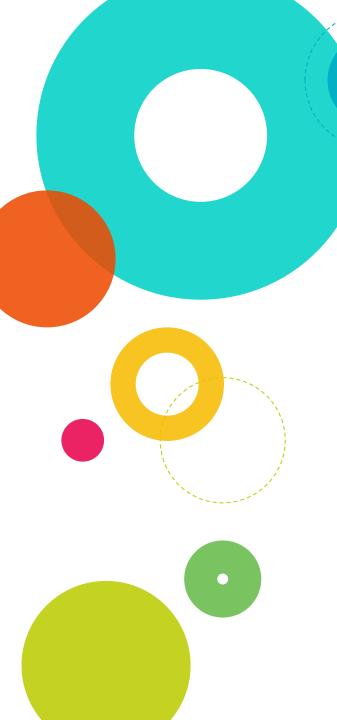


Cynthia J. Alby, Ph.D.

Georgia College
Georgia's public liberal arts university



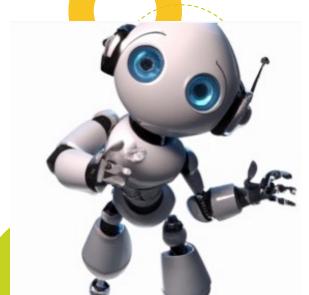
# How I came to study AI

- December 2022
- "Write a grant for innovative classroom furniture"
- Horrified and giddy the possibility of a complete reimagining (<u>The Nail in</u> the Coffin)
- © Can an old dog learn new tricks?

Note: A link to this PowerPoint will be provided – links, "closer looks" at small fonts



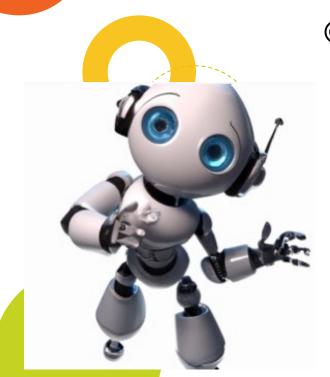
- I am not particularly "techy" my focus has long been on joy, meaning, and enchantment
- O I recognize that AI is going to usher in a whole new era of criminality and disinformation, that it is horrible for the environment, and it will cause both positive and negative, large-scale disruptions for most white-color work
- O It could be disastrous

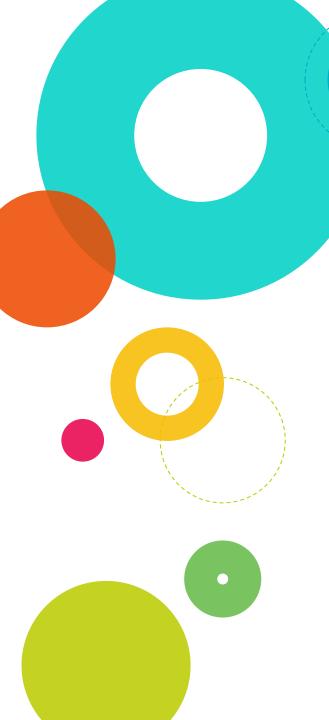




 But we MUST understand it and our students need to understand it

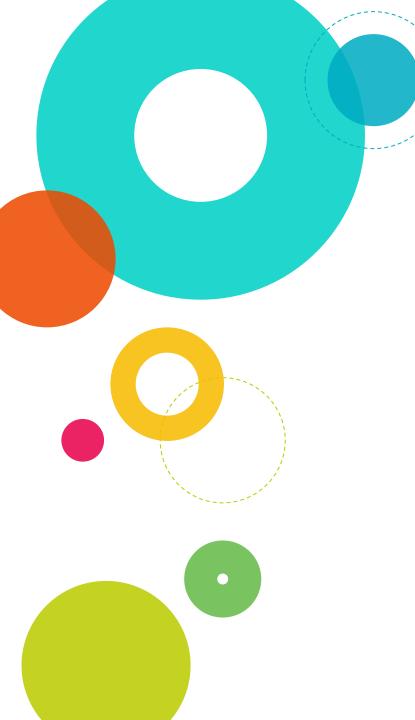
 And it IS quite useful for enhancing teaching and learning along with other work we do





# Agenda

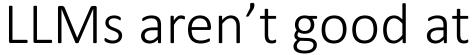
- What do you need to know to get started?
- In what ways might AI help personalize learning?
- What are some unique and innovative applications of AI for enhancing education?
- Mow can Al support students with special needs?
- What might a classroom fully integrated with Al look like?



# A Little Background



- Al: Artificial Intelligence
- GPT: Generative (pre-trained transformer)
- LLM: "Large Language Models" GPTs trained on language

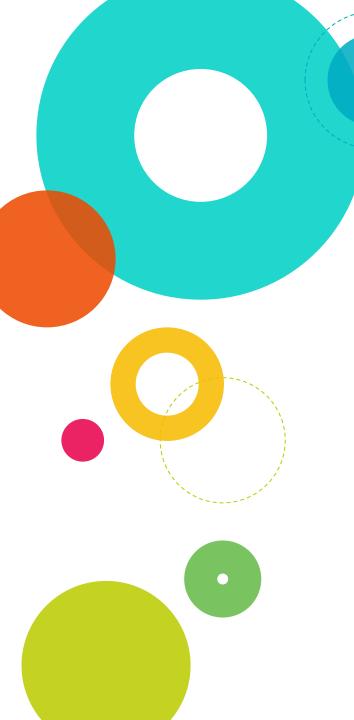




Journal-based research (not available to it) but there are specialized GPTs trained on the "best of"

Simple math sometimes – use Wolfram Alpha

Internet searching – not designed for that



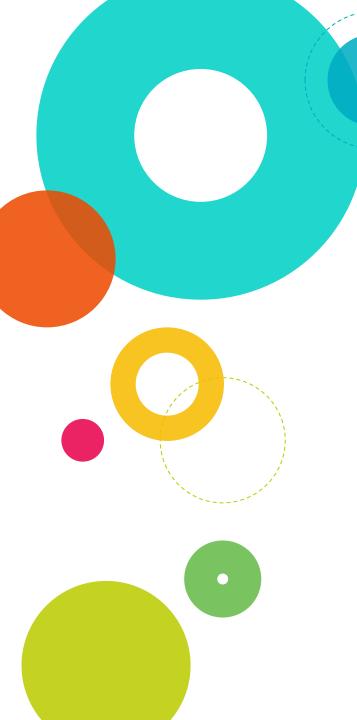
## GPTs: The Possibilities

- Ethan Mollick created a cool educational game for business students – needed to market
- © Gave himself 30 minutes to see how far he could get on creating all of that using Al
- He'd put in prompts and AI would do all the work.



"I 'created' a market positioning document, an email campaign, a website, a logo, a hero image, a script and animated video, social campaigns for 5 platforms, and some other odds-and-ends besides."

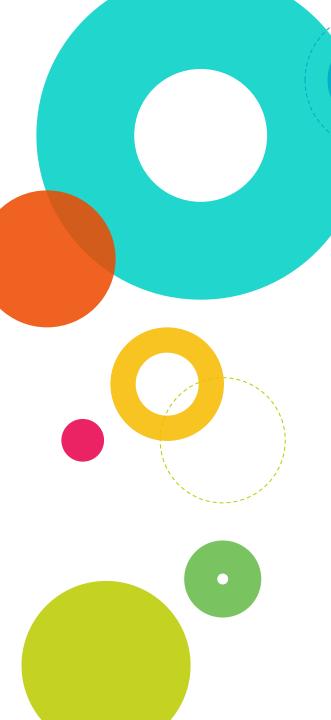
https://www.oneusefulthing.org/p/superhuman-what-can-ai-do-in-30-minutes



## On the horizon

- Specialized GPTs trained on quality subsets
- Al linked to other apps
- Al incorporated into everything (Khan Academy, Duolingo, Canva, Google suite)
- Better quality

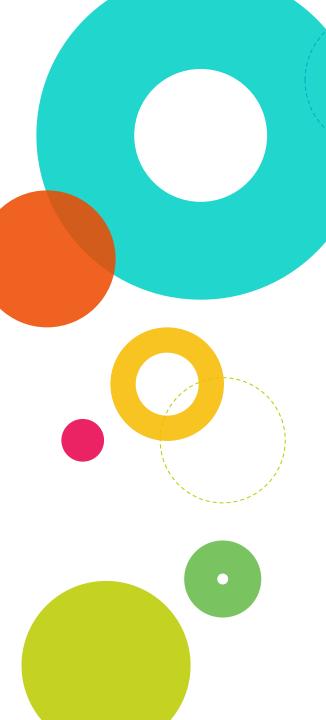




### Al Effects on Job Market

- Research on past technological advances suggests that jobs are lost in the short term but generally more jobs gained in the long run.
- The new jobs usually require higher level skills and education

https://freakonomics.com/podcast/new-technologies-always-scare-us-is-a-i-any-different/



# Specifically

- Media jobs (advertising, content creation, technical writing, journalism)
- Tech jobs (Coders, computer programmers, software engineers, data analysts)
- Compared to the compared to
- Market research analysts
- Finance jobs (Financial analysts, personal financial advisors)
- O Traders
- **O** Graphic designers
- Accountants
- © Customer service (Could be better!)

