

Lipitz Lecture 2025

Generative AI and Higher Education: Practical Insights for Today & Tomorrow

College of Arts, Humanities, & Social Sciences (CAHSS)

John G. Schumacher, PhD.
Sociology, Anthropology, and Public Health (SAPH)
Director, Public Health Research Center (PHRC)



QR Slides

Lipitz Lecture 2025

Sincere thank you to the Lipitz family.

Generative AI and Higher Education: Practical Insights for Today & Tomorrow

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Disclosure

No conflict of interest or financial disclosures.

Disclosure

- No Generative AI (Gen AI) was used in preparation of this work.

FALSE



Prompt (Gemini)

Create a picture of an open can of dog food. Make the label black and gold add the letters UMBC with the word Retriever on it. add a maryland flag to it. Have a bowl...



Imagen3

Prompt (ChatGPT)

↑ Share



Disclosure.pptx
Presentation



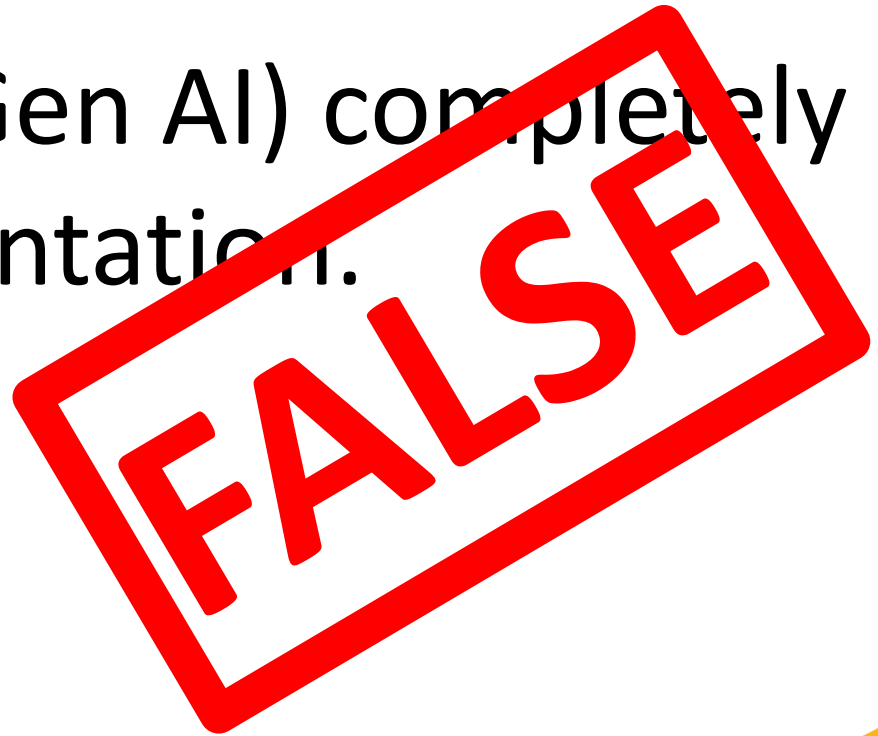
Revise this slide to have FALSE written across it in Red. Add a thick red border around the word FALSE.

< 6/6 >

FALSE

Disclosure

Generative AI (Gen AI) completely made this presentation.



Disclosure

Gen AI was partially & iteratively used to revise this work with human involvement & final responsibility for accuracy.



TRUE

Disclaimer

- Rapidly changing Gen AI landscape
- Potential errors and mis-interpretations
- Bias, preferences, and opinions

Learners Will:

1. Use Gen AI More.



QR Slides

November 30, 2022

ChatGPT Released
27 months ago...

John's Gen AI Journey

Dec 2022 Heard of ChatGPT

Feb 2023 ChatGPT account

Mar 2023 Introduces to SOCY 351 class

May 2023 Consuming copious ChatGPT podcasts

July 2023+ **ANNOY** family w/Chat GPT chatter

John Gen AI

+27 years teaching

Gen AI > 27 months

Gen AI & Google Courses

>500 hours in Gen AI models

Paid accounts:

ChatGPT, Gemini, Perplexity, Co-Pilot, Amplify

Gen AI is...

...a system of probabilistic algorithms that create novel output in text, images and other media based on user prompts.

National Library of Medicine

Accessed 3/10/25

<https://www.nlm.gov/guides/data-thesaurus/generative-artificial-intelligence>

Major Generative AI models

(Foundation/Base Models)

1. Chat GPT 4-o <https://chat.openai.com/> (Open AI)
2. Gemini <https://gemini.google.com> (Google)
3. Perplexity <https://www.perplexity.ai/> (Perplexity)
4. Claude <https://claude.ai/> (Anthropic)
5. Microsoft Copilot <https://copilot.microsoft.com/> (Microsoft)
6. You.com <https://you.com> (Suesea, Inc)

Gen AI Ground Rules

- 1. Human in the Loop**
- 2. Don't Upload Private or Proprietary Information**
- 3. Hallucinations (errors) are a Feature**

Gen AI Ground Rules (cont.)

4. You Are Responsible For The Output

5. Foundational Knowledge

Gen AI Jagged Edge



Constantly ask yourself:

- 1) How might I use Gen AI to...?**
- 2) I wonder if Gen AI can...?**

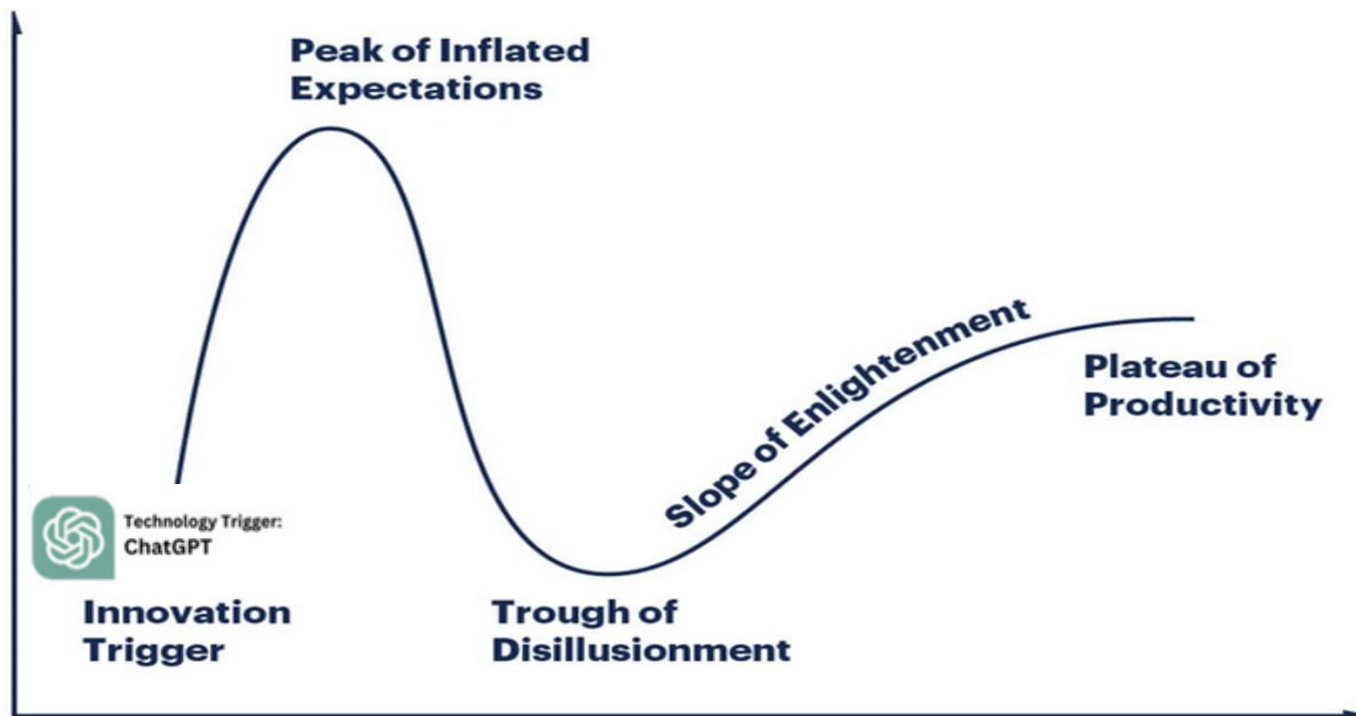
-Your Work Flow-

Challenge

Use ChatGPT more > 5 hours this week.

Gartner Hype-Cycle

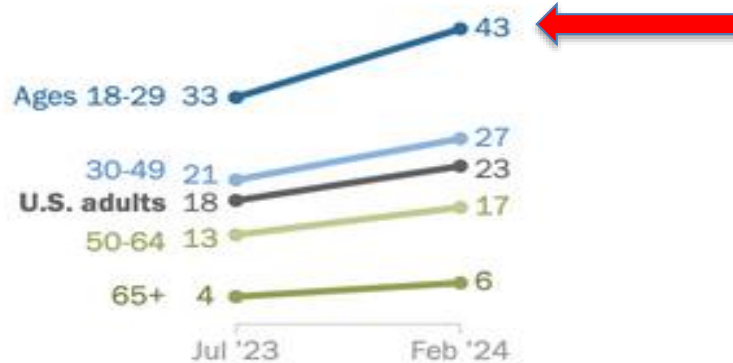
AI Landscape



ChatGPT Use

ChatGPT use has ticked up since July, particularly among younger adults

% of U.S. adults who say they have ever used ChatGPT



Note: Those who did not give an answer are not shown.

Source: Survey of U.S. adults conducted Feb. 7-11, 2024.

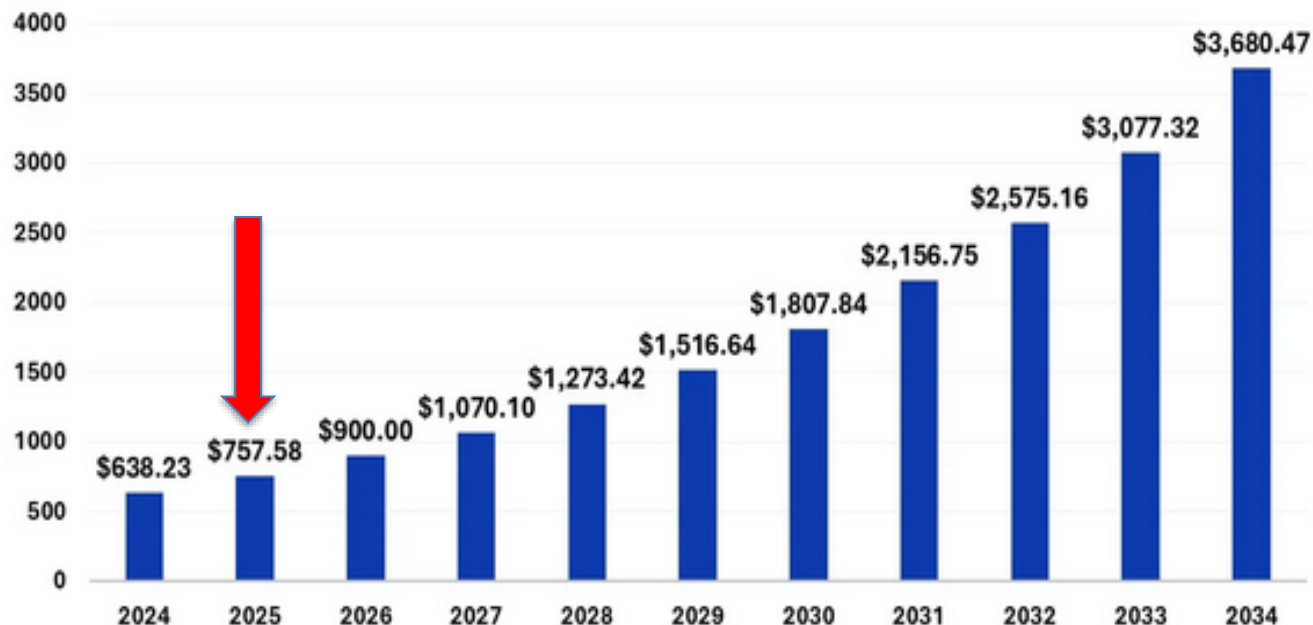
PEW RESEARCH CENTER

**400 million active weekly ChatGPT
users as of Feb. 2025.**

Brad Lightcap Open AI

AI Market

Artificial Intelligence (AI) Market Size 2024 to 2034 (USD Billion)

