

Introduction to AI Workshop

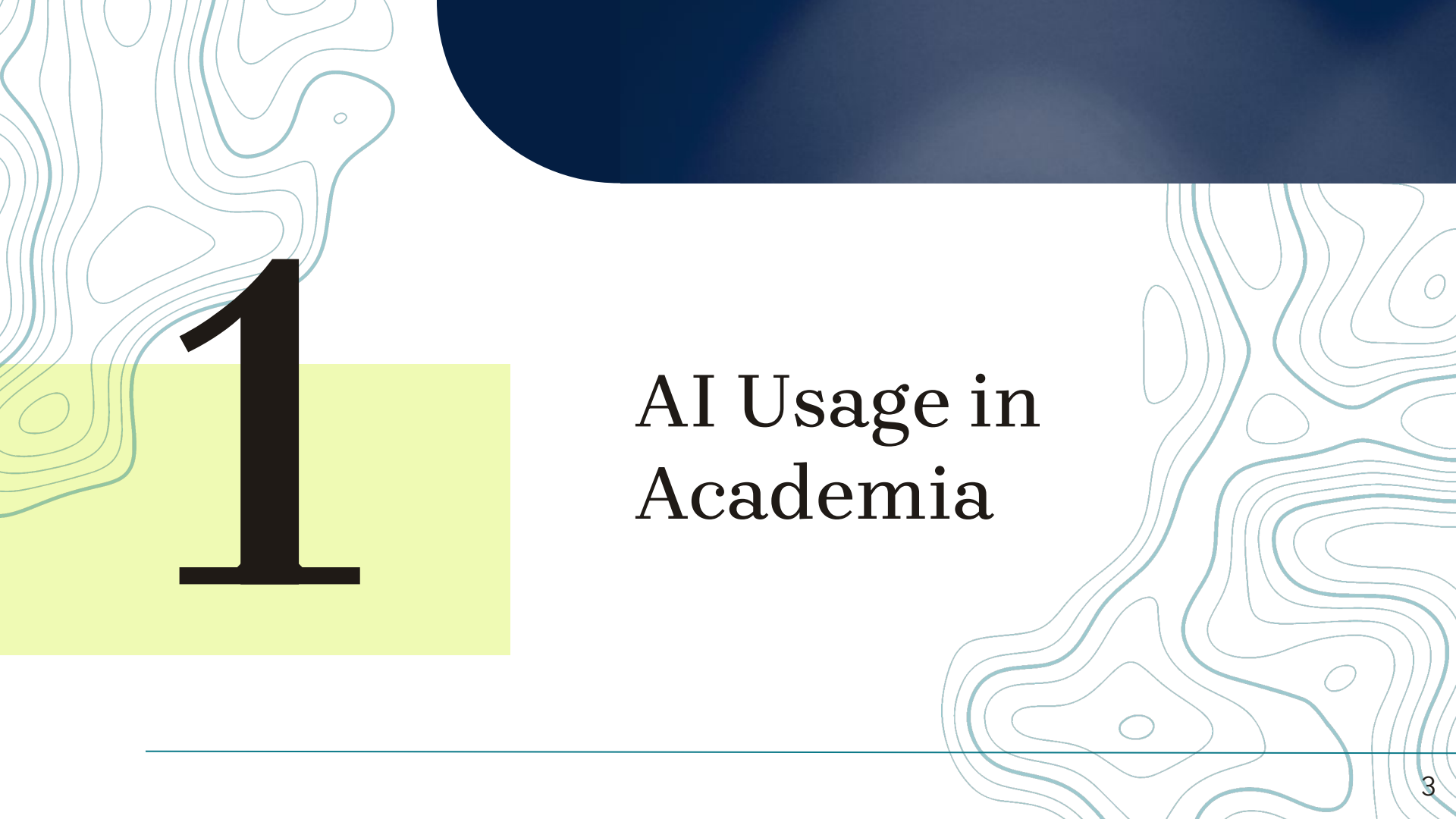
Molly Chehak, Director of Digital Learning Pedagogy
Sarah Jane Grizi, Digital Learning Specialist

... February 1, 2024 ...

Today's Session

1. AI Usage in Academia
2. Basics of How it Works
3. Examples and Modeling
4. Participant Practices
5. Questions & Resources