#### Businesses' top 10 skill priorities for 2027



Analytical thinking	6. Curiosity and lifelong learning
2. Creative thinking	7. Technological literacy
3. Al and big data	8. Design and user experience
4. Leadership and social influence	9. Motivation and self-awareness
5. Resilience, flexibility and agility	10. Empathy and active listening
Type of skill	

Working with others

#### Source

Cognitive skills

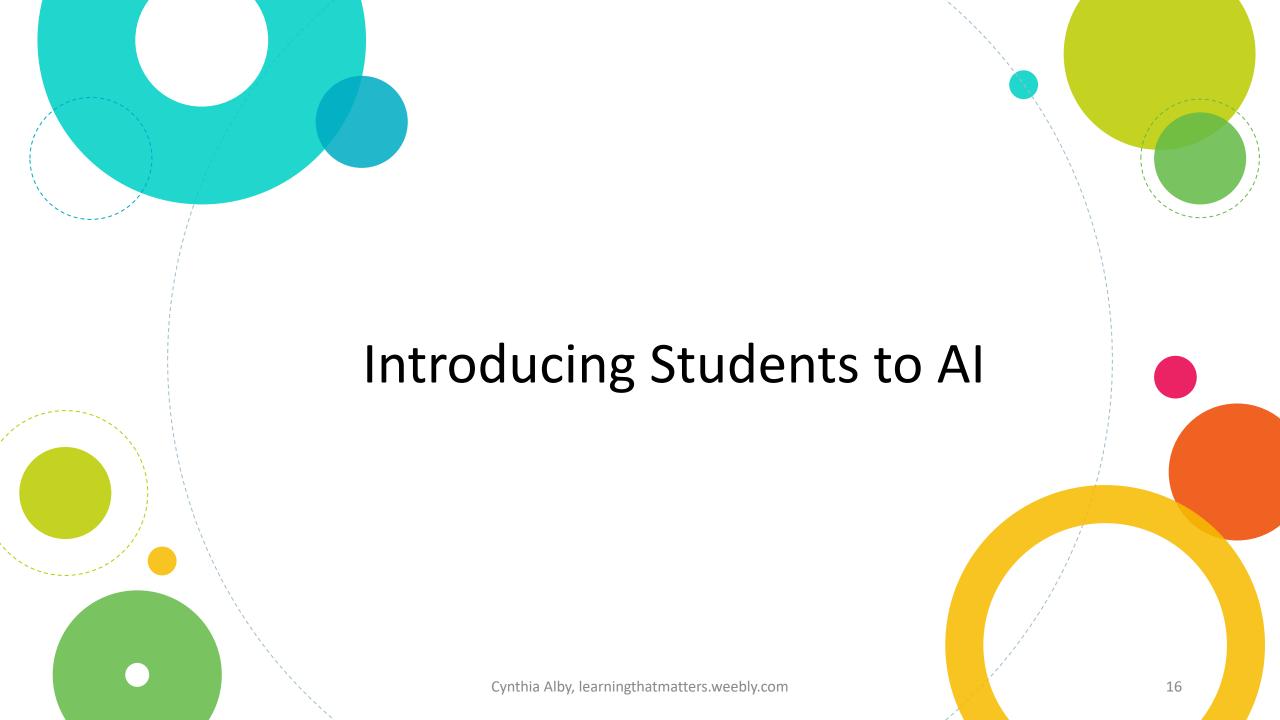
World Economic Forum, Future of Jobs Report 2023.

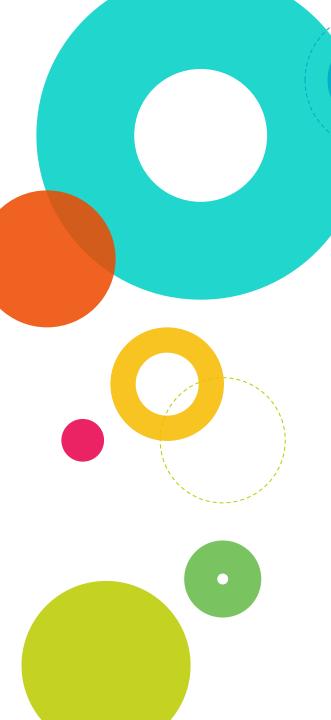
Self-efficacy

Technology skills

#### Note

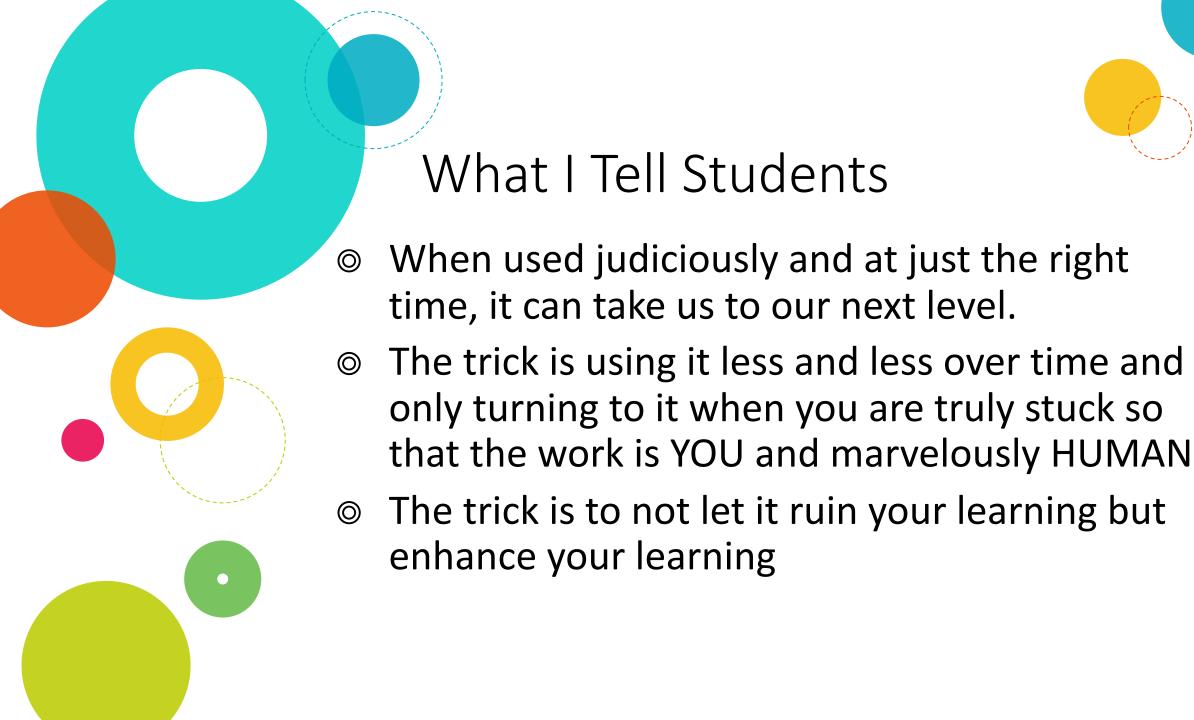
The skills which organizations will prioritize in workforce development initiatives from 2023 to 2027

