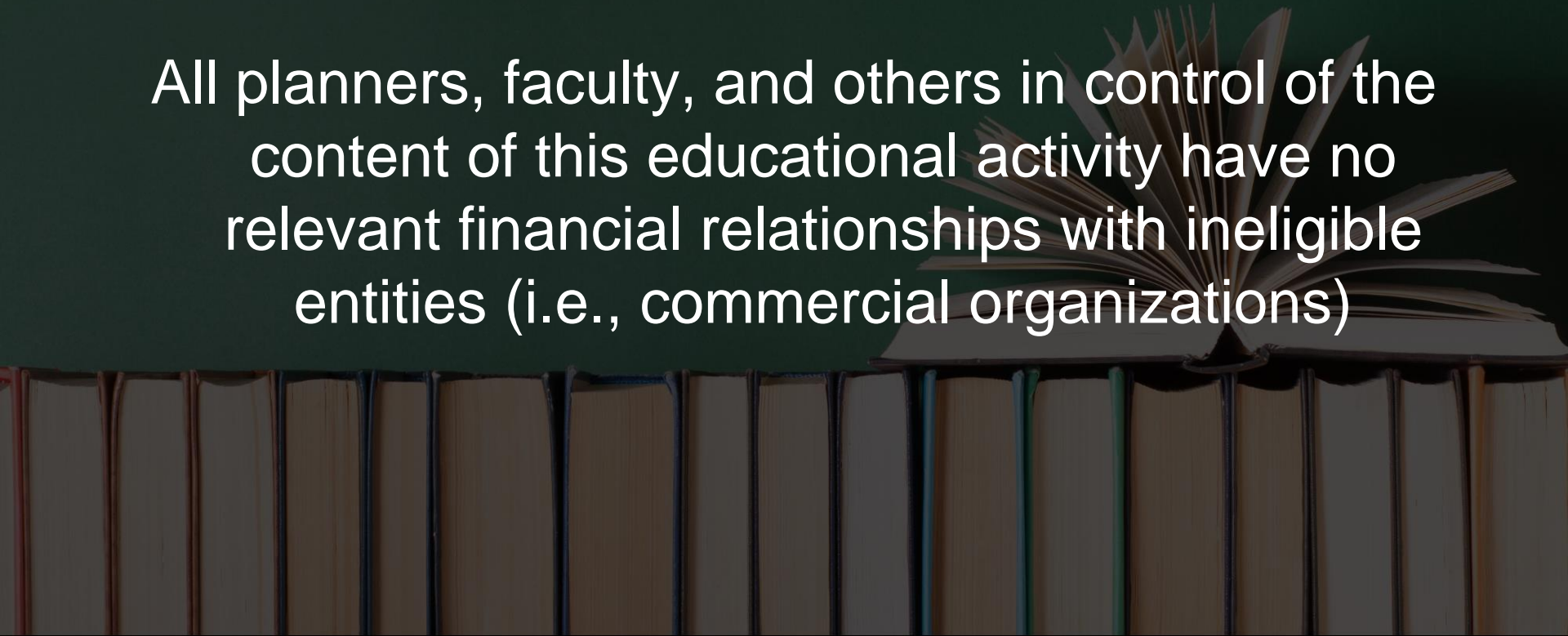# Make it Stick!
Cognitive Learning Science

Jason Hine, MD and Isaac Stickney, MEd, CGS

Integrity & Independence in Continuing Interprofessional Development

All planners, faculty, and others in control of the content of this educational activity have no relevant financial relationships with ineligible entities (i.e., commercial organizations)