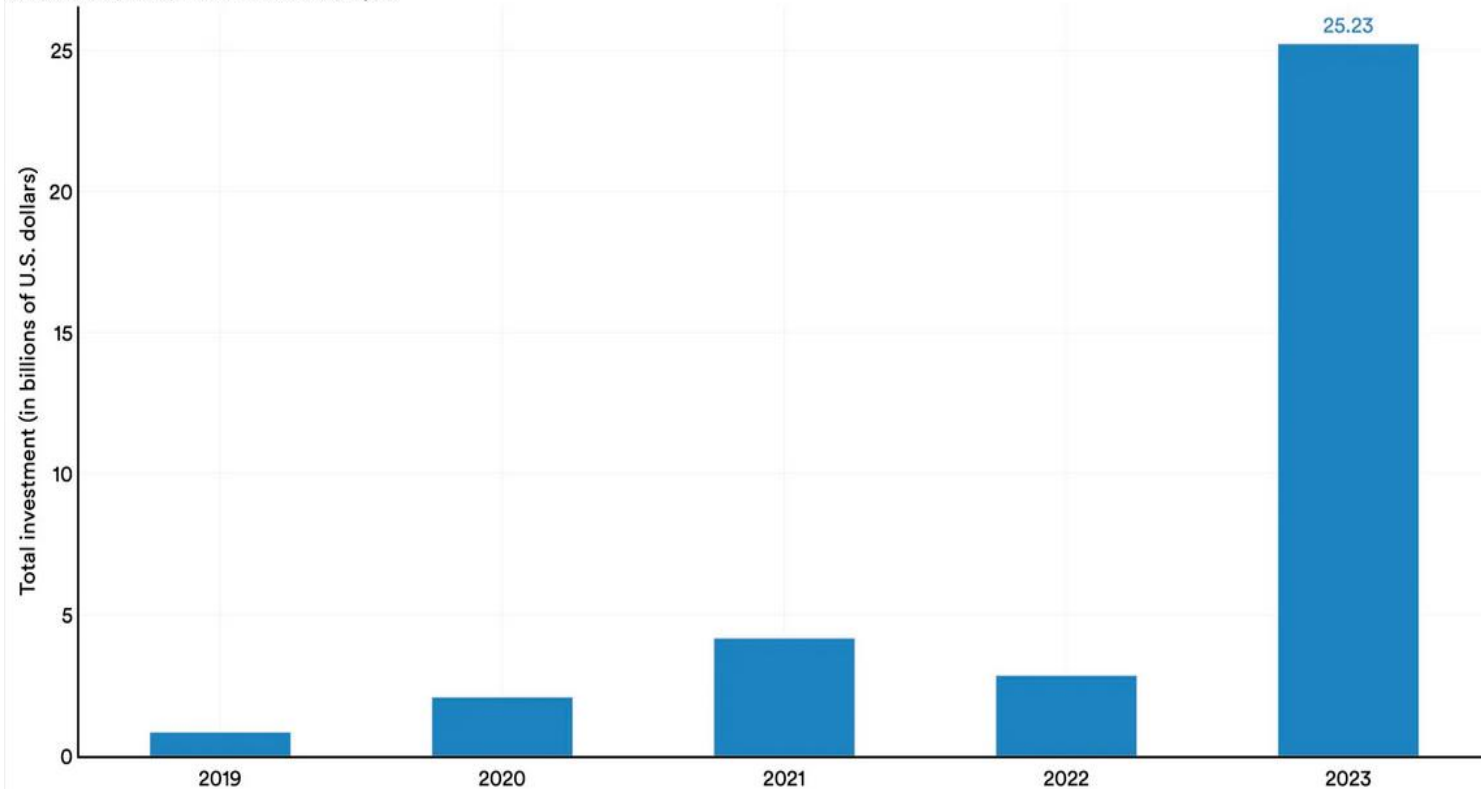


Source: <https://www.precedenceresearch.com/artificial-intelligence-market>

Stanford AI Index 2024

Private investment in generative AI, 2019–23

Source: Quid, 2023 | Chart: 2024 AI Index report



Gen AI & UMBC

**Faculty Senate Ad Hoc Committee
on AI Integration in the Classroom
(fall 2024)**

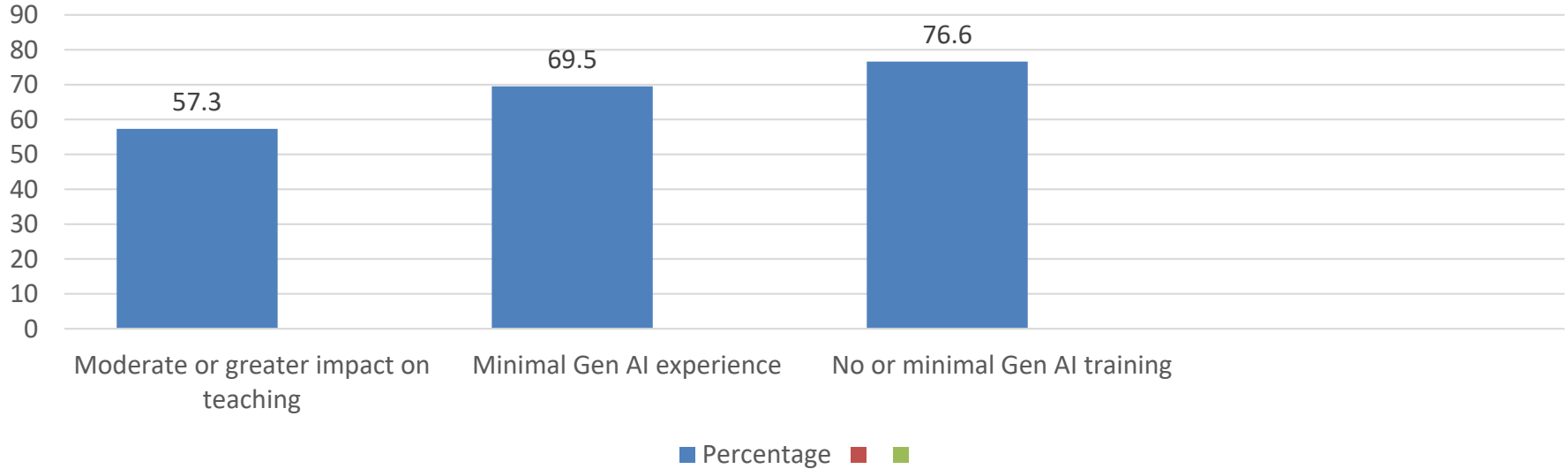
Committee Surveys:

- Faculty Survey November 2024
- Student Survey March 2025

Faculty

- Survey UMBC faculty 1,012
- n=283 responses, 28% response rate
- 36 departments/programs

UMBC Faculty Gen AI Survey



Faculty

77.9% Dissatisfied with UMBC Gen AI training

70.1% Likely to participate in Gen AI training

Students

Random sample 3,000 UMBC students (undergrad+grad)

n=201 responses ~6.7% response rate, on par

27 different departments & all colleges

Students: Gen AI & Academic Work

63% No or minimal Gen AI experience

74% Report NOT using Gen AI for academic work

73% Report Gen AI plays small or no role in academic work

Students: Learning About Gen AI

82% disagree UMBC academic work provides adequate Gen AI learning opportunities

78% dissatisfied with UMBC's level of Gen AI education.

Students: Ethics

62% report ethical use of Gen AI tools at UMBC as major concern

73% disagree UMBC education focuses sufficient attention on Gen AI ethics.

78% report societal Gen AI ethical impacts are a concern

UMBC Surveys

Clear signals regarding Gen AI training & ethics needs for UMBC Community.

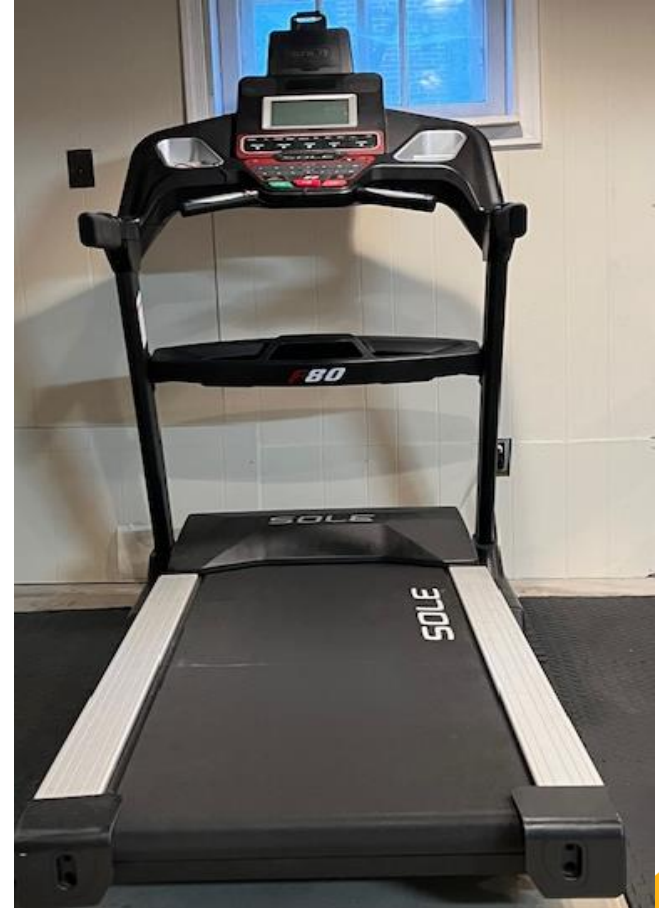
Practical Insights: CONCEPTS

#1 “AI Mindset”

-Conor Grennan, NYU Sterns Business School

Gen AI Use “Treadmill Problem”

BEHAVIORAL ISSUE



John Photo



Imagen3
Gemini



#2 Gen AI as “General Use” Technology

- Gen AI is like “electricity”
- It has many, many, different USE cases.