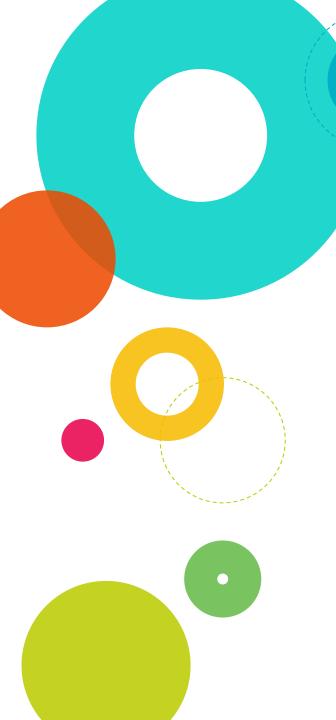




# A Protocol for Introducing Students to Al

- Start with the downsides
- Have students use it and critique the output
- Allow students to self-persuade:
   "Why I want to use AI responsibly"





# In my experience

- In the classroom
- Online
- The "ubiquitous temptation"
- Detection



#### LEARNING THAT MATTERS







A FIELD GUIDE TO

COURSE DESIGN FOR

TRANSFORMATIVE EDUCATION

CARALYN ZEHNDE IULIA METZKER CYNTHIA ALBY

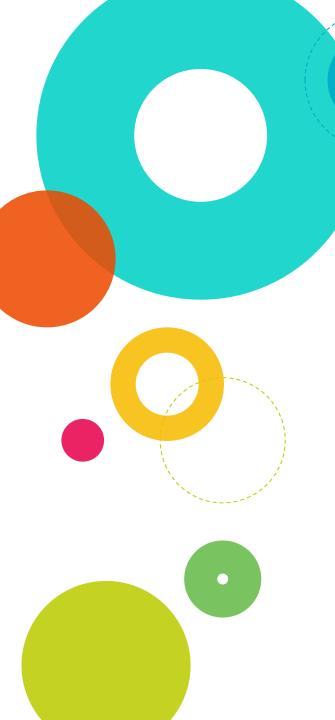
# The most important thing

When students (humans)

- can see how what they are learning has value,
- feel they are capable of succeeding in what we have asked of them,
- and aren't in a position of desperation

they will almost always put in the work





How do I use an LLM?

To use it you need to know

- Which LLM to use
- How to prompt it



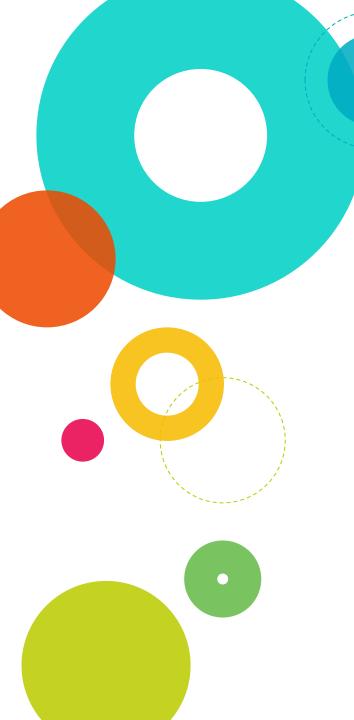
#### The Original

ChatGPT (3.5 the free version) - outdated, biased, "hallucinates," odd "tone" - please don't use this

#### 4.0 Models – 10x more advanced

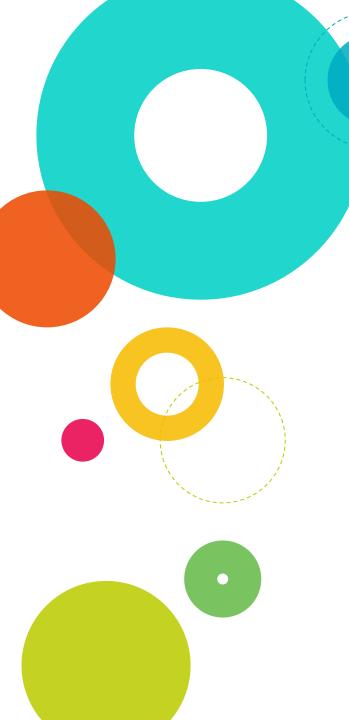
- Bing Chat free, connected to the Internet, cites sources, the best right now. Must be used in the browser Microsoft Edge
- OpenAl GPT-4 eloquent writing (\$20/mo)
- © Claude AI good but not great, easy to access, designed to be ethical
- Bard not good enough yet to bother but Google has a new one coming soon





Prompting: What if I asked you to do the following

"Write me a lesson plan"

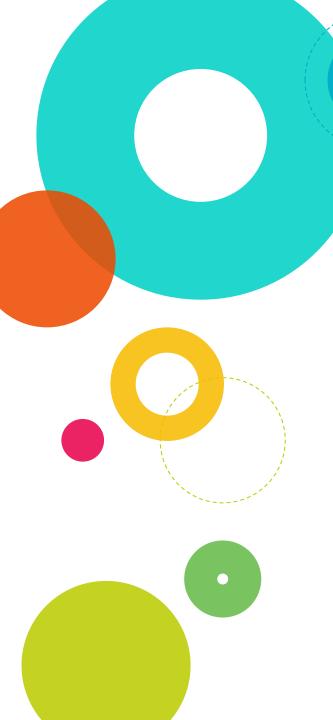


Prompting: It is all about context and specificity

"Write me a lesson plan"

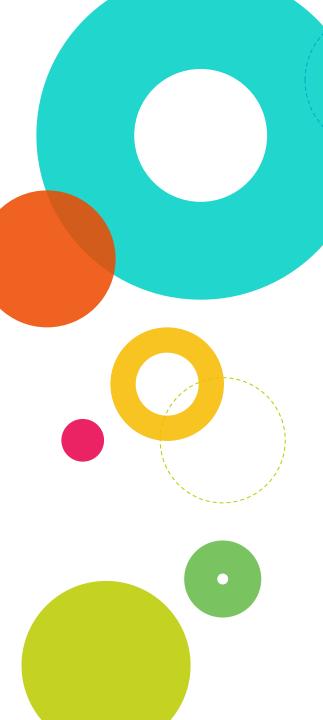
VS

Write a lesson plan for first year college students in a course on Critical Issues in Education. Make it a 75 min lesson on distinguishing better quality resources from lesser quality resources.



# Getting Started

- Begin with "cut and paste" prompts
  - Learningthatmatters.weebly.com
- Take 30-60 minutes to learn prompt engineering over the break



# Example Prompt: Generative Textbook

I am a (level) student who is new to the study of (this subject). Teach (topic) to me with simple explanations, helpful examples, and analogies. When it makes sense, connect the new information to one of my interests or future career, which includes (list).

When you are done, ask me, "Which part of this would you like explained in more detail," and I MUST ask at least one follow-up question.

After you have answered my follow-up question ask me if I have further questions or if I am ready for a practice question. The practice question should require me to go beyond just simple recall from our discussion so far.

After I have answered the question, please give me feedback on my answer.





First, a Story

Free yourself with a "yes...and" stance

Image created by Dall-E



# Let's look at this again: Generative Textbook

I am a (level) student who is new to the study of (this subject). Teach (topic) to me with simple explanations, helpful examples, and analogies. When it makes sense, connect the new information to one of my interests or future career, which includes (list).

When you are done, ask me, "Which part of this would you like explained in more detail," and I MUST ask at least one follow-up question.

After you have answered my follow-up question ask me if I have further questions or if I am ready for a practice question. The practice question should require me to go beyond just simple recall from our discussion so far.

After I have answered the question, please give me feedback on my answer.



- Can you give me multiple resources to help me understand
   The resources could include videos, websites, simulations, games, or infographics.
- © Can you break down the concept of \_\_\_\_ into manageable chunks?
- O I am planning a career in \_\_\_\_; can you help me see how \_\_\_\_ will help prepare me for that?
- You are an expert \_\_\_\_\_. I will ask you questions and you answer as an expert mentor would.

