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AI as Co-Intelligence: Course Redesign and the Science of Learning

Dr. Jen Lisy
OHIO University Zanesville
OCTEO October 9, 2025

Image created with Canva AI

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Learning Outcome

- Explain how the science of learning can enhance student learning outcomes
- Identify strategies for using AI as co-intelligence and course designer
- Describe approaches to modeling transparent and ethical AI use while scaffolding student learning

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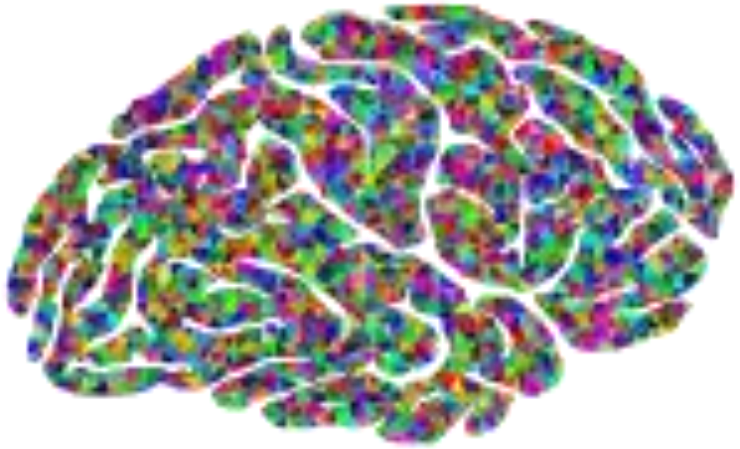
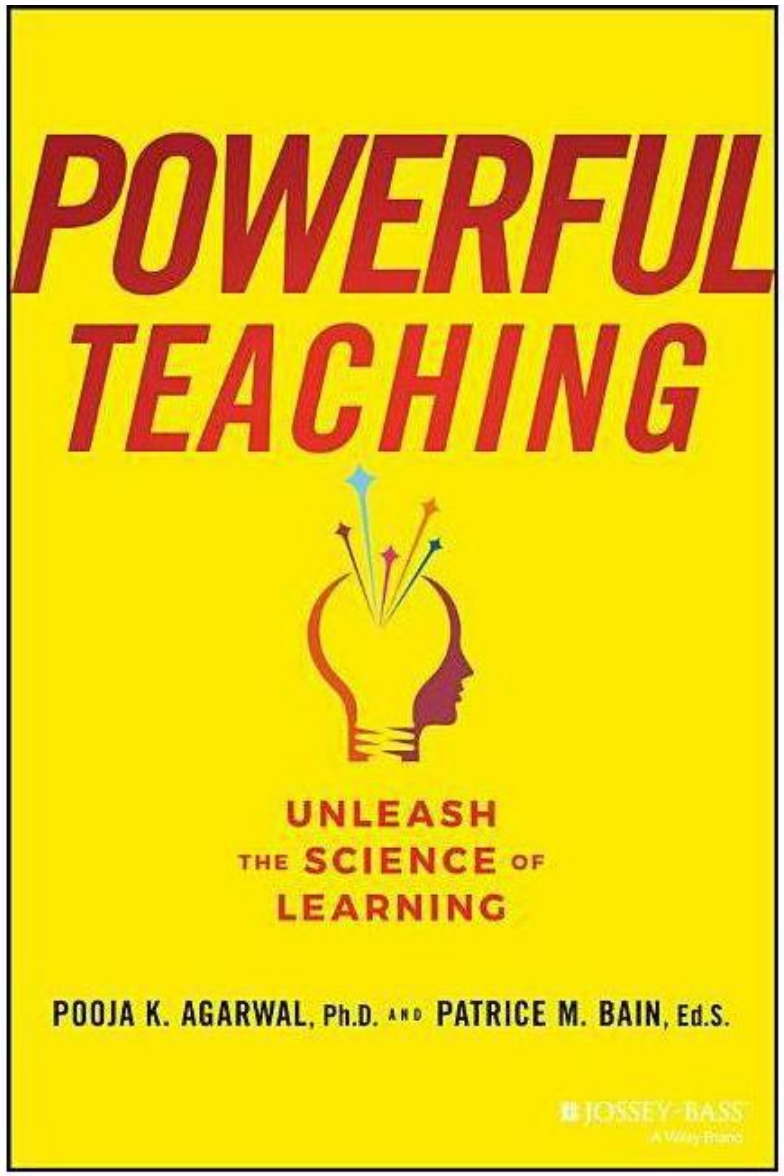
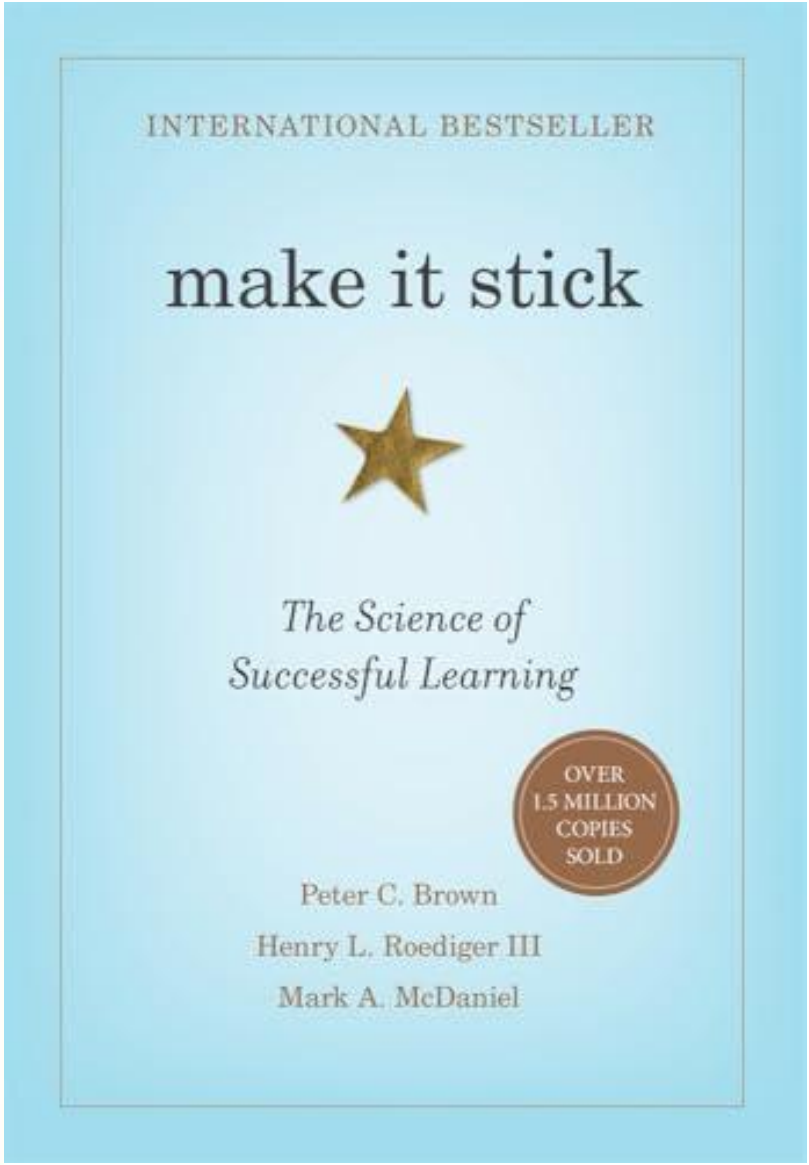
Science of Learning