Pre-Electricity Factory

Factory 1:

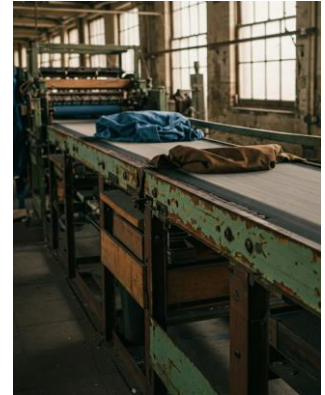
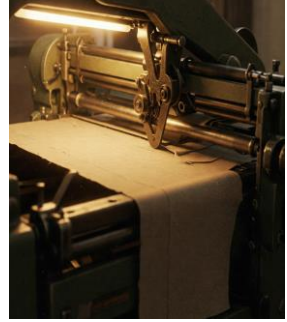
Adds Electric Light Bulb!



Factory 2:

Electrifies the Lights...

AND Sewing Machines, Cloth Cutting, Conveyor Belt, Fans, Heat...



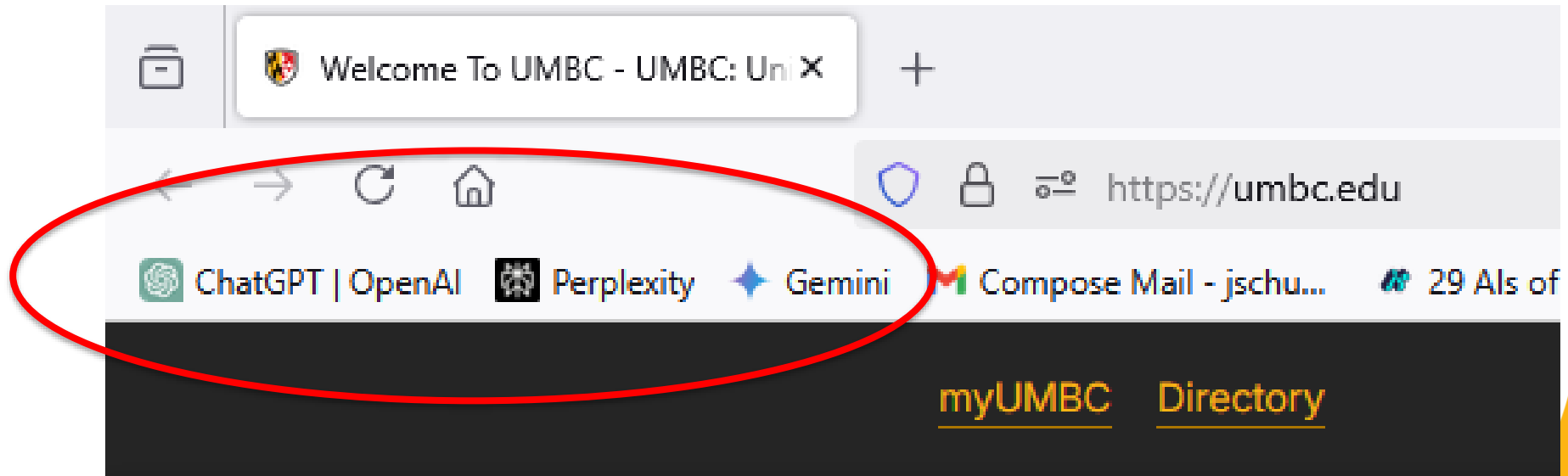
Success?

Factory 1 vs. Factory 2?

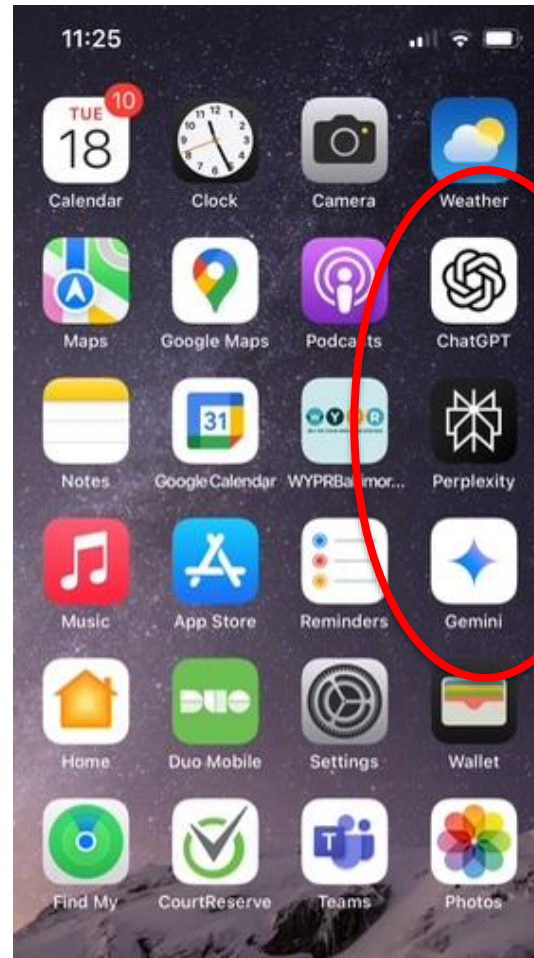
- 1) How might I use Gen AI to...?
- 2) I wonder if Gen AI can...?

Practical Insights Tips😊


Bookmark ChatGPT



Home Screen



Settings

 Temporary

JS

What can I help with?

 Deep research



Settings

General

Notifications

Personalization

Speech

Data controls

Builder profile

Connected apps

Improve the model for everyone

Shared links

Export data

Delete account

Off >

Manage

Export

Delete

Temporary

JS

Model improvement

Improve the model for everyone



Allow your content to be used to train our models, which makes ChatGPT better for you and everyone who uses it. We take steps to protect your privacy. [Learn more](#)

Voice mode

Include your audio recordings



Include your video recordings



Include your audio and video recordings from Voice Mode to train our models. Transcripts and other files are covered by "Improve the model for everyone." [Learn more](#)

Done

Using ChatGPT



What can I help with?

Ask anything



Search



Deep research





ChatGPT 4o ▾

Model

GPT-4o

Great for most questions

**GPT-4o with scheduled tasks** BETA

Ask ChatGPT to follow up later

GPT-4.5RESEARCH PREVIEW

Good for writing and exploring ideas

o1

Uses advanced reasoning

o3-mini

Fast at advanced reasoning

o3-mini-high

Great at coding and logic

More models >

What can I

Search



Deep research

**Reasoning Models****GPT-4o mini**

Faster for most questions

GPT-4

Legacy model

Hallucinations (Errors!)

ChatGPT

ChatGPT can make mistakes. Check important info.

Gemini:

Gemini can make mistakes, so double-check it

Peplexity

If you ever notice an error, please let me know so I can correct it and improve my responses!

Resist “Google It” Brain!