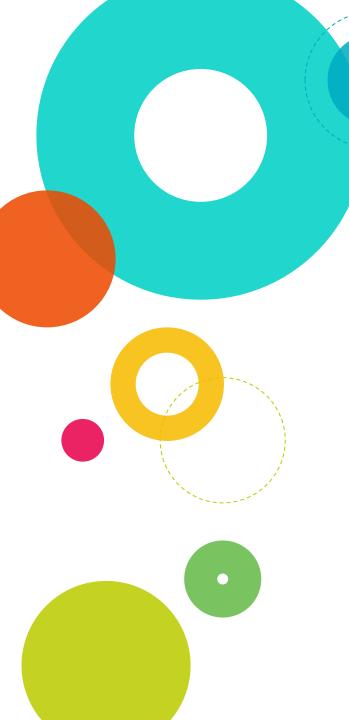


Help students use AI to study better

- Make a plan for <u>spacing practice</u>
- Generate pre-questions or pre-quizzes\*
- Self-quiz with immediate feedback\*\* ("When I answer correctly, give me a slightly harder one. When I answer incorrectly, explain where I went wrong.")

<sup>\*</sup>In the study, students who took a practice test before learning the material outperformed their peers who studied more traditionally by 49 percent on a follow-up test

<sup>\*\*</sup>students who studied a lesson and then reread the same material scored 53 percent on a follow-up test, while their peers who studied it once and then answered practice questions averaged an 87 percent score.

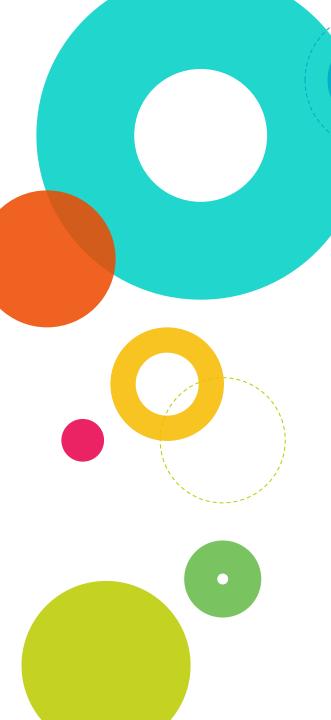


# Students can use Al to get tailored feedback

Students can either ask for general feedback on a piece ("Give me three ideas to make this better")

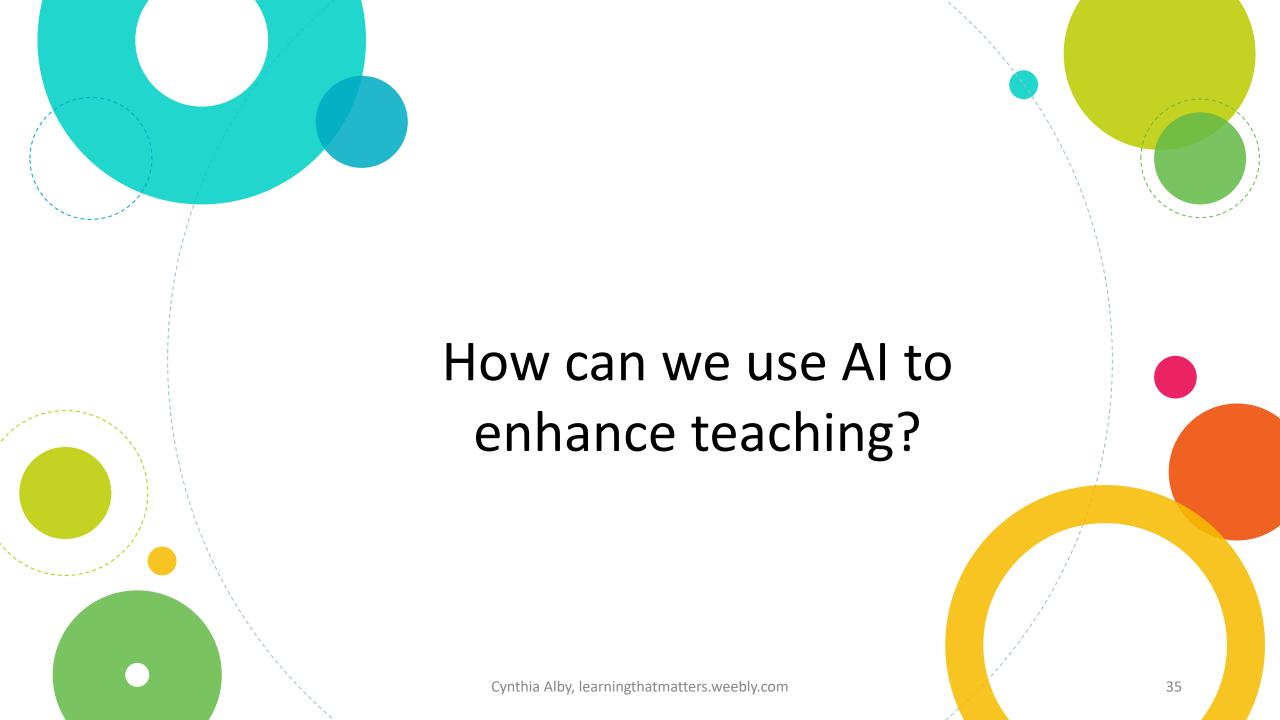
### And/or

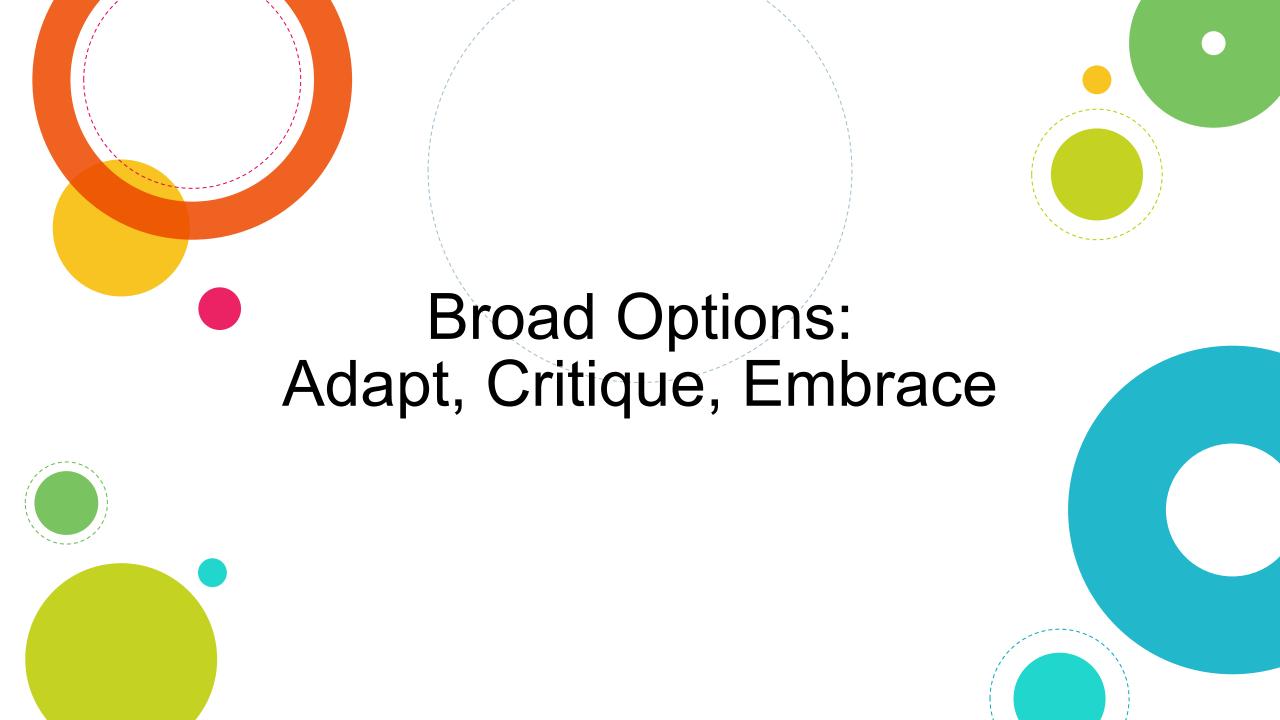
 Ask for specific feedback using the criteria from a teacher supplied or online rubric

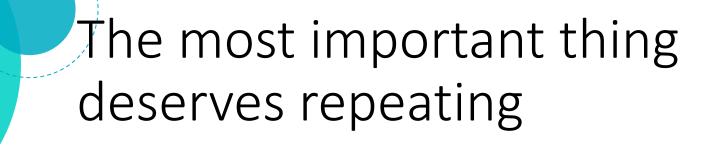


# Student Writing

- Help get them started:
   Generate ideas or an opening paragraph
- 2. Free them up when they get stuck in the middle: What am I missing? What examples or analogies could I add? What might some counter arguments be?
- 3. Polish up at the end: Give me ten possible titles for this piece. Revise this piece making no significant changes other than grammar and punctuation. Revise this piece to make it more clear and succinct/have a more creative or more expert tone.