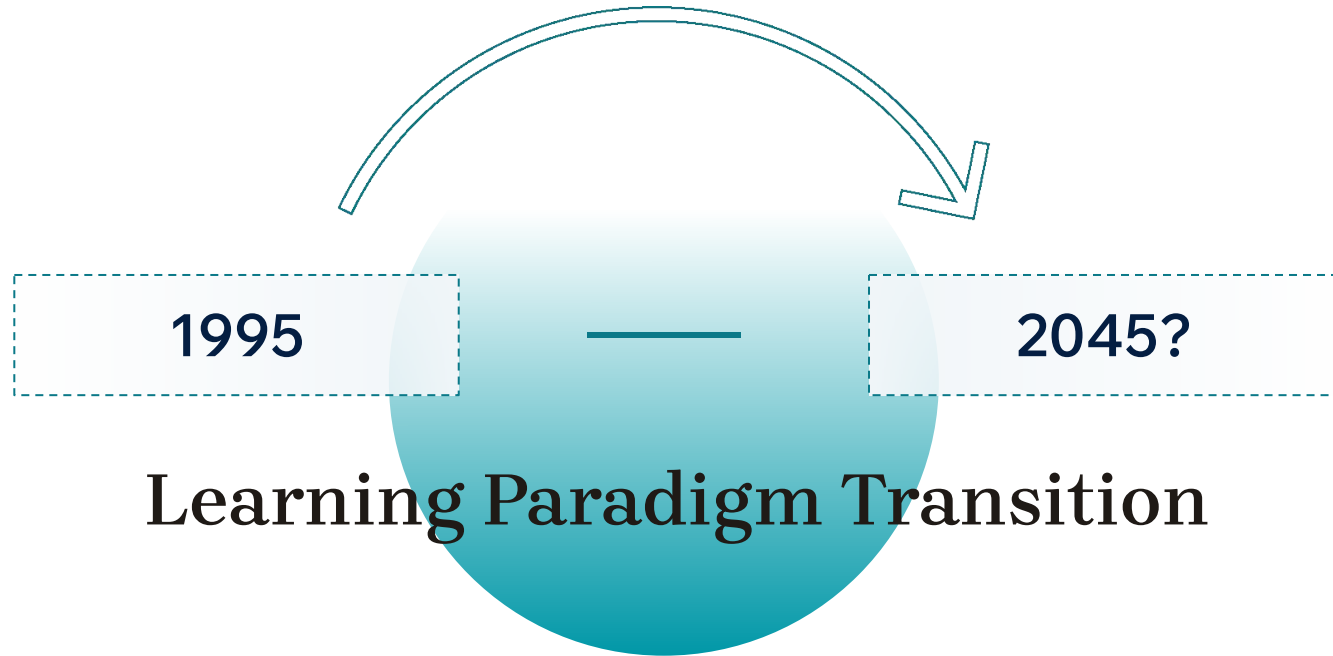




1

AI Usage in Academia

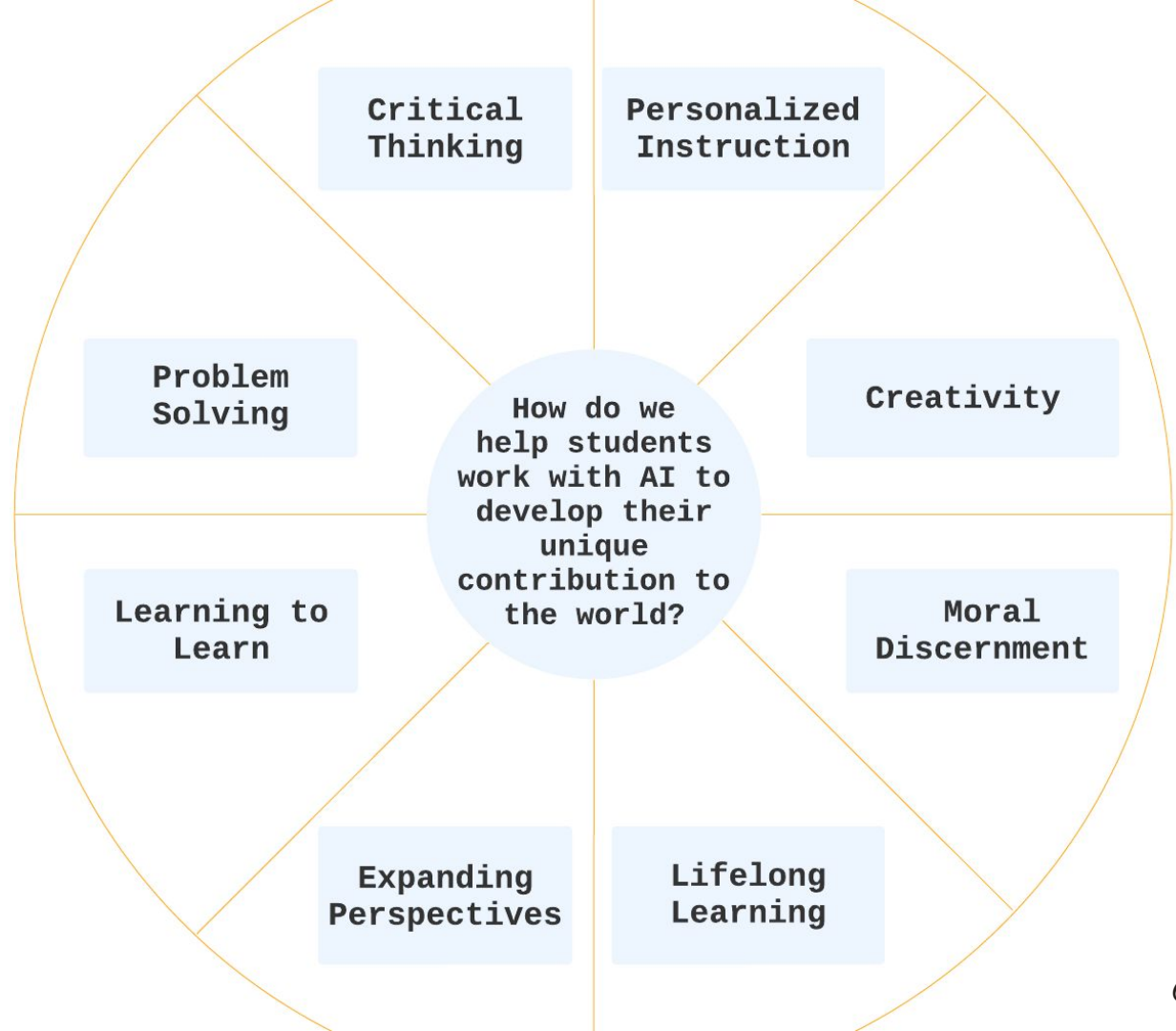
The emergence of **Generative AI tools** comes in the midst of a multi-decade arc of change in education.