Gen AI is NOT a Search Bar

Iterative Approaches, Conversational

“Prompt Engineering” Framework

R-T-F Approach

Role –Act as ... (e.g., expert teacher, experienced analyst)

Task—Create 5 college level active learning activities

Format-- Output in table, as bullet points

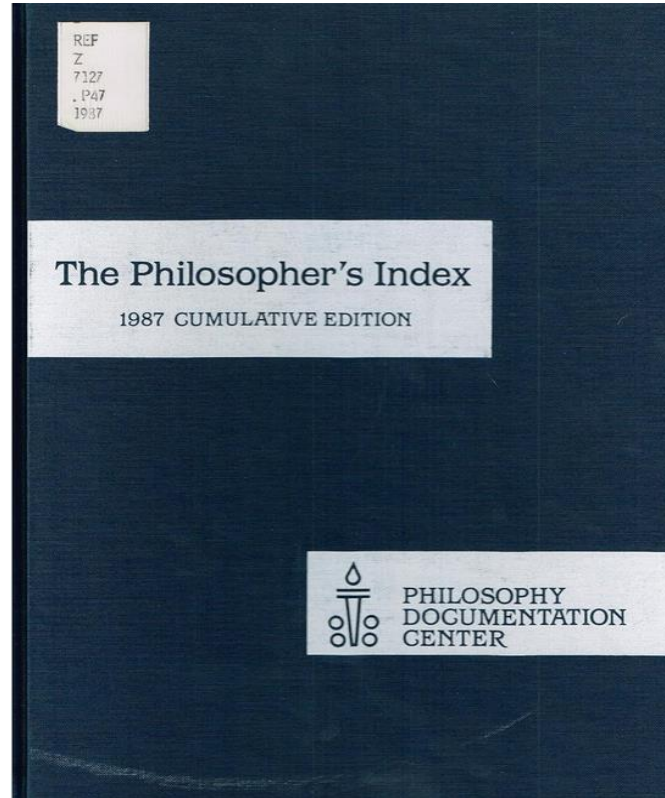
Gen AI Is Good At

1. Idea Generation & Refinement
2. Summarizing Texts & Synthesizing Themes
 - Especially if you upload the text.
3. Asking Questions of You
 - Your prompt can be for it to ask YOU questions.
4. Clerical Administrative Work
 - Can generate Word, Excel, and PowerPoint output

Practical Insights Tools

1. Google Notebook LM
2. Deep Research – ChatGPT, Gemini,
Perplexity
3. Voice Mode

Changing Research Tools (1987)



1. Google Notebook LM

“Grounded” Gen AI Model

Only uses materials YOU upload

Closed environment

“Audio Overview” creates podcasts

<https://notebooklm.google/>

Welcome to NotebookLM

My Notebooks

[+ Create new](#)

Add sources

Sources let NotebookLM base its responses on the information that matters most to you.

(Examples: marketing plans, course reading, research notes, meeting transcripts, sales documents, etc.)



Upload sources

Drag & drop or [choose file](#) to upload

Supported file types: PDF, .txt, Markdown, Audio (e.g. mp3)



Google Drive



Google Docs



Google Slides



Link



Website



YouTube



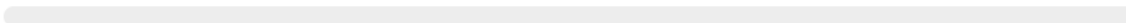
Paste text



Copied text



Source limit



Sources



+ Add source

Select all sources



Characterizing the Heterogeneity of Aging: A Vision for ...



Stone 2017 The Continued Eclipse Heterog J of Gero-1 J...



Chat



Aging and Heterogeneity

2 sources

One source presents a comprehensive vision for a staging system of aging, utilizing chronological age and functional status to better understand the heterogeneity of older adults and improve clinical care and anticipatory guidance. It proposes dividing older adulthood into distinct strata based on these factors, offering tailored clinical considerations and guidance for each stage. The other source examines the extent to which gerontological research considers the increasing diversity among older adults. It finds that despite the recognition of heterogeneity as a key aspect of aging, empirical studies often still focus on average differences between age groups rather than exploring within-age variability. This continued focus on averages may obscure important patterns of aging, hindering a deeper understanding of the aging process.

Save to note



Add note



Audio Overview



Briefing doc

Start typing...

2 sources



How do aging processes manifest heterogeneously across biological, psychological, and social dimensions?



Plus

Aging and Heterogeneity

Sources

+ Add source

Select all sources ☒

Characterizing the Heterogeneity of Aging: A Vision for ... ☒

Stone 2017 The Continued Eclipse Heterogeneity of Gero-1 J... ☒

Chat

You're excellent at facilitating academic discussions. Provide 5 high quality, PhD level discussion questions for a PhD seminar. Justify why they are high quality.

Here are 5 high-quality, PhD-level discussion questions based on the provided sources, along with justifications for their quality:

- **Question 1:** The "Characterizing the Heterogeneity of Aging" paper ¹ ... proposes a staging system incorporating chronological age, functional status, disease burden, and life expectancy ⁵ Given Stone et al.'s (2017) finding ³² ... that gerontological research still largely focuses on average differences rather than within-age variability ³³ ..., how might the inherent **simplifications and potential for loss of nuanced individual trajectories** within these proposed staging categories be both a necessary pragmatic tool for clinical guidance ⁸ and a perpetuation of the "eclipse of heterogeneity" ³² ?
- **Justification:** This question is high quality because it directly engages with a central tension between the desire for practical clinical tools and the documented lack of attention to

Refresh

Study

Analytics

Share

Settings

J

Audio Overview

Deep Dive conversation
Two hosts (English only)

Customize

Generate

Notes

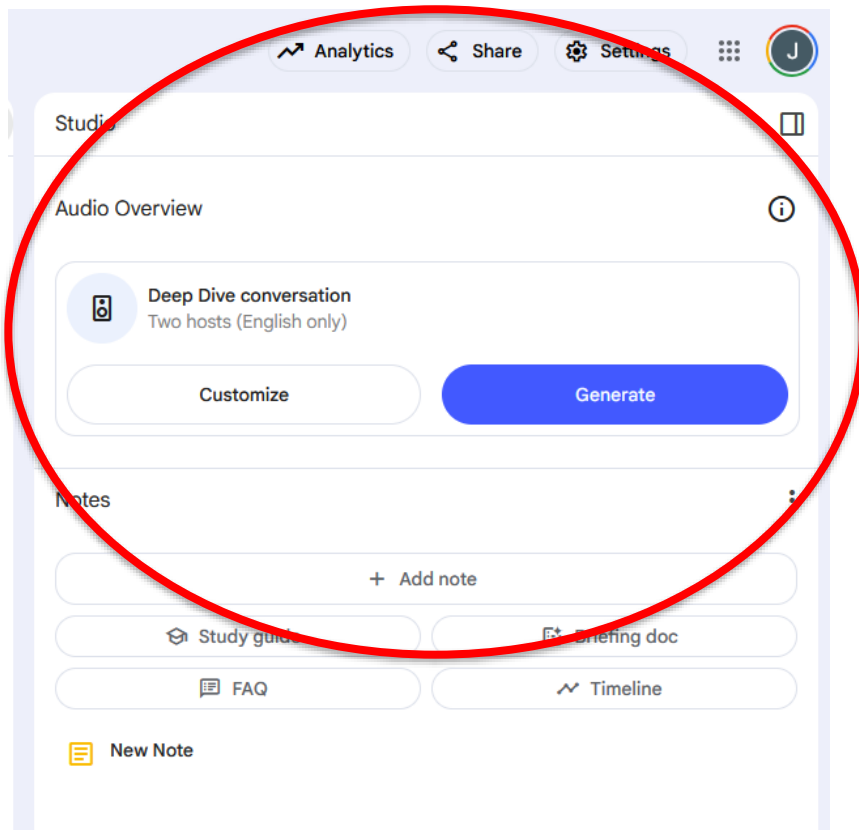
+ Add note

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Here are 5 high-quality, PhD-level discussion questions based on the provided sources, along with justifications for their quality:

- **Question 1:** The "Characterizing the Heterogeneity of Aging" paper ¹ ... proposes a staging system incorporating chronological age, functional status, disease burden, and life expectancy ⁵ Given Stone et al.'s (2017) finding ³² ... that gerontological research still largely focuses on average differences rather than within-age variability ³³ ... , how might the inherent **simplifications and potential for loss of nuanced individual trajectories** within these proposed staging categories be both a necessary pragmatic tool for clinical guidance ⁸ and a perpetuation of the "eclipse of heterogeneity" ³² ?
 - **Justification:** This question is high quality because it directly engages with a central tension between the desire for practical clinical tools and the documented lack of attention to heterogeneity in aging research. It requires PhD candidates to critically analyze the proposed staging system in light of the empirical evidence presented by Stone et al. ³² It moves

Audio Overview (Create Podcast)



2. Deep Research Mode

- NEW -- Dec. 2024 - Feb. 2025
- Chat GPT, Gemini, Perplexity
- More comprehensive search, synthesis, & output
- Uses “Chain of Thought” and reasoning modes.



ChatGPT

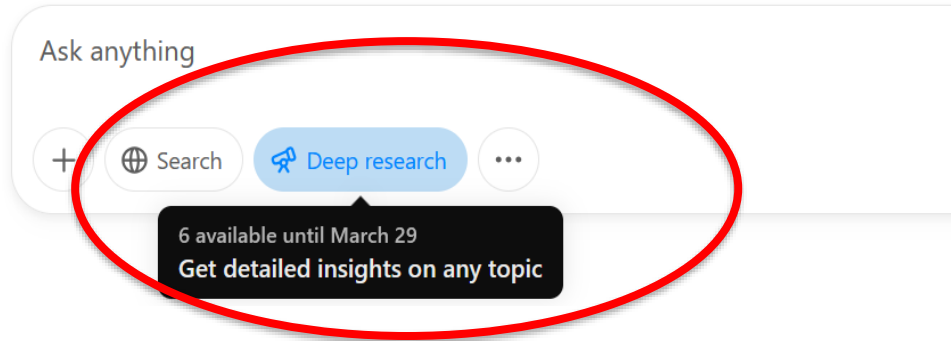
-10 Deep Research
Queries/month

ChatGPT! (paid).

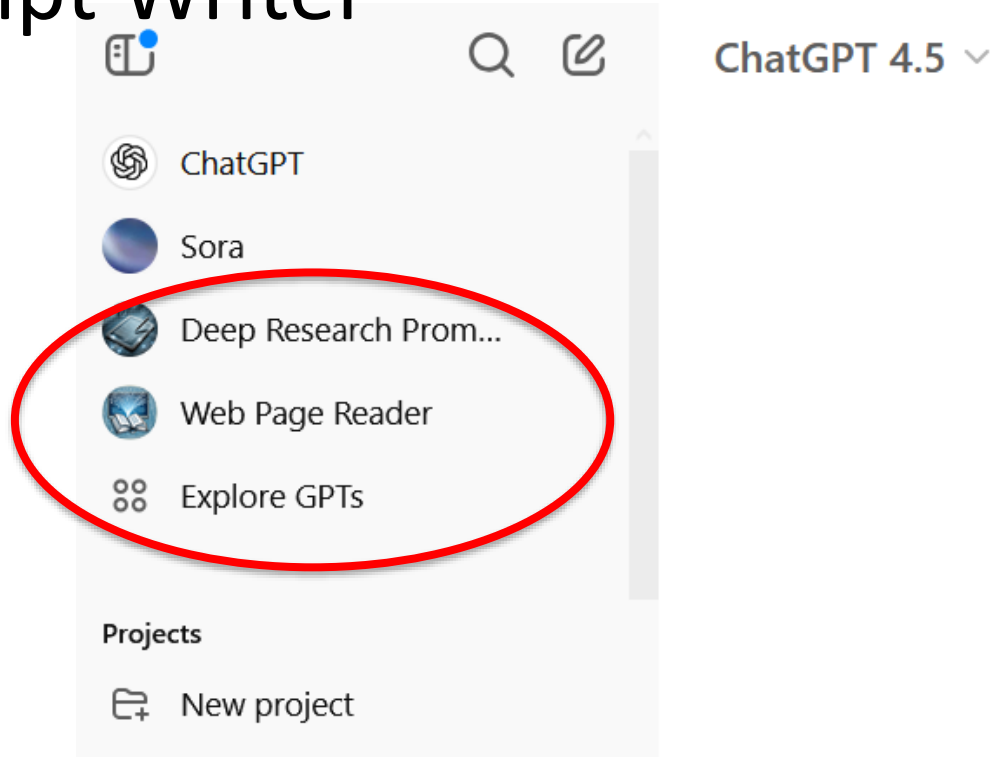
none free plan 😞

-Gemini, Perplexity
free Deep Research
but....

What are you researching?



Use GPT “Deep Research Prompt Writer”



Deep Research Prompt Writing Expert ▾



Deep Research Prompt Writing Expert

By Marlon Kaulich 8

Get great prompts for Deep Research just by entering your basic prompt. What do you want to research?

Craft an example
random amazing
deep research...

Ask anything



Deep Research Output

ChatGPT 4o ▾

effectively.

↑ Share

JS

Activity

17 Sources

×

1. They include public health but not biomedical researchers;
2. broadly applicable to NIH grant mechanisms;
3. there is a small budget, \$4,000 to support any recommended resources;
4. hybrid format;
5. first experience with NIH proposals;
6. one institution;
7. meet the October 1, 2025 deadline.

Thank you for providing these details. I will design a comprehensive 6-month professional development program tailored to help two faculty research teams develop and submit competitive NIH grant proposals in public health by the October 1, 2025 deadline. The program will include structured phases, clear learning objectives, interactive workshops, mentoring, and feedback mechanisms to ensure a strong submission.

Research completed in 7m · 17 sources



6-Month NIH Grant Proposal Development Program

I'm outlining a 6-month professional development program for faculty research teams, covering NIH guidance, grant writing essentials, interdisciplinary collaboration, and compliance requirements.

I'm researching grant writing programs, focusing on timelines, roles, performance metrics, and managing a \$4,000 budget for external support. This comprehensive approach should provide a well-rounded perspective.

OK, let me see. The search encountered an error, so I'm pulling together to find out the cause and fix it. Hm, that's interesting.

Q Searched for NIH faculty grant writina

Deep Research Output

Same Prompts:

ChatGPT 4o: **795 words, bullet points**

Deep Research (ChatGPT): **15,000 words, 33 pages**

Gemini Deep Research

Gemini **Advanced** ▼

2.0 Flash



Gemini Advanced

2.0 Flash

For everyday tasks, plus more features



2.0 Flash Thinking Experimental

Best for multi-step reasoning

2.0 Flash Thinking Experimental with apps

Reasoning across YouTube, Maps & Search

New

2.0 Pro Experimental

Best for complex tasks

New

1.5 Pro with Deep Research

Get in-depth answers

Perplexity Deep Research

What do you want to know?