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Retrieval Practice

Retrieval practice boosts learning by pulling information out of students' heads, rather than cramming information into students heads.

Spacing

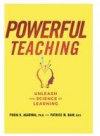
Spaced practice boosts learning by spreading lessons and retrieval opportunities out over time so learning is not crammed all at once.

Interleaving

Interleaving boosts learning by mixing up closely related topics, encouraging discrimination between similarities and differences.

Feedback-Driven Metacognition

Feedback-driven metacognition boosts learning by providing the opportunity for students to know what they know and know what they don't know.



Retrieval practice

- Bringing information to mind
- 100+ years of research
- Transforms **long-term** learning
- Low-stakes quizzes, flashcards, etc.

What does this look like in the university classroom?

- Brain dumps
- Two things
- Think-pair-share
- *Mini-quizzes
- *Interactive Lecture Tools like Top Hat and Mentimeter
- *Metacognition Sheets
- *Retrieval Guides
- *CHOICE!

Metacognition Exit Ticket

- On a scale from 1 (very unclear) to 4 (very clear), how would you rate your overall understanding of today's class?
- What are two things you learned in today's class?
- On a scale from 1 (not confident) to 4 (very confident), how confident are you that the two things you just wrote down are correct?
- What concepts from today's class did you find difficult to understand?
- Specifically, what will you do to improve your understanding of the concepts that were difficult?

