

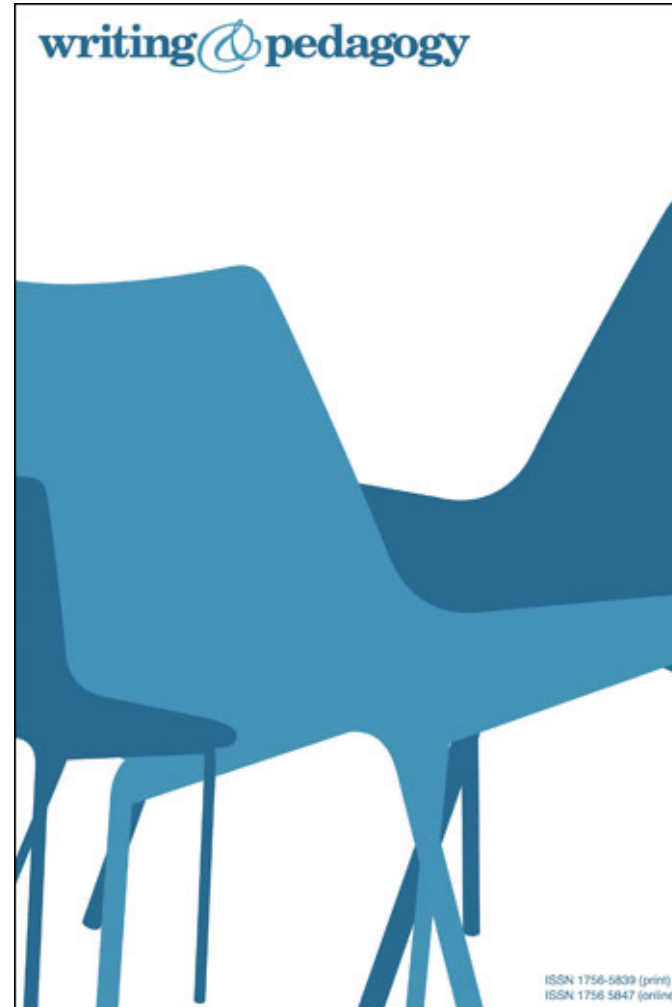
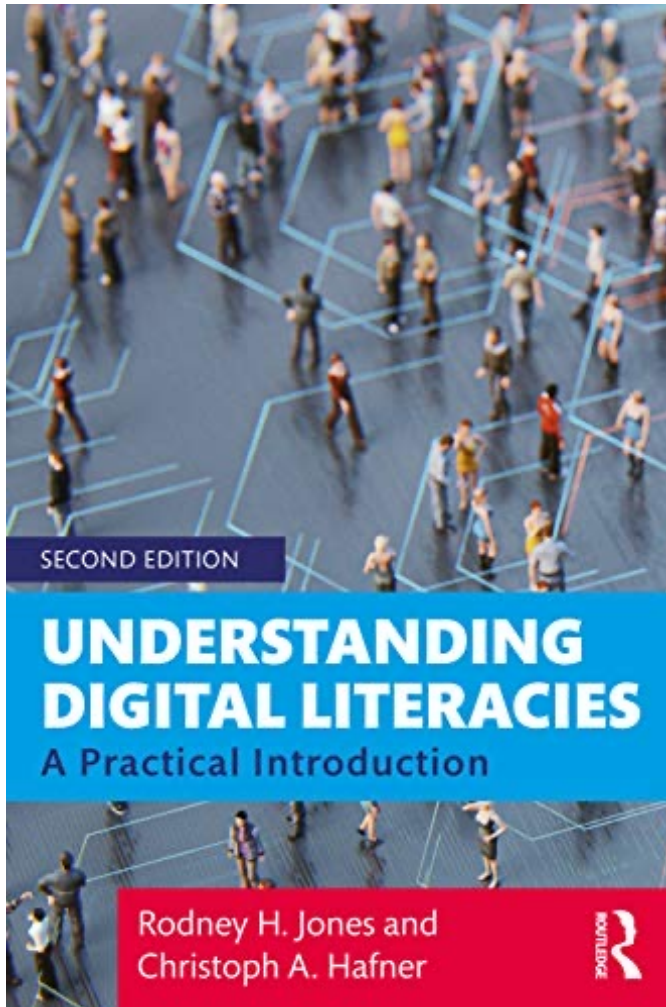
Learning with Generative AI: Collaboration and Criticality

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About me



Collaborative Writing in the Creative Communication Industries: Professional and Pedagogical Perspectives



Hong Kong RGC Competitive Earmarked Research Grant # CityU 9041281

2007-2011

Outline

De-mystifying AI

What are AI literacies?