AI Response Framework



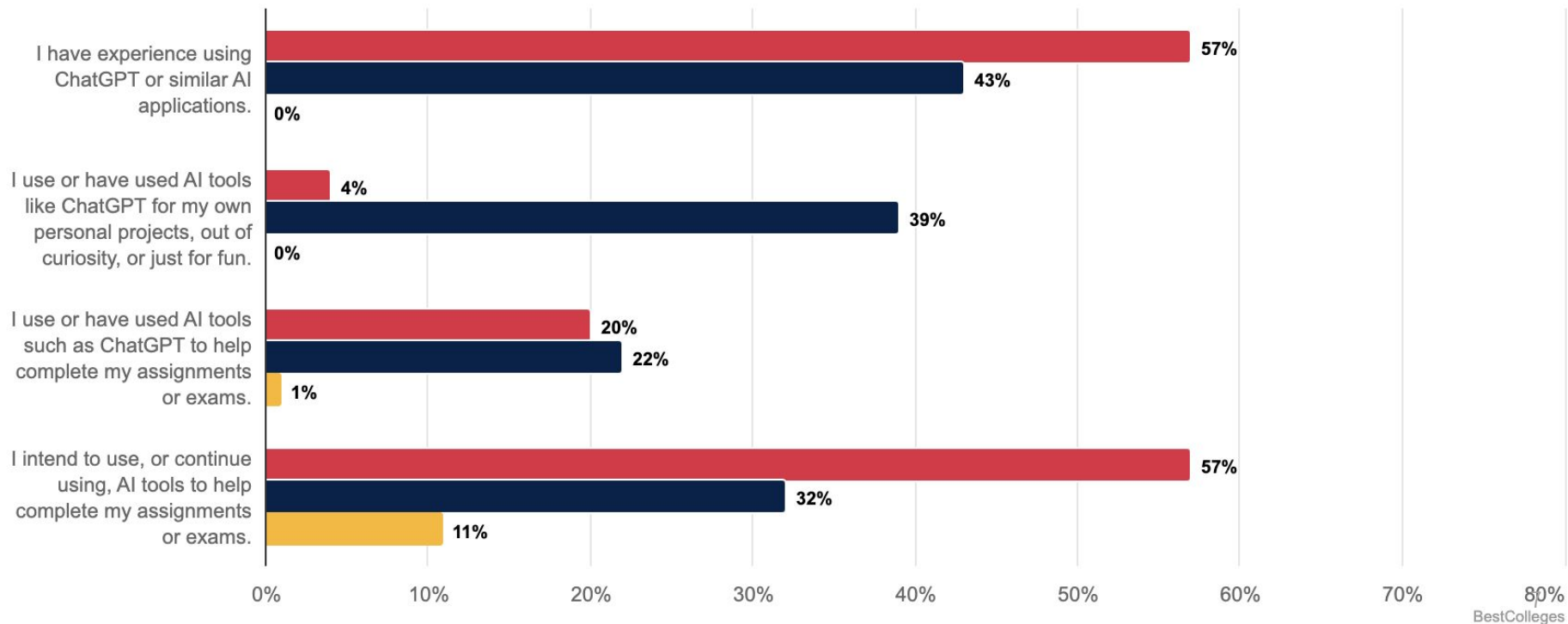
AI and Educating the Whole Student



College Students' Use of AI Tools

March 2023

No **Yes** **Prefer Not To Say**

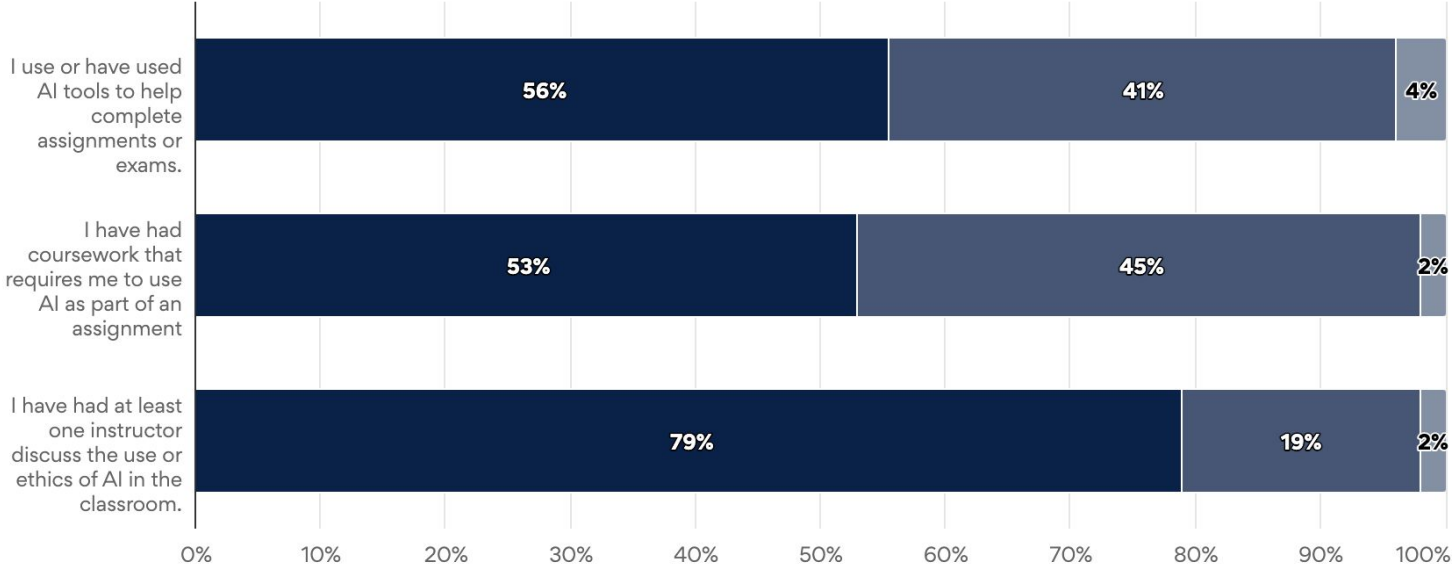


College Students' Use of AI Tools

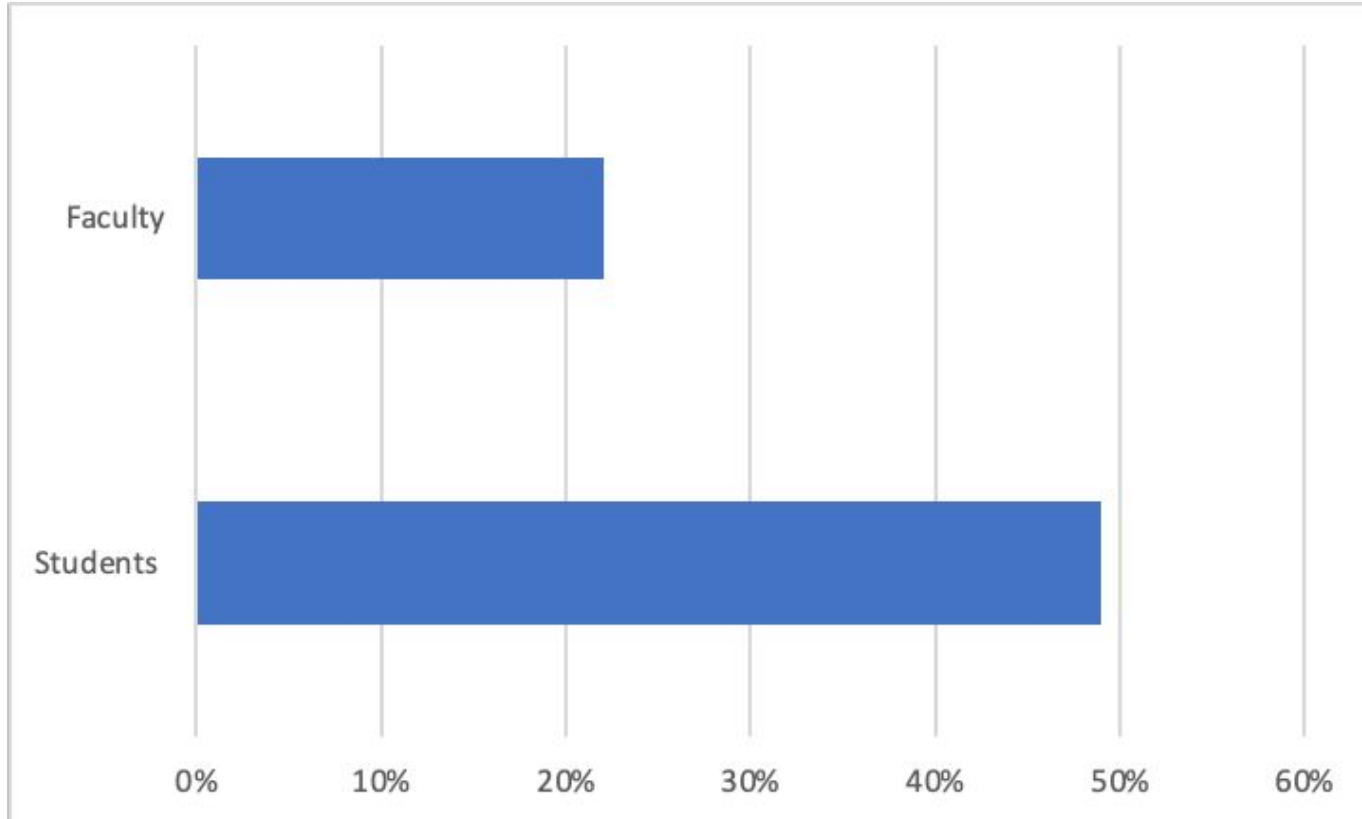
November 2023

Student Responses on the Use of AI

■ Yes ■ No ■ Prefer Not to Say/I Don't Know



Students are outrunning faculty



October 2023

Students use AI for...

Knowledge generation

- Generate ideas
- Seek out models or comparisons
- Understand difficult concepts (including summaries)

Reflection on existing knowledge

- Tutor or coach model, giving feedback
- Dialogic, simulation, conversational

Role ⁶	Description
Possibility engine	AI generates alternative ways of expressing an idea
Socratic opponent	AI acts as an opponent to develop and argument
Collaboration coach	AI helps groups to research and solve problems together
Guide on the side	AI acts as a guide to navigate physical and conceptual spaces
Personal tutor	AI tutors each student and gives immediate feedback on progress
Co-designer	AI assists throughout the design process
Exploratorium	AI provides tools to play with, explore and interpret data
Study buddy	AI helps the student reflect on learning material
Motivator	AI offers games and challenges to extend learning
Dynamic assessor	AI provides educators with a profile of each student's current knowledge



Summary & AI

This article emphasizes the importance of writing in college and highlights three key concepts that can transform students' understanding of writing. The first concept is that **writing is a knowledge-making activity**, where students have the opportunity to create new knowledge through their writing. The article suggests beginning the writing process with an inquiry question to foster genuine curiosity and engagement. The second concept is that **writing is a cognitive activity, meaning that the act of writing helps individuals develop and refine their thinking.**