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Shifting Gears

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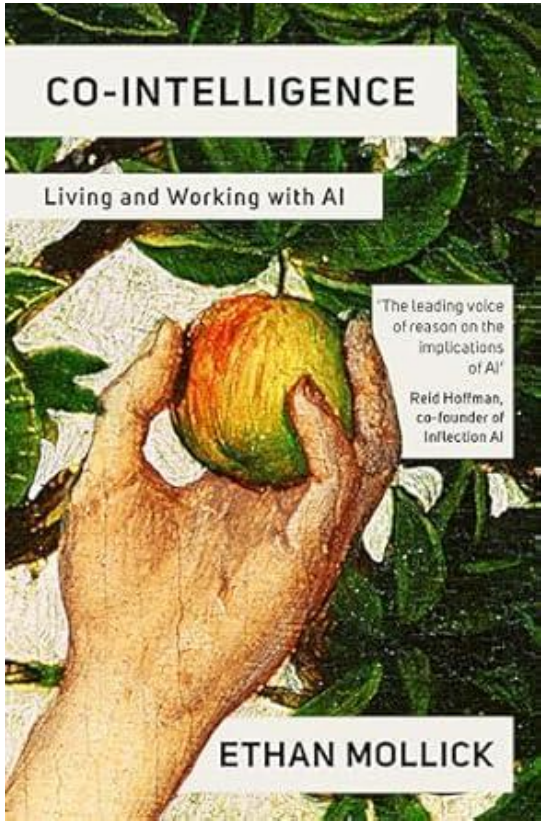
AI as Co-Intelligence and the importance of being the Human in the Loop



Co-Intelligence by Ethan Mollick

Mollick's 4 Principles for Collaborating with AI

1. Always invite AI to the table: Experiment with incorporating AI into all aspects of your work to determine its efficacy.
2. Be the human in the loop: Be cautious of AI "hallucinations," where it tries to please the user rather than provide accurate information. Work with AI but maintain a critical perspective.
3. Treat AI like a person, but tell it what kind of person it is: AI is suggestible and even gullible. Assign it appropriate roles, such as expert, friend, comedian, or storyteller.
4. Assume this is the worst AI you will ever use: AI is continually improving, and new models will have capabilities that current models do not.

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Claude

Course Redesign with Claude.ai

- Use projects if you have a paid version
- Provide learning outcomes
- Resources you might want to use
- Your ideas and vision for the course

Enter into a discussion with your AI, what do you think about this? Do you have other recommendations? What else would support student learning? What am I missing?

List of created content and resources

- Syllabi idea generation
- Ideas for how to structure the course, activities, and identify new resources
- Directions and rubrics for tasks
- Pre-Assessment and Post-assessment for the course with feedback about individual quiz items
- Description of how to do Retrieval Practice

Before the AI and SOL Course Redesign

- 3 course modules (each module was two – three weeks)
- Read and reflected on key articles
- Wrote three 3-4 page reflection and synthesis papers for each module

After the Course AI and SOL Redesign

- Weekly Modules
  - Retrieval practice for a primary article and a deep dive on a resource of their choice related to the topic (some resources identified by AI)
- Variety of activities
  - AI-generated quizzes with specific feedback for multiple-choice answers
  - Reflection questions for AI-generated quizzes to reflect on their performance
  - Videos, podcasts, and articles with student choices
  - Video or written presentations about their choice articles
  - Anticipation guides
  - Lesson Plans

Samples to explore

- Creating a Quiz with Feedback
- Retrieval practice for SIOP Video

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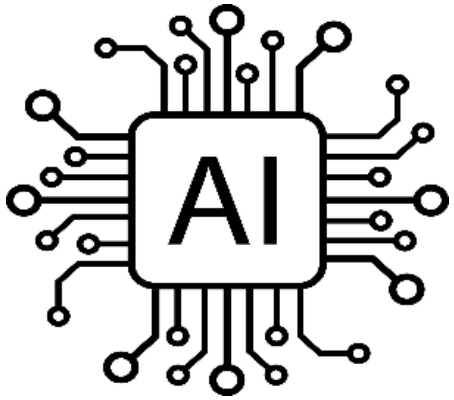
Model Transparent AI Use as a Professor



Co-Created with AI

I drafted the original version of this AI statement and asked Claude.ai to provide feedback and update the statement. I revised and refined the statement to align with my expectations for Generative Artificial Intelligence Use.

What ideas does this spark for you?

- What could this look like you your context?
- What resources do you currently use, but want to improve?
- How could this help redesign or reimagine courses for the new license bands?
- How could this help design or facilitate the PK-8 transition?

Start with Transparency and Policies

- Create a clear syllabus statement and refer to it throughout the course
- Provide specific guidance for individual assignments with AI stoplights or explanations of how they may or may not use AI for the task
- Require citation and disclosure of AI assistance

Open and Honest Communication

- Provide the why!
  - What are they missing out on by using AI?
  - What are they gaining by using AI?
  - What is the purpose of the assignment?
  - How will it help them learn and grow?

Require AI Statements

"I used [name of AI tool] to help me [explain how you used it to help you]. It did [explain what it did well here] well. I had to change [explain what you had to change] because [tell me why]. I [would/would not] use it again because [tell me why]."

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Write prompts with PARTS

P	Persona: Identify your role Set context for your request by explaining who you are.
A	Aim: State your objective Start with a verb/command and enter context for the specific task.
R	Recipients: Specify the audience Include details about the intended audience for the output.
T	Theme: Describe the style, tone, and any related parameters
S	Structure: Note the desired format of the output

Google Gemini PARTS Prompting

Contact Me

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