When students (humans)

- can see how what they are learning has value,
- feel they are capable of succeeding in what we have asked of them,
- and aren't in a position of desperation they will almost always put in the work











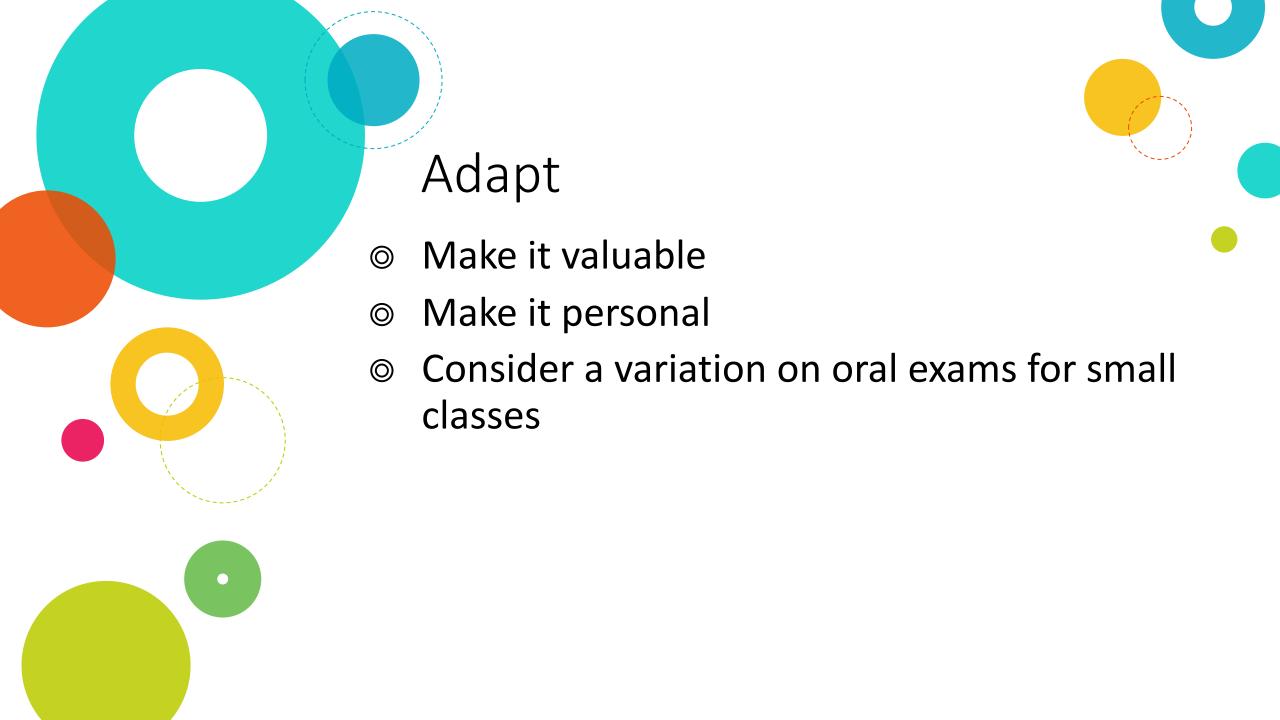
A FIELD GUIDE TO

COURSE DESIGN FOR

TRANSFORMATIVE EDUCATION

CARALYN ZEHNDEI

KARYNNE KLEINE

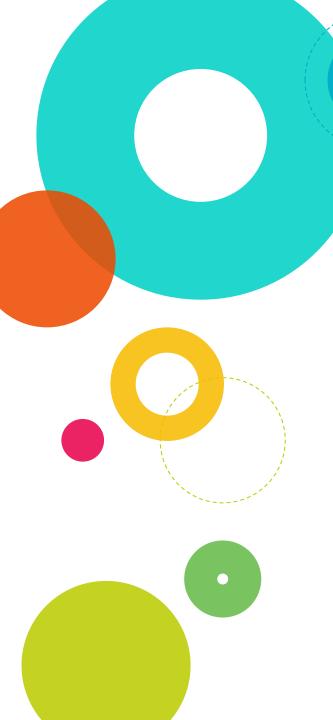






- Students highlight and then annotate
- Annotations can include #, memes, gifs, tagging others, links, images
- The customizable AI scores on quality, quantity, active engagement, how often opened, completion, and more





analysis of those studies showed that relationship conflict is generally bad for performance, but some task conflict an be beneficial: it's been linked to higher creativity and smarter choices. For example, there's evidence that when teams experience moderate task conflict early on, they generate more original ideas in Chinese technology companies, innovate more in Dutch delivery services, and make better decisions in American hospitals. As one research team concluded, "The absence of conflict is not harmony, it's apathy."

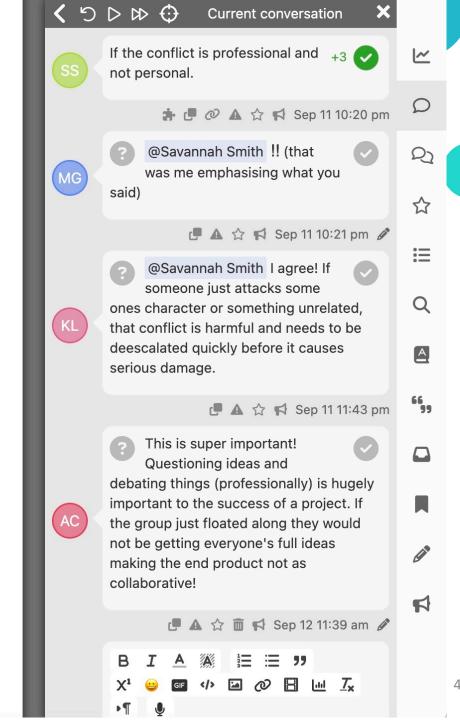
Relationship conflict is destructive in part because it stands in the way of rethinking. When a clash gets personal and emotional, we become self-righteous preachers of our own views, spiteful prosecutors of the other side, or single-minded politicians who dismiss opinions that don't come from our side. Task conflict can be constructive when it brings diversity of thought, preventing us from getting trapped in overconfidence cycles. It can help us stay humble, surface doubts, and make us curious about what we might be missing. That can lead us to think again, moving us closer to the truth without damaging our relationships.