The article advises generating a draft early on and paying attention to what the writing reveals about one's thoughts and ideas. The third concept is that **writing is not a natural skill but rather a learned practice. [...] writing requires effort and revision, and that even experienced writers go through multiple drafts.** The article recommends prioritizing content and structure revisions before focusing on surface-level issues like grammar and punctuation. Overall, the article aims to provide insights and strategies for students to become more proficient academic writers.

Enter a research question



2

How it works

A tidy thing to eat

pasta with is a fork.



A nice thing to eat

pasta with is pesto.

In each case the LLM gets the first few words from rearranging your question into a response. Now it just has to find the most probable next word.

0.037391	-0.52973	0.05099	-0.42168	-0.40447
-0.79435	-0.088239	0.2763	-0.028826	-0.30289
-0.51224	0.41553	0.17285	0.47578	0.46862
-0.10659	-0.74806	-0.51164	-0.33604	0.17711
-0.089794	-0.11651	0.21122	0.16158	0.10607
-0.14914	0.27409	0.30702	-0.28446	-0.15515
-0.23536	0.19899	-0.77775	0.83599	0.55016
0.30365	-0.75691	-0.2221	0.12196	0.18849
0.93925	-0.038423	-0.23047	0.27205	-0.31529
-0.02843	-0.016746	-0.021209	0.079952	0.31622
0.064761	-0.23652	-0.01021	-0.55726	0.038226
-0.17971	-0.072388	0.14231	0.94446	-0.36723
-0.63264	-0.22749	0.47908	-0.66815	-0.041302
-0.41019	0.14565	0.12786	-0.62428	0.09539
-0.24609	-0.40151	0.47429	0.010771	0.82454
0.12811	0.21995	0.38581	0.01102	0.31732
0.03711	-0.025396	0.48878	-0.065962	-0.12585
-0.67172	0.71344	-0.52369	-0.68097	0.43216

... but in hundreds of dimensions. This is the actual **vector** for **happy** in one LLM.