Goals

1. Be able to define spaced repetition, interleaving, generation, and test-enhanced learning.

2. Leverage different modalities in the application of cognitive learning science.

3. Be able to utilize best practices in cognitive learning science in implementing their own curricula in the future.
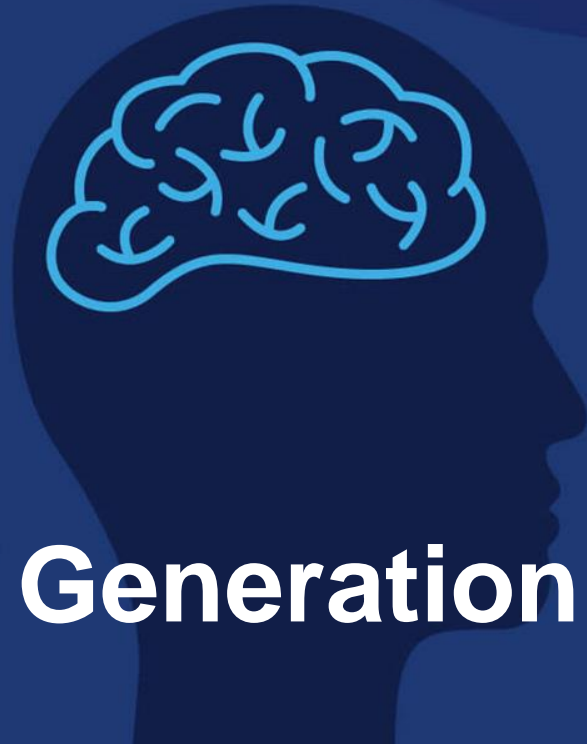
Spaced Repetition

Interleaving

Generation

Test-Enhanced Learning

You are responsible for creating a curriculum to educate new students on the cardiovascular system and the pulmonary system. Use the cards to build out the curriculum, label sessions with the system/time to be studied and the learning technique to be used.

Group Exercise - 15 minutes

PRE-SESSION	SESSION 1 2 hours	BETWEEN SESSION	SESSION 2 2 hours	BETWEEN SESSION	SESSION 3 2 hours

Cardiology

Pulmonary

___minutes

Free Choice
Below, indicate the method and description.

Final Exam

Final evaluative test on materials learned.

Test-Enhanced Learning

Priming Quiz

Before a learner has access to the learning materials, they are quizzed on the topic matter, engaging prior knowledge and priming their brain to recognize their unknowns.

Test-Enhanced Learning

1 Hour Lecture

Presentation from teacher on topic matter, via PowerPoint or other medium.

Assigned Reading

Students read through some learning materials on a topic matter.

Case Discussion / Problem-Based Learning

Students work through a case presentation, create orders, get results.

Interleaving

Infographic / Schema Creation

Learner builds a graphic depiction of an element of physiology or pathology on the topic matter

Generation

Midterm Quiz

Quizzing on material learned thus far.

Test-Enhanced Learning

20 Minute Lecture

Presentation from teacher on topic matter, via PowerPoint or other medium.

Small Group Discussion

Students work through case-based problem sets

Generation / Interleaving if mixed topics

Open-Ended Questions

Learners answer open-ended questions on topic matter with either pre-fab questions and/or group discussion

Generation / Test-Enhanced Learning

PRE-SESSION	SESSION 1 2 hours	BETWEEN SESSION	SESSION 2 2 hours	BETWEEN SESSION	SESSION 3 2 hours
Cardiology **Pulmonary** **30 minutes** **Priming Quiz** Before a learner has access to the learning materials, they are quizzed on the topic matter, engaging prior knowledge and priming their brain to recognize their unknowns. *Test-Enhanced Learning*	**Cardiology** **Pulmonary** **60 minutes** **1 Hour Lecture** Presentation from teacher on topic matter, via PowerPoint or other medium. **Cardiology** **60 minutes** **Small Group Discussion** Students work through case-based problem sets *Generation /* *Interleaving if mixed topics*	**Pulmonary** **60 minutes** **Infographic /** **Schema Creation** Learner builds a graphic depiction of an element of physiology or pathology on the topic matter *Generation*	**Pulmonary** **20 minutes** **20 Minute Lecture** Presentation from teacher on topic matter, via PowerPoint or other medium. **Pulmonary** **40 minutes** **Small Group Discussion** Students work through case-based problem sets *Generation /* *Interleaving if mixed topics* **Cardiology** **60 minutes** **Case Discussion /** **Problem-Based Learning** Students work through a case presentation, create orders, get results. *Interleaving*	**Cardiology** **Pulmonary** **60 minutes** **Open-Ended Questions** Learners answer open-ended questions on topic matter with either pre-fab questions and/or group discussion *Generation /* *Test-Enhanced Learning*	**Cardiology** **Pulmonary** **120 minutes** **Final Exam** Final evaluative test on materials learned. *Test-Enhanced Learning*

Discuss Boards

Commitment-to-Change