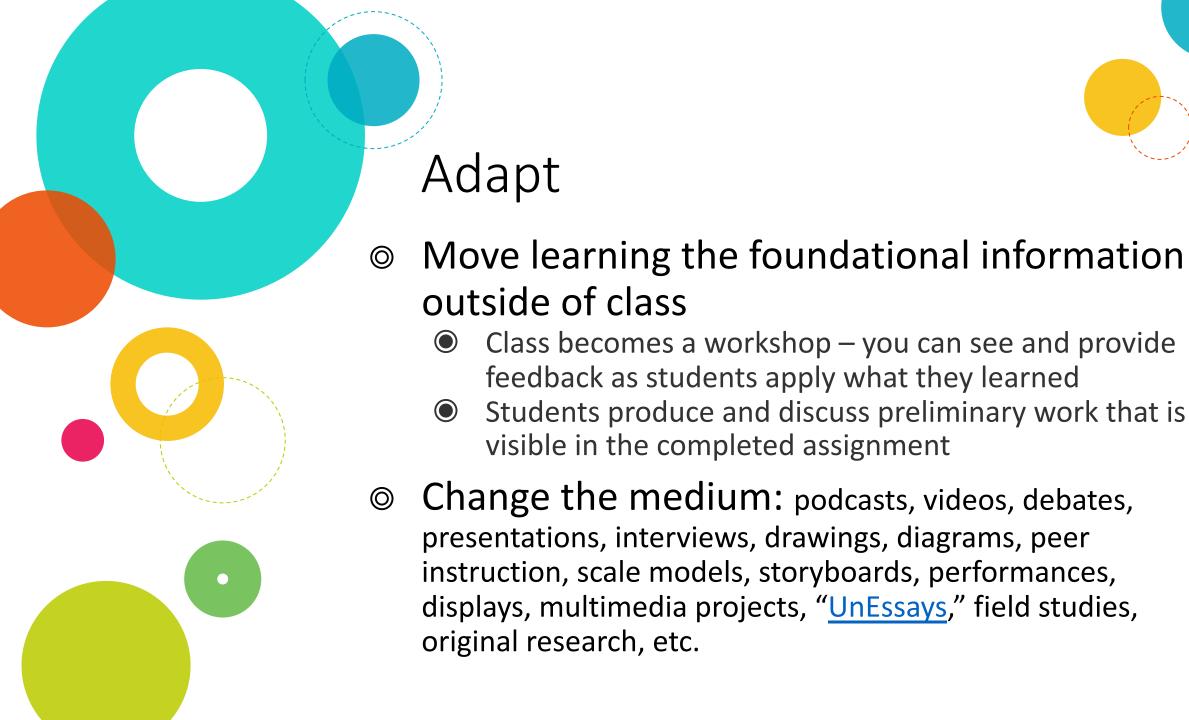
Although productive disagreement is a critical life skill, it's one that many of us never fully develop. The problem starts early: parents disagree behind closed doors, fearing that conflict will make children anxious or somehow damage their character. Yet research shows that how often parents argue has no bearing on their children's academic, social, or emotional development. What matters is how respectfully parents argue, not how frequently. Kids whose parents clash constructively feel more emotionally safe in elementary school, and over the next few years they actually demonstrate more helpfulness and compassion toward their classmates.

Being able to have a good fight doesn't just make us more civil; it also develops our creative muscles. In a classic study, highly creative architects were more likely than their technically competent but less original peers to come from homes with plenty of friction. They often grew up in households that were "tense but secure," as psychologist Robert Albert notes: "The creative person-to-be comes from a family that is anything but harmonious, one with a 'wobble.'" The parents weren't physically or verbally abusive, but they didn't shy away from conflict, either. Instead of telling their children to be seen but not heard, they encouraged them to stand up for themselves. The kids learned to dish it out—and take it. That's exactly what happened to Wilbur and Orville Wright.

When the Wright brothers said they thought together, what they really meant is that they fought together. Arguing was the family business. Although their father was a bishop in the local church, he included books by atheists in his library—and encouraged the children to read and debate them. They developed the courage to fight for their ideas and the resilience to lose a disagreement without losing their resolve. When they were solving problems, they had arguments that lasted not just for hours but for weeks and months at a time. They didn't have such incessant spats because they were angry. They kept quarreling because they enjoyed it and learned from the experience. "I like scrapping with Orv," Wilbur reflected. As you'll see, it was one of their most passionate and prolonged arguments that led them to rethink a critical assumption that had prevented humans from soaring through the skies.

The clearest sign of intellectual chemistry isn't agreeing with someone. It's enjoying your disagreements





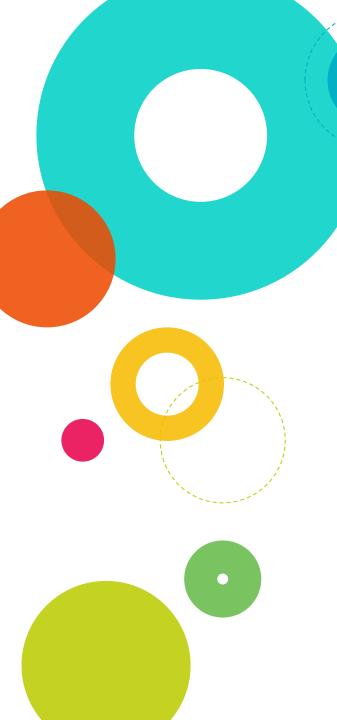
## Critique

"Ask one of the generative AI programs to write a 3-page, APA style, literature review on their topic, and highlight the content and the sources" (from Jess Cail's Fb post)



## Critique: The Eric Prochaska Method

- 1. Rhetorical analysis. Deconstruct the very act of AI writing. Discuss how AI "learns" to write. What assumptions about good writing are revealed when AI writing is analyzed? What is AI incapable of doing in its writing? Are there writing situations where AI should be more or less trusted? What is the role of the human in generating and proofreading AI text?
- **2. Peer review.** Conduct a peer review and/or class discussion of AI writing. Analyze what it writes. What content does AI include? What does it not include? How does AI organize its writing? What sentence structures does AI favor? Analyze the style in terms of voice, tone, diction, and syntax. Is there rhythm in AI language? Can the full rhetorical situation be deduced by analyzing an AI text? How could the text better address the rhetorical situation?
- **3. Revision.** Revise an AI generated text. Aside from correcting factual errors, have students experiment with re-arranging the contents of an AI written piece. Have students expand the paragraphs, combine the sentences, add support, and rewrite conclusions. Use the AI text as a starting point, as an opportunity. Students may find it difficult to improve upon "perfection," but also may find it easier to revise the writing of a soulless program than that of their peers.
- **4. Class presentations.** Present a comparison/contrast of AI versus human writing. Without knowing the author, can students tell which text is written by a human and which by AI? Who writes better? Which writing "sounds" better? Compare line-by-line, thesis statements, voice, organization, evidence and support, arguments and logic, overall impact, and persuasiveness of the pieces.
- **5. Refinement.** Try to make AI refine its writing with a focus on the rhetorical situation. Have students compose several variations of the same prompt to fine tune the result that AI produces. Are there limits to how much we can refine the writing? Are there trade-offs of one element being sacrificed when another is included or enhanced? Have students try to dial in the rhetorical situation by adjusting for audience, purpose, voice, tone, etc. Ultimately, is it easier to have AI write the perfectly appropriate text for a specific situation or to write it on our own?



## Embrace!

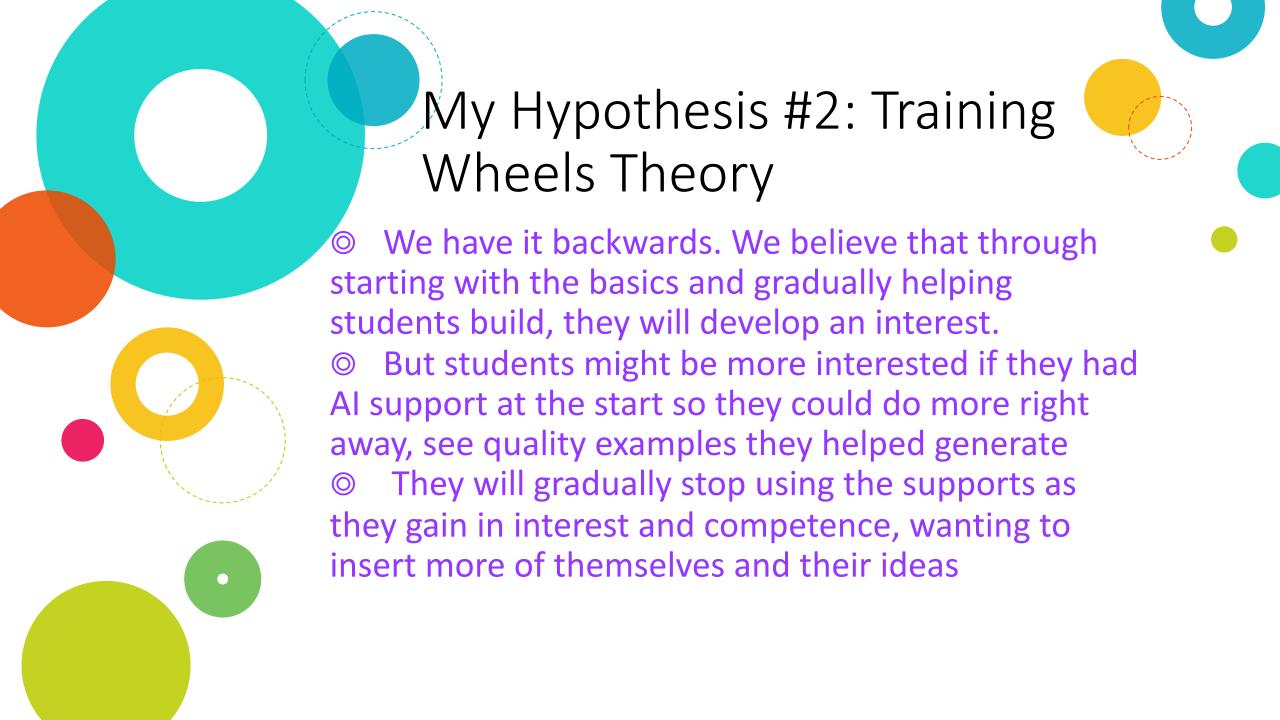
- Help students work with AI
- © Go "all in" with the Koepke method: A journey of co-exploration