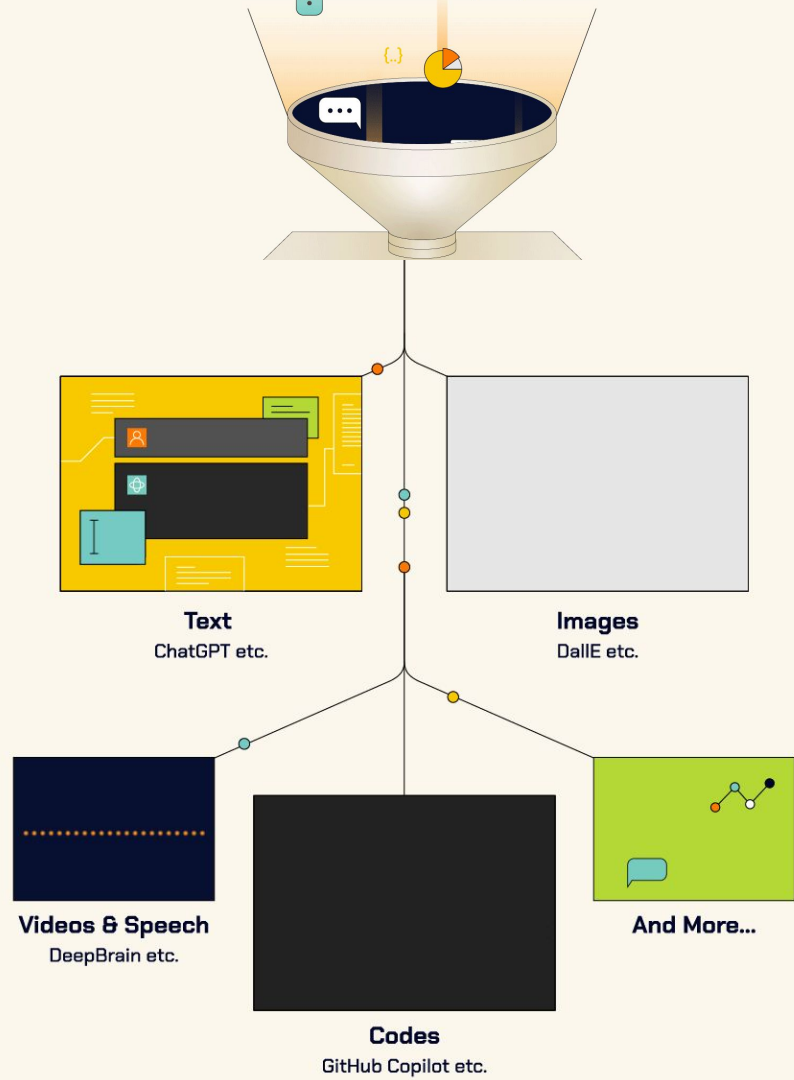
We don't know exactly what the dimensions encode, but they may be things like "substitutability" - on that dimension "happy" would be close to "sad", even if on another dimension they might be very far apart.



Can you write a 1,000 word essay on the French involvement in the American Revolution?

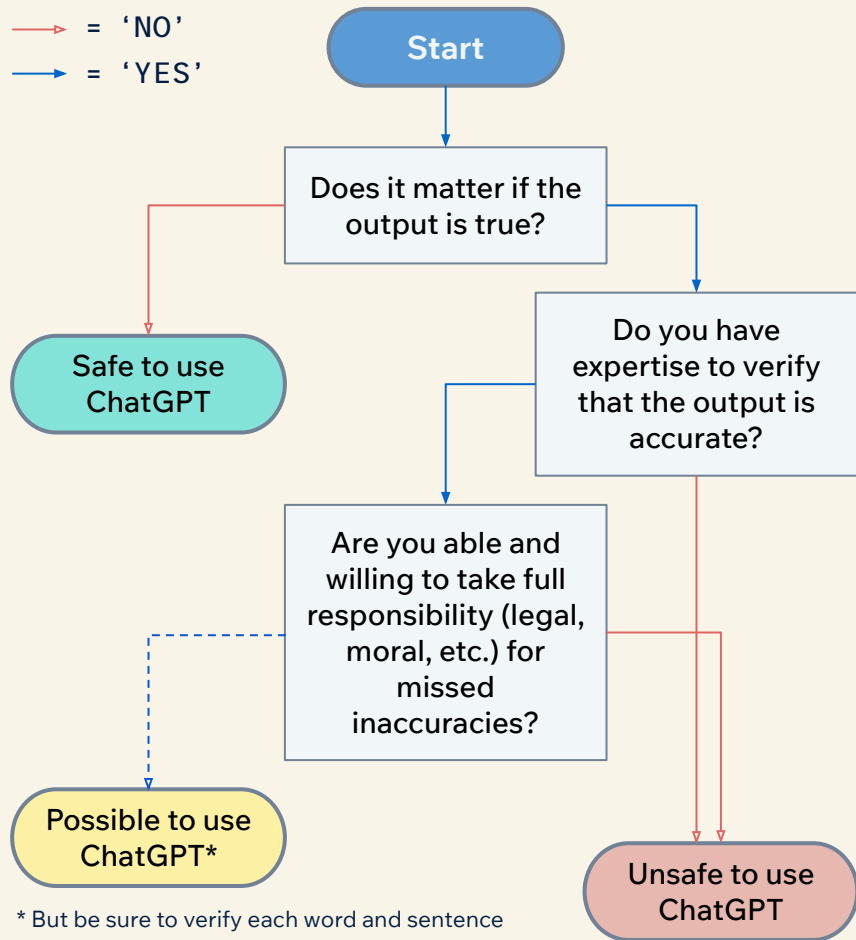


Certainly! The French involvement in the American Revolution was a pivotal factor in the eventual success of the American colonies in their bid for independence from Great Britain. Without the assistance of France, it is



Limitations

- Some free versions' training data stops at a point in time
- Still provides false information
- Inequities — access and bias



* But be sure to verify each word and sentence for accuracy and common sense

Reproducing and Perpetuating Bias

AI-GENERATED IMAGES



Prompt: "Toys in Iraq"



"Playing soccer"