Ask anything...

🔄 Auto ▾



Auto

Adapts to each query



Pro

3x more sources and detailed answers



Reasoning

Advanced problem solving



Deep Research

In-depth reports on complex topics

Food
our Genes



AI GPS Alternative
Navigates without...

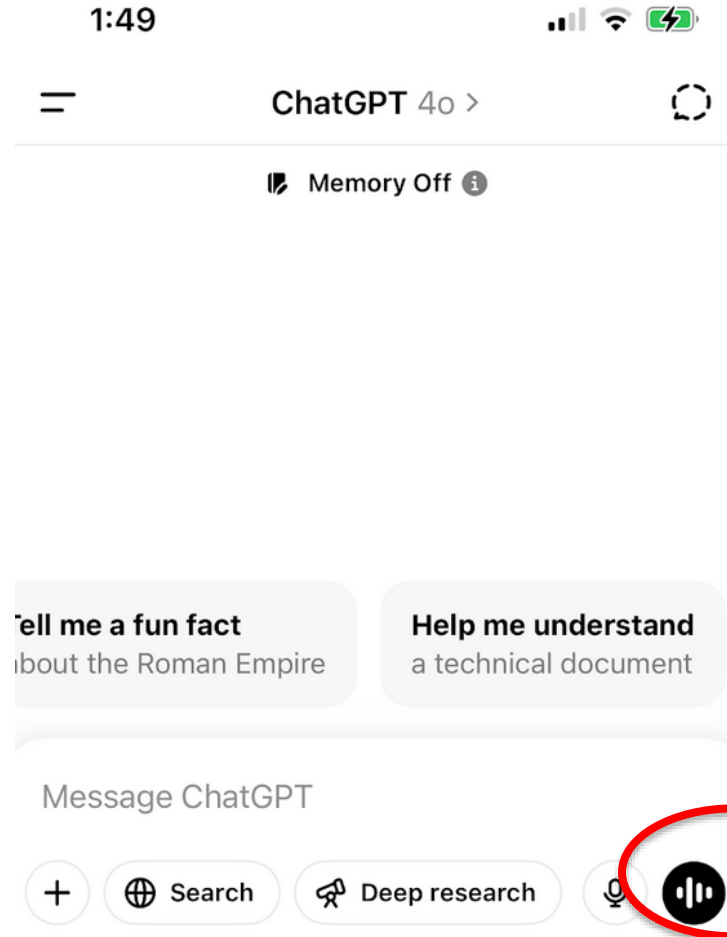
Deep Research Prompt Challenge!

- 1) Use **ChatGPT** “Deep Research Prompt Writer”
- 2) Craft YOUR research prompt
- 3) Copy button
- 4) Send to jschuma@umbc.edu
- 5) I'll run 1st 20 prompts I receive and send you the report link.

3. Voice Mode

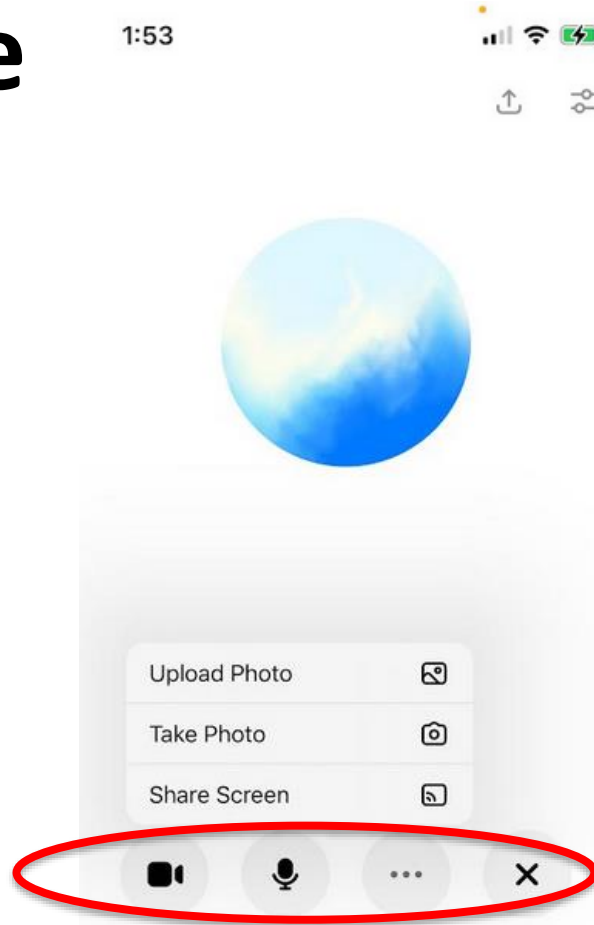
ChatGPT

(Mobile
or Desktop)



Voice Mode

ChatGPT



Practical Insights: Tomorrow Emerging Research

Grey Literature & Beyond

Wess, T. The Good, the Bad, & the Ugly Science of AI in Education

<https://wesstrabelsi.substack.com/p/the-good-the-bad-and-the-ugly-science>

**“We all know the influence of GenAI on”
education is... complex**

Findings:

<https://docs.google.com/spreadsheets/d/1Bicv4TNwOhFseq0ZOOpDMwKo9nKzbV6oNz7qMKM1MI1Y/edit?gid=0#gid=0>

Higher Ed Gen AI Policy

Generative AI in Higher Education: Seeing ChatGPT Through Universities' Policies, Resources, and Guidelines

Hui Wang^{a,*}, Anh Dang^a, Zihao Wu^{b,*} and Son Mac^c

^aSecond Language Acquisition and Teaching, University of Arizona, Tucson, AZ, 85721, USA

^bSchool of Computing, University of Georgia, Athens, GA, 30602, USA

^cDepartment of Electrical & Computer Engineering, University of Arizona, Tucson, AZ, 85721, USA

[Computers and Education: Artificial Intelligence Volume 7](#), December 2024, 100326

[Policies up to April 2024]

<https://docs.google.com/spreadsheets/d/1OYIAN-R5t0dagEtBjQyfYztQkfGyahkG5sNNPx7HTTU/edit?gid=2132026434#gid=2132026434>

AI & Critical Thinking

The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers

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Advait Sarkar
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Cambridge, United Kingdom
advait@microsoft.com

Lev Tankelevitch
Microsoft Research
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levt@microsoft.com

Feb 2025

https://www.microsoft.com/en-us/research/wp-content/uploads/2025/01/lee_2025_ai_critical_thinking_survey.pdf

The efficiency-accountability tradeoff in AI integration: Effects on human performance and over-reliance

Nicolas Spatola

Artimon Perspectives, 8 rue de la Victoire, Paris, France

[Computers in Human Behavior: Artificial Humans](#)

[Volume 2, Issue 2](#), August–December 2024, 100099

<https://doi.org/10.1016/j.chbah.2024.100099>

Dell'Acqua, Fabrizio. (2025). **The Cybernetic Teammate: A Field Experiment on Generative AI Reshaping Teamwork and Expertise.** SSRN.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5188231

3/26/25

The Cybernetic Teammate: A Field Experiment on Generative AI Reshaping Teamwork and Expertise

Harvard Business School Strategy Unit Working Paper No. 25-043, Harvard Business School Technology & Operations Mgt. Unit Working Paper No. 25-043, Harvard Business Working Paper No. No. 25-043

Number of pages: 56 • Posted: 21 Mar 2025 • Last Revised: 26 Mar 2025

Fabrizio Dell'Acqua, Charles Ayoubi, Hila Lifshitz-Assaf, Raffaella Sadun, Ethan R. Mollick, Lilach Mollick, Yi Han, Jeff Goldman, Hari Nair, Stew Taub and Karim R. Lakhani

Harvard Business School, ESSEC Business School, Harvard University Lab for Innovation Sciences, Harvard University - Strategy Unit, University of Pennsylvania - Wharton School, University of Pennsylvania - Wharton School, Procter & Gamble, Procter & Gamble, Procter & Gamble, Procter & Gamble and Harvard Business School - Technology and Operations Management Group

Keywords: Artificial intelligence, Teamwork, Human-machine interaction, Productivity, Skills, Innovation, ...