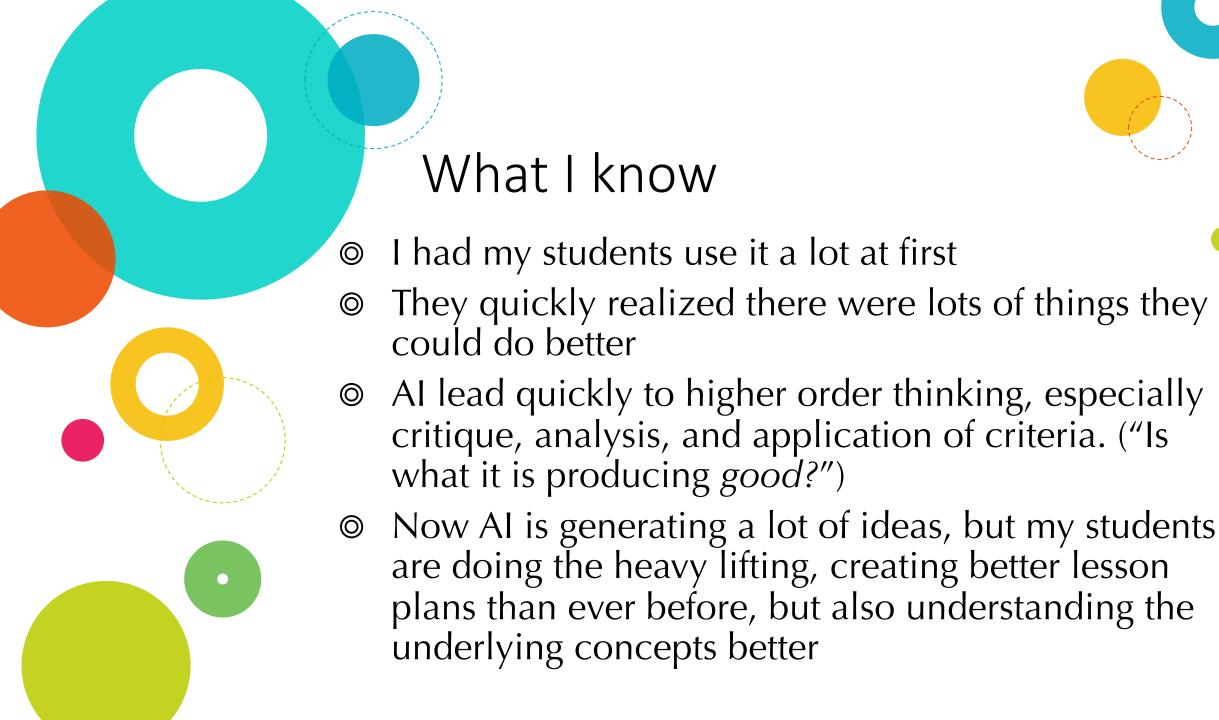


# My hypothesis #1: The Uncertain Future

- Part of the reason students are increasingly disengaged is because they don't think what we are teaching them is adequately preparing them for an uncertain future of rapid change filled with threatening and complex problems
- Incorporating AI and explicitly helping students consider how it might be used to help them navigate such a future will increase engagement





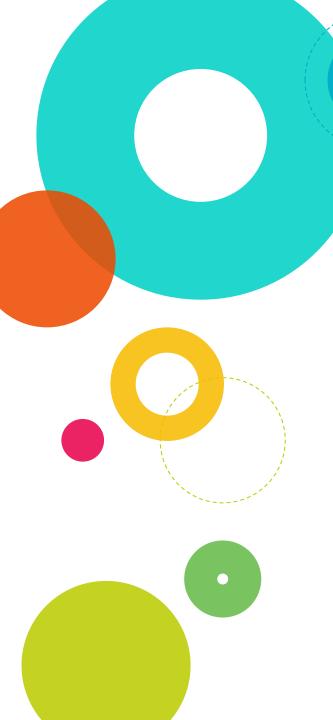




# What if you had an assistant to *help* with TEACHING?

- Lesson plans
- Rubrics
- Feedback
- Assignment directions

- More clear explanations
- Analogies



## What is it good for?

- Generating loads of possible ideas
- Visuals for presentations without licensing concerns
- Examples of different styles, types, structures
- Feedback on discussions or presentations
- © Examples:
  - Overview of 12 issues students could choose from
  - "White papers" for DEI in Kinesiology
  - Generating loads of discussion questions
  - Same basic lesson plan in 3 different structures





Give me 20 different variations on this paragraph, but avoid making the changes too radical. Make them stylistically different. label each style. Here is the paragraph: A thesaurus lets you look up individual words because you are searching for a synonym. They have been around longer than printed books - the first versions are over two millennia old - and have become staples of grammar checkers and online dictionaries. A thesaurus is comfortable, they do a narrow task of suggesting words, and they leave humans in charge of everything else. You could use an Al as a thesaurus, but it isn't one. Instead, you can take the concept much further. Forget synonyms of words, find synonyms for paragraphs.

Т

Certainly! Here are 20 variations of the original paragraph, each with a unique stylistic spin:

#### 1. Formal Academic Style

A thesaurus functions as a lexical resource that facilitates the identification of synonyms for specific words. Originating over two millennia ago—prior to the advent of printed books—they now serve as integral components of grammar verification tools and digital dictionaries. Though limited in scope to the recommendation of word substitutes, thesauri vest the ultimate decision-making power in human users. Artificial intelligence, while it can perform a function analogous to that of a thesaurus, possesses capabilities that extend beyond mere lexical substitution, allowing for the substitution of entire paragraphs.

#### 2. Casual Conversational Style

So, a thesaurus helps you find other words that mean the same thing, right? They've been around way before books were even printed—like, over 2000 years old! They're super handy in word processors and online dictionaries. They're cool because they just suggest words; you still decide which ones to use. Al can act like a thesaurus, but let's be real—it's got the potential to do a whole lot more. Think bigger than swapping out words—imagine switching out whole paragraphs!

#### 3. Business Professional Style

Thesauri serve as critical resources for identifying synonyms for individual terms. With origins predating printed literature, they are essential tools in today's digital dictionaries and grammar software. These resources focus on the specific function of recommending alternative vocabulary, leaving all other decisions to human judgment. While AI can simulate the role of a thesaurus, its capabilities can be harnessed for more advanced tasks, such as replacing entire paragraphs.

#### 4. Technical Style

In the realm of lexical databases, a thesaurus operates by providing synonyms for isolated lexical items. Established prior to the era of printed publications, these lexical tools are now embedded in online dictionaries and grammar verification software. The functionality of a thesaurus is confined to suggesting word equivalents, while humans remain responsible for broader contextual applications. Al, although capable of mimicking thesaural operations, can be programmed to perform higher-level tasks like paragraph substitution.

#### 5. Journalistic Style

A thesaurus is your go-to guide for word alternatives, dating back longer than the printed page itself. Fast forward to today, and you'll find them baked into everything from grammar checkers to web-based dictionaries. They're specialized tools that stick to one job—suggesting different words—but leave the rest up to you. Sure, Al could do the job of a thesaurus, but that's just scratching the surface. Imagine a world where not just words, but entire paragraphs could be swapped out effortlessly.

#### 6. Poetic Style

A thesaurus, ancient keeper of words, finds synonyms within its labyrinthine pages. Born before ink touched parchment, they now dance in the circuits of our digital helpers. They whisper suggestions, delicate as a fily's petal, leaving humans the choreographers of grander linguistic ballets. All could don the guise of a thesaurus, yet its soul dreams of vaster expanses—where paragraphs become interchangeable like the hues of a sunset.