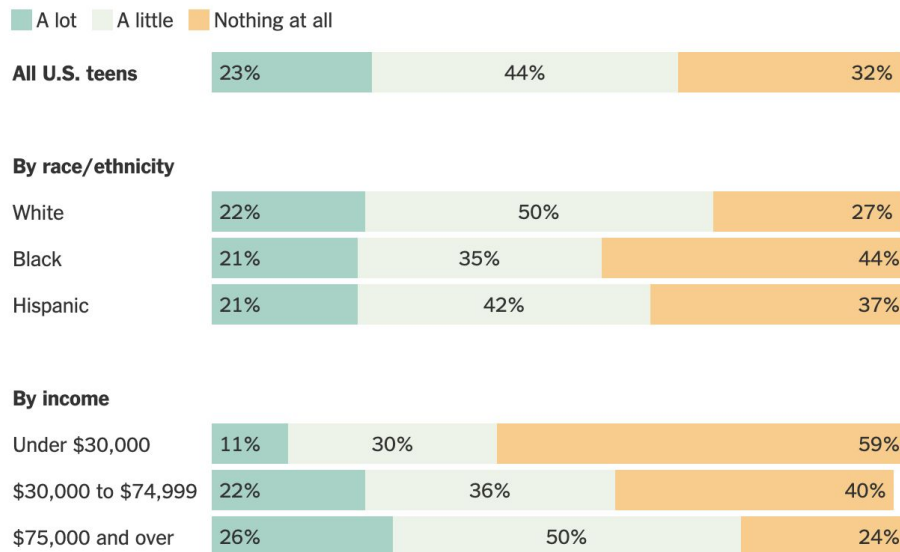
"Cleaning"

A complicated picture

Many Teens Have Never Heard of ChatGPT

December 2023

How much, if anything, have you heard about ChatGPT, an artificial intelligence (A.I.) program used to create text?



Notes: Chart does not include respondents who did not respond. Respondents of other races are omitted because of low sample sizes. • Source: Pew Research Center survey of U.S. teens conducted Sept. 26 to Oct. 23, 2023 • By The New York Times

one in every four children attending
inx population will more than double
n U.S. schools! Hence, the question
tion growth in the United States of
of those who professionally work in

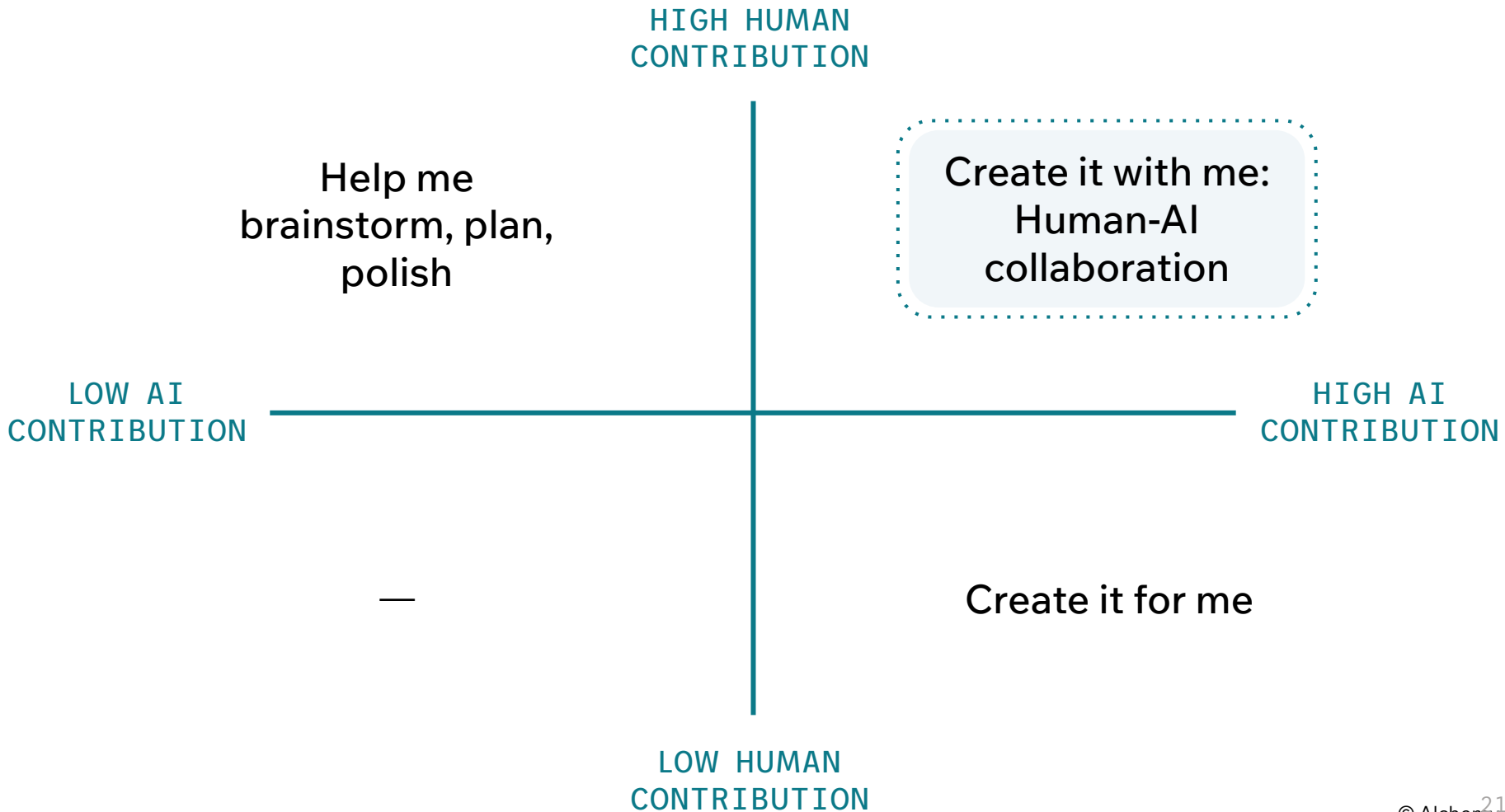
This is not your world

Mitigating Bias

Black and Asian/Asian American students reported being accused of plagiarism more (12%) than any other group (6% of all students).