Are educators falling behind the AI curve?

As tech companies release a slew of generative AI updates, there's a growing risk that educational practices and policies are struggling to keep up with new capabilities



ANDREW MAYNARD

DEC 13, 2024

<https://futureofbeinghuman.com/p/are-educators-falling-behind-the-ai-curve>

AI as a Tool for Bridging Knowledge Silos

How AI Helps Writers and Researchers Connect Ideas—But Not Create Them

[Eric Lars Martinsen](#)

Mar 12, 2025

“As educators, we need to teach students not just **how** to use AI but **when** to use it. We need to help them develop **judgment** about when AI-assisted recombination is valuable and when the **friction** of struggling through an idea on their own is the better option. The challenge is finding a **balance**—leveraging AI’s strengths while preserving the essential human work of meaning-making.”

More Insights For Tomorrow

1. ChatGPT 5.0 (Hybrid Model)

Insights For Tomorrow

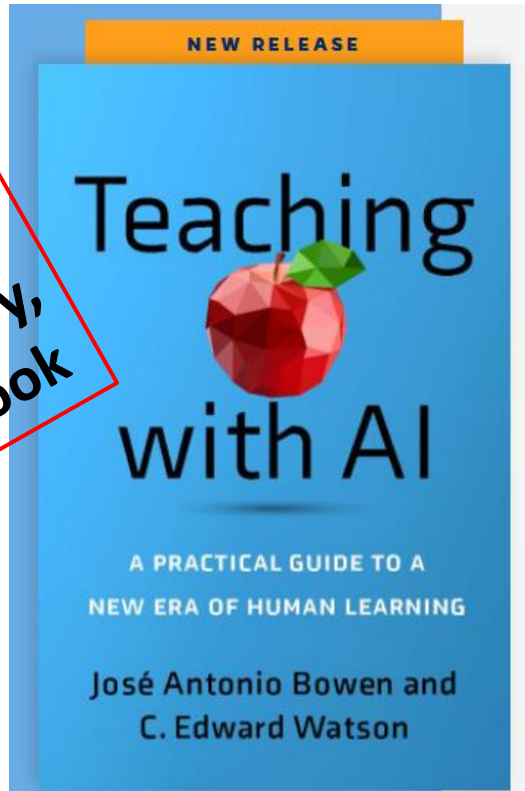
2. AI Agents

Insights For Tomorrow

3. Artificial General Intelligence (AGI)
Artificial Super Intelligence (ASI)

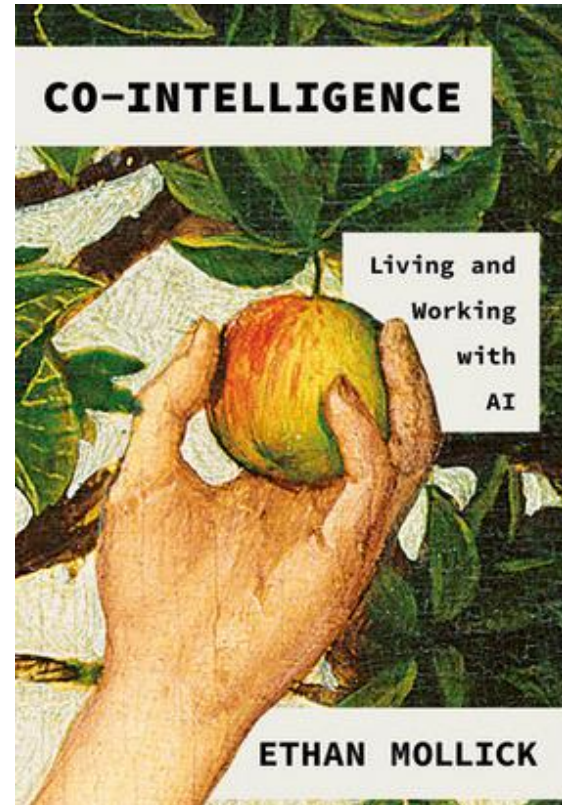
Self-Education

Jose Antonio Bowen



**UMBC
Library,
E-Book**

Ethan Mollick



4 Substacks

1) Ethan Mollick

One Useful Thing

<https://www.oneusefulthing.org/>

2) Mike Kentz

AI EduPathways

<https://mikekentz.substack.com/>

3) Eric Lars Martensen

Notes on Teaching Writing in
the AI Era

<https://elmartensen.substack.com/>

4) Nick Potkalitsky

Educating AI

<https://nickpotkalitsky.substack.com/>

Ethan Mollick's Lab

<https://ai-analytics.wharton.upenn.edu/generative-ai-labs/>

Wharton AI & Education Resources & Prompts:

<https://ai-analytics.wharton.upenn.edu/generative-ai-labs/ai-and-education/>

<https://ai-analytics.wharton.upenn.edu/for-students/wharton-hack-ai-thon/#benefits>

YouTube & Podcasts

1. Igor Pognany, AI Advantage

<https://youtu.be/m2wC16ok1hQ?si=Ma6zmZT4XvR8vg2D>

2. Isar Metis, Leveraging AI

<https://multiplai.ai/podcast/>

3. Jordan Wilson, Everyday AI

<https://www.youreyverydayai.com/>

UMBC Expanding Access to AI Tools

- **Google Gemini**
- **Microsoft Co-Pilot**
- **UMBC's Instance of “Amplify”**

Posted March 26, 2025

<https://doit.umbc.edu/ai/post/148330/>

UMBC Resource

FREE [Google Career Certificates](https://googlecerts.umbc.edu/)

1) Google Prompting Essentials; 2) AI Essentials

<https://googlecerts.umbc.edu/>

- Spring 2025 pilot is FREE for ANY UMBC participants
- 500 licenses
- First-come, first-served through form.

UMBC Center for Ethics and Values

The Ethics of Artificial Intelligence

[Tuesday, April 8, 2025](#) · 7:00- 8:30 PM

[Fine Arts : Recital Hall](#)

A moderated, informal discussion between three panelists:

- **Kathy Baxter**, Principal Architect of Ethical AI Practice at Salesforce
- **David Danks**, Professor of Data Science, Philosophy, & Policy, UC San Diego
- **Gabriella Waters**, Director of Operations and Director of the Cognitive and Neurodiversity AI Lab (CoNA) at the Center for Equitable AI & Machine Learning Systems, Morgan State University

Ask!

1) How might I use Gen AI to...?

2) I wonder if Gen AI can...?

Discussion



QR Slides