#### 7. Persuasive Style

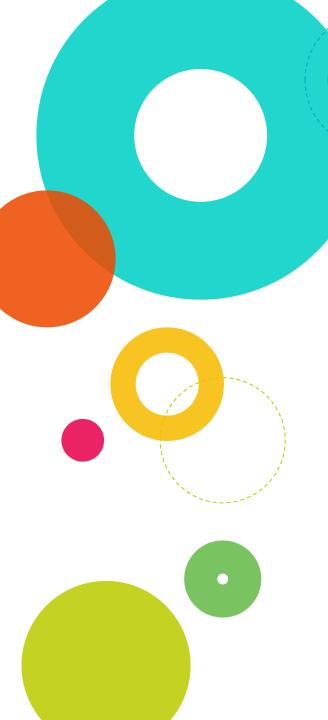
Why settle for a simple thesaurus when we have technology that can do so much more? Sure, thesauri have been invaluable for centuries, helping us find the right word when we're stuck. They've even evolved to become part of our online writing tools. But remember, they only offer synonyms. The final say is yours. Now, think bigger: Al can serve as a hyperthesaurus, exchanging not just words but entire paragraphs!

#### 8. Playful Style

Thesauruses are like the OG word wizards, right? They've been playing the synonym game way before books even got printed! Nowadays, they're the behind-the-scenes sidekicks in your spellicheck and online word hunts. They pitch in a word or two, then step back to let you take the glory. All could be a thesaurus if it wanted to, but why limit its superpowers? Imagine going full-on word-avenger and swapping whole paragraphs!

#### 9. Stream-of-Consciousness Style

Ah, thesaurus, you vintage word-finder, older than printed books, you're there, even in the cold circuits of online lexicons. Words, just words, you're good at suggesting those. But humans, ah yes, humans—we decide, always us, controlling all the other stuff. Al? It could play your game but why limit it? It can go beyond, beyond just words, to paragraphs, whole paragraphs!



# If it were easier to do, how would you use



 Teacher and student, nurse and patient, board members, negotiators, politicians

### Simulation?

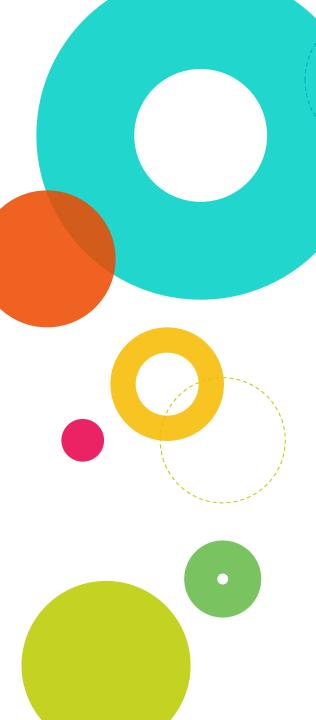
 Practicing skills in a controlled environment (flying, giving shots, navigating Paris)

### Games?

Password, Jeopardy, Memory

### © Case Studies or scenarios?

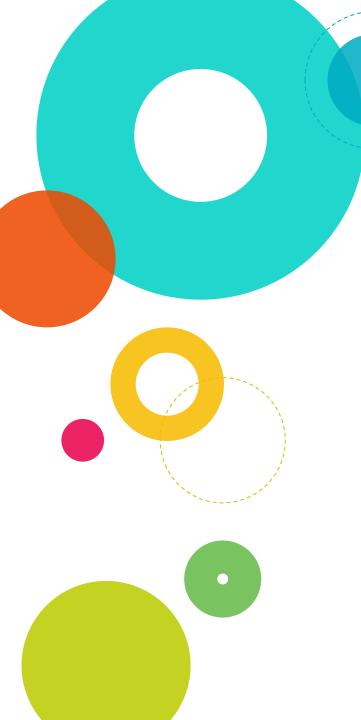
Create a scenario in which a patient has multiple conditions.
 Prompt me to collection information, assess, plan, implement, and follow up, giving me feedback on my performance on each step.



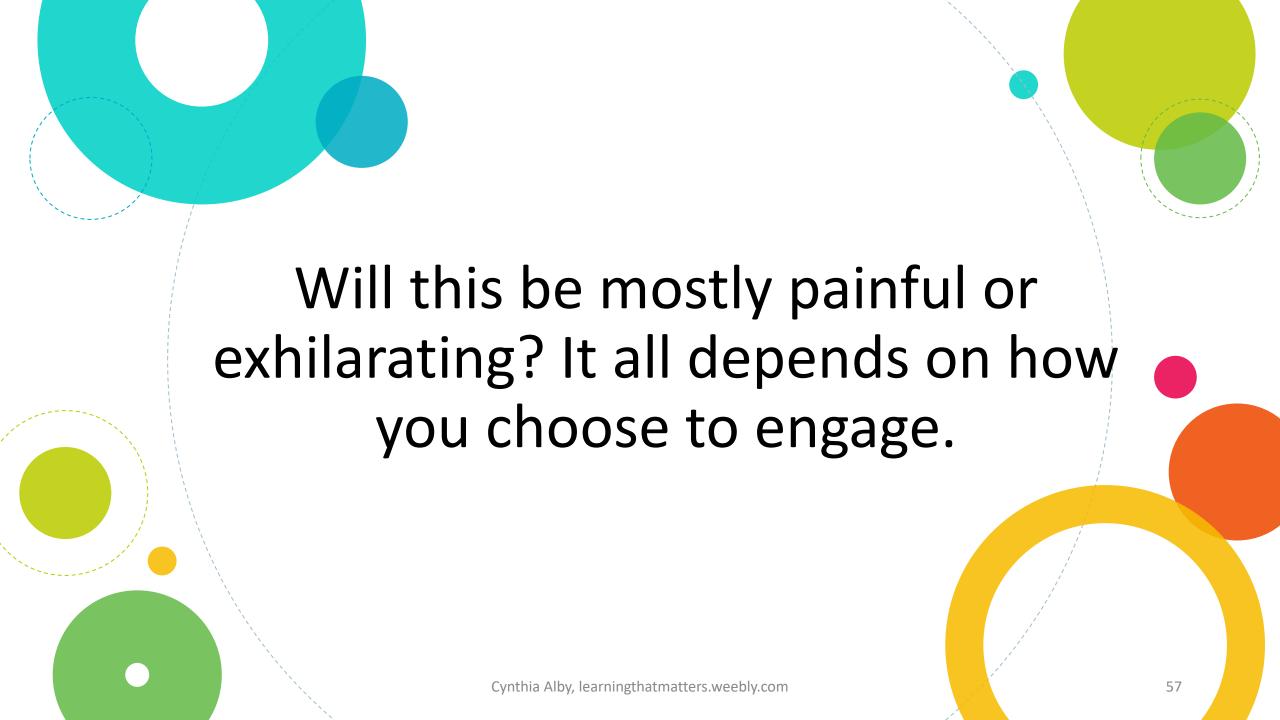
## Special Needs

- Provides exceptional dictation (act like you are dictating a prompt to the ChatGPT app – 10 min max)
- Simplify or explain difficult passages or concepts
- Tell them where they made mistakes/what they got wrong and why
- Translate into their dominant language (even a particular dialect)
- Describe images (for those with vision issues)
- Organize ideas





- Mow often are you engaged in conversations about how AI will impact the future of a) the professions you are preparing students for, b) their personal lives, and c) their worlds?
- Are you explicitly preparing students for uncertainty, complex problem-solving, and making change?





## Recommendations

- Learning that Matters
- Running with Robots by Toppo and Tracy
- Edsurge Podcast
- Robot Proof by Joseph E. Aoun
- Super Courses by Ken Bain
- My Curation of Articles



"...during the pandemic, our cat got to the sweater. Ever since, instructors have been mending furiously. We're trying to get the sweater back the way it was, but maybe we'd be better served to look at the ball of yarn and be like: 'Y'all, I think this might be a potholder now."

From the Chronicle, When the Cat Destroys Your Sweater, Knit Something New

The ChatGPT moths left us with bits of string. Now it's time to make art.