3

How to Prompt LLMs: Models



Activities and Assessments

- Give **yourself permission** to experiment and be curious
- Start with existing work and ask for improvement
 - Make this more engaging
 - Adjust this advanced assignment for novice learners
- Remember your role as a content and education expert
 - [Go to Chat](#)

Design Principles

Process is key

- Drafts and evidence of thought process.
- Reading, speaking, improving, responding to feedback, reflection, etc.

The uniquely human - experiential or embodied learning and discussions

- Students make connections and draw upon ideas from speakers, discussions, experiences.
- More personalized writing and/or shorter, in-person work.

Design Questions

- Why does this assignment make sense for this course?
- What are specific learning objectives for this assignment?
- What are the main concepts, principles, and skills I want students to take away from this assignment?
- How will I summatively assess their knowledge?
- How might students use AI tools while working on this assignment?
- How might AI enhance or undercut the goals of this assignment? How could you facilitate or mitigate this?

Janet Gomez


ADJUNCT PROFESSOR
IN BACHELOR OF
LIBERAL STUDIES

Prof. Gomez wanted her students to examine and share their perceptions of a female ruler, as well as reflect on their biases on female leadership.

AI Assignment:

Use AI tools such as hotpot.ai or DALL-E to generate images of female rulers. Input the characteristics you believe female rulers should have. Consider:

- How is AI biased in how it produces images of humans?
- How can we take advantage of AI tools without reinforcing biases in student learning?



4

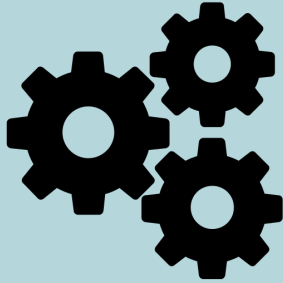
Demonstration & Practice

Prompting Framework



Role

Act as...



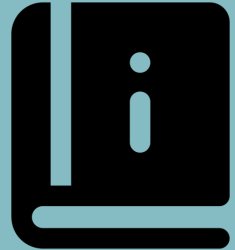
Task

What the AI needs to do



Requirements

What the product should include, contain, be, etc.



Instructions

What the AI should do as it acts on the prompt

AI Exercises

Feed one or more of your assignment prompts into Chat GPT 3.5. What do you notice about the output? Strengths and weaknesses?

Consider:

- What do students need to know in order to achieve a good product (with AI and without)?
- What might you need to teach them or guide them towards in order to achieve that product?
- What process could you suggest they use and why?

1. Lean into follow-ups, like “rewrite with a personal tone” or “add examples from the text.”

2. Explanation.

“Explain the key tenets of utilitarianism in simple terms.”

3. Simulation formulation.

“Pretend you are a professor and I’m a student.

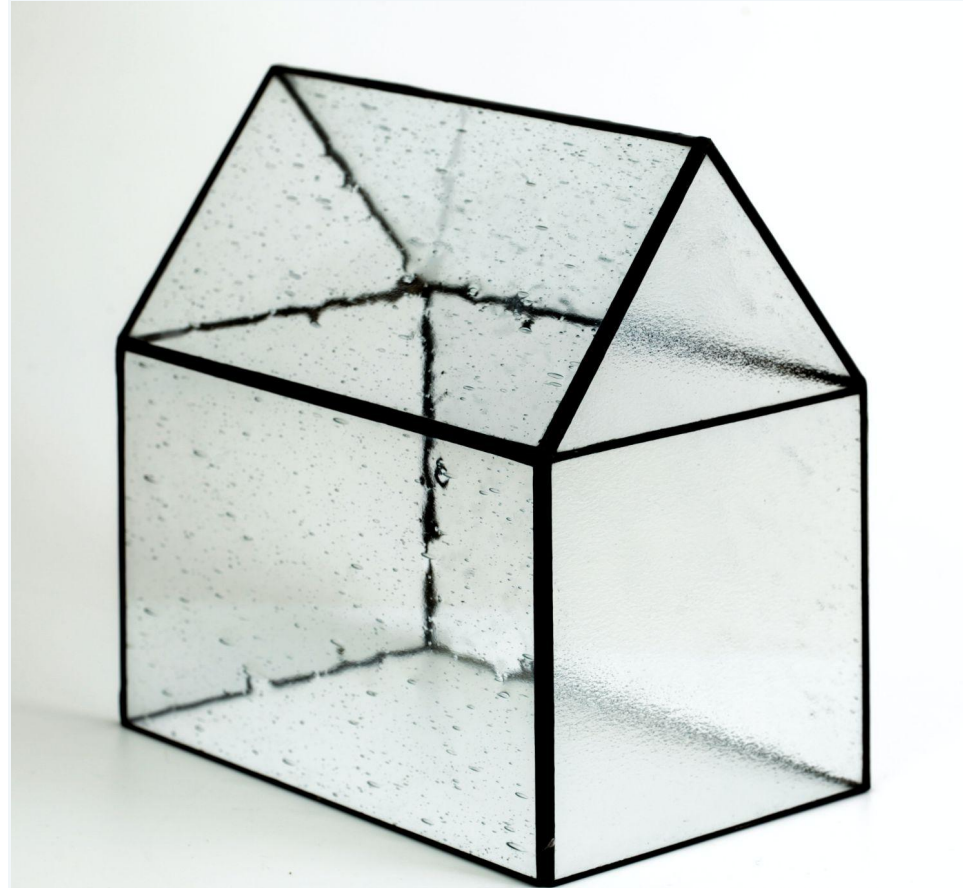
Summarize the key points I need to succeed in your course on “____.”

OR

“You are a writing tutor. Ask me questions about this essay that can help me strengthen the argument.

Communication is Key

1. Be explicit as to whether it's okay to use AI tools (intentionally and cited where appropriate) or if they are to be avoided altogether.
2. At times, there is increased pressure to take shortcuts, so long lead times and scaffolding may help.
3. Be transparent with your students about process and expectations.





5

Questions & Resources

More Prompts to Try

Deeper Learning of a Topic or Skill

“I am a novice at [desired topic or skill]. Create a four-week development plan that will help beginners like me learn and improve at [topic or skill].”

Create a Case Study Assignment as a Means of Authentic Assessment

“Create a case study assignment for a college-level nursing course.”

Glossary of Terms and Definitions Relevant to a Unit of Study

“Create a glossary of terms and corresponding definitions for [unit or concept being taught].”

Stories and Metaphors to Enable Retention

“I am learning about [topic]. Convert key elements of this topic into engaging stories and metaphors to aid my learning and retention.”

Options for Alternative Assessment Methods

“Provide a list of 5 alternative assessment methods that could be used to assess student understanding of [concept being taught].”

Frequent, Low-Stakes, Formative Assessments to Gauge Student Progress

“Create a quiz with [3-5] multiple choice questions that assesses students’ understanding of [concept being taught]. Provide the answer key.”

Generate New Ideas or Scaffold Writing

“I am writing a [post, blog, article, etc] about [topic]. Give me an outline of [#] bullet points to use as a framework for my writing. Also give me 3 options for an engaging title.”

Strategies to Support a Range of Learner Variability

“For a lesson on [concept being taught] create a list of 5 teaching strategies that could be used to engage and challenge students of various abilities and learning preferences.”

Open-Ended Questions Aligned with Modular Objectives

Recommended AI Tools

ACTIVITY TYPE	TOOL EXAMPLES
Idea Generation	ChatGPT , Bard , Bing , Claude
Literature Review	typeset.io , Rayyan , Explainpaper , Connectedpapers
Summarizing	Glasg , ChatGPT , Bard , Bing , Claude
Outlining & Drafting	ChatGPT , Bard , Bing , Claude , Kickresume , textblaze.me
Revising	copygenius.io , QuillBot , Grammarly , wordvice.ai
Study Aides	Snapchat , ChatGPT , Bard , Bing , Claude
Time/Project Management	krisp.ai/ai-meeting-assistant , Goblin Tools
Coding Help	hashnode.com/ai , Fronty , Tabnine , debugcode.ai
Data Analysis	GPT4 , Tableau AI , Excel , Google Workspace (non-GU), Power.bi
Presentation Tools	Gamma , SlidesGPT , slidesgo , Canva

Resources (pg 1/2)

Web Resources

- Barnard College's [Guide to Generative AI & the College Classroom](#).
- CNDLS' guide to [Assignment Design](#)
- [Yale's Poorvu Teaching and Learning Center's AI Teaching Examples](#)
- Dartmouth University Institute for Writing and Rhetoric. [Syllabus and Assignment Design](#).
- "[Unlocking the Power of AI: How Tools Like ChatGPT Can Make Teaching Easier and More Effective](#)"
- College Unbound's [Classroom Policies for AI](#)
- Open source Zotero [Chat GPT library](#)

Mollick, Ethan. "[How AI Changes Everything](#)." YouTube. Jun 15, 2023

WACA, "[Statement on AI Writing Tools in Writing Across the Curriculum](#)," *Writing Across the Curriculum Association*. Jan 30, 2023.

Nicol, David. "[Practice Resources](#)." *The Power of Inner Feedback*. 2023.

How to Use Generative AI: A Guide for Students.
<https://canvas.sydney.edu.au/courses/51655>

Exercises

- [Case scenarios](#)
- [Unesco Report 2023](#)
- [Conducting a Technoethical Audit](#)
- [University of Sydney Student Guide to AI](#)

Articles & Books

Chen, Brian X. "[Get the Best from Chat GPT with these golden prompts](#)." *New York Times*. 25 May 2023.

Mollick, Ethan R. and Mollick, Lilach. "[Let ChatGPT Be Your Teaching Assistant](#)." *Harvard Business Review*, April 27, 2023.
<www.Hbsp.harvard.edu>

Ibid. "[Why All Our Classes Suddenly Became AI Classes](#)." *Harvard Business Review*, February 9, 2023.

Ibid. "[Using AI to Implement Effective Teaching Strategies in Classrooms: Five Strategies, Including Prompts](#)" March 17, 2023.

Weimer, Maryellen. [How Assignment Design Shapes Student Learning](#). *Faculty Focus*, April 2015.

Resources (pg 2/2)

Generative AI, Libraries, & Higher Ed in General

- Aoun, Joseph. (2018). [*Robot Proof: Higher Education in the Age of Artificial Intelligence*](#)
- Fitzpatrick, Dan, Amanda Fox and Brad Weinstein. (2023, March 30). [*The AI Classroom: The Ultimate Guide to Artificial Intelligence in Education*](#). Teacher Goals Publishing.
- “[Learn With AI](#).” University of Maine.
- [LinkedIn Learning Generative AI in Education Tool Kit](#)
- Mollick, Ethan. (2023, April 23). “[AI Required: Teaching in a New World](#).” Youtube.
- Peterson-Lugo, B. (2023). Tech Talk—ChatGPT. Library Instruction Round Table News, 45(No. 3/4), 16.
<https://www.ala.org/rt/sites/ala.org/rt/files/content/archive/2023mar-jun.pdf>
- Webb, M. (2023, May 11). *A Generative AI Primer*. Retrieved July 12, 2023, from
<https://nationalcentreforai.iiscinvolve.org/wp/2023/05/11/generative-ai-primer/>

Good Prompting & Teaching Resources

- Mollick, Ethan. *Working with AI: Two Paths to Prompting*.
<https://www.oneusefulthing.org/p/working-with-ai-two-paths-to-prompting>. Accessed 12 Nov. 2023.
- Ibid. *Almost an Agent: What GPTs Can Do*.
<https://www.oneusefulthing.org/p/almost-an-agent-what-gpts-can-do>. Accessed 12 Nov. 2023.
- NMD Projects. "Mock Interview with a Web Designer." NMD Projects,
https://nmdprojects.net/learnwithai_www/media/gpt4_09_mock_interview_web_designer.mp4. Accessed 10 June 2023.
- Alexander, Bryan. "Experimenting with Using ChatGPT as a Simulation Application." Bryan Alexander's Blog,
<https://bryanalexander.org/gaming/experimenting-with-using-chatgpt-as-a-simulation-application/>. Accessed 10 June 2023.
- "Brainstorm." Teaching.Tools, <https://teaching.tools/brainstorm>. Accessed 10 June 2023.
- “Teaching with AI.” Open AI.
<https://openai.com/blog/teaching-with-ai>

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