Using AI in collaborative writing

Developing critical AI literacies

From 'micro-criticality' to 'macro-criticality'

Submission and Assessment of AI assisted assignments

Heuristic for integrating AI into your assignments

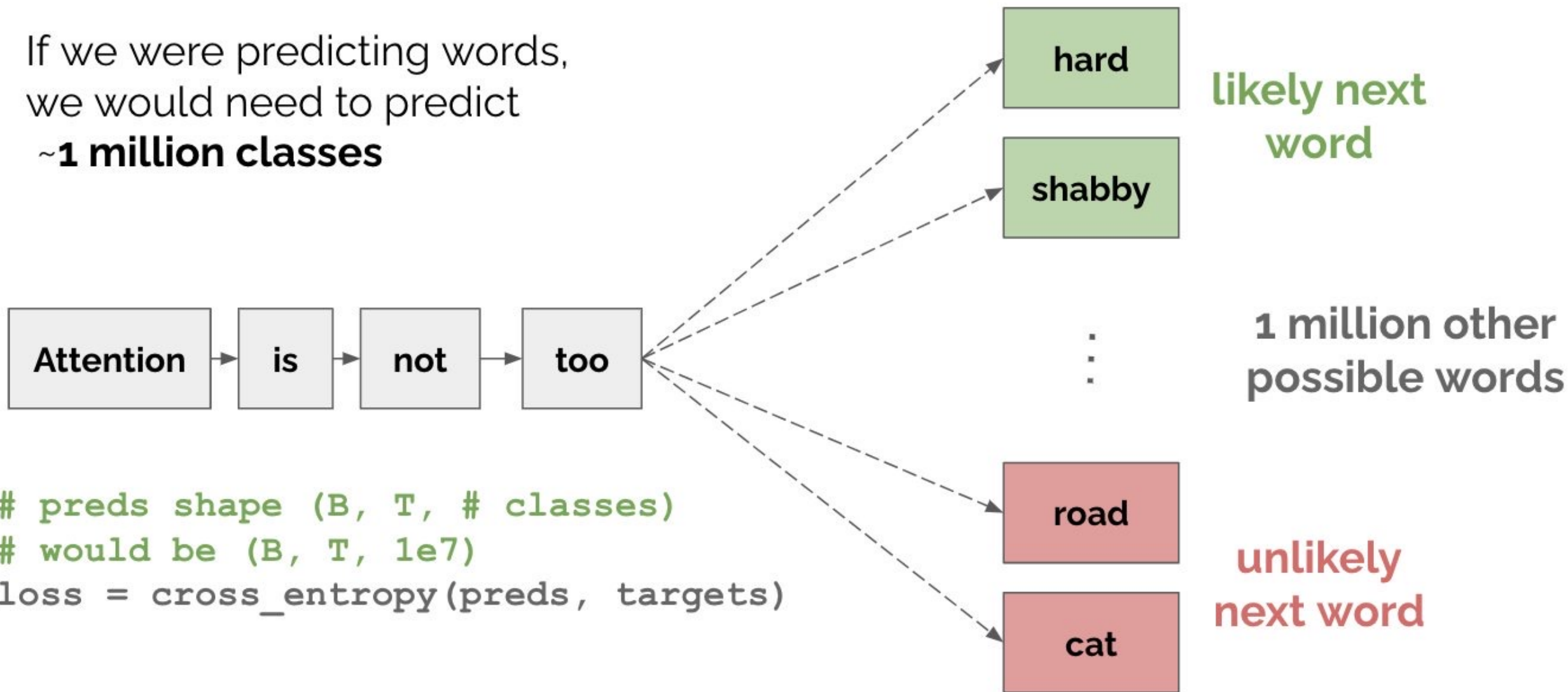
Artificial 'intelligence' is not 'intelligence'



I'm not intelligent.

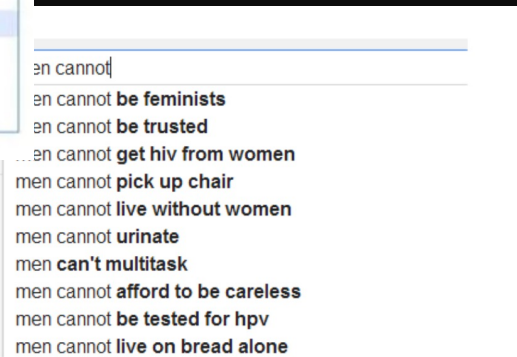
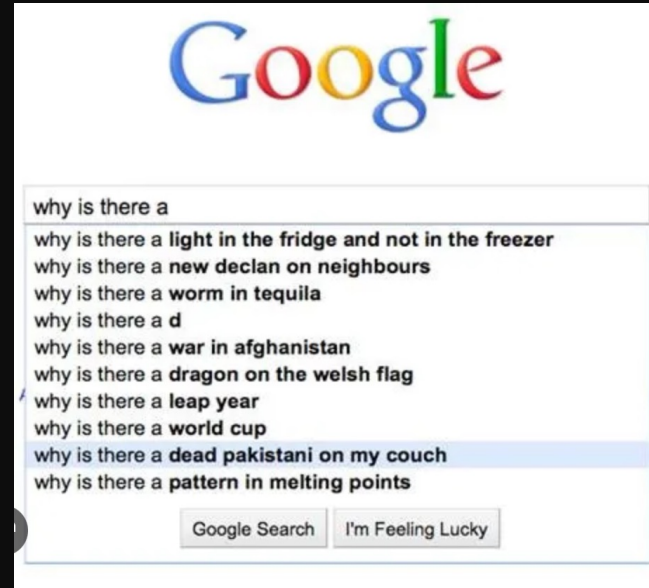
I'm just really good at
what I'm doing.

If we were predicting words,
we would need to predict
~1 million classes



```
# preds shape (B, T, # classes)
# would be (B, T, 1e7)
loss = cross_entropy(preds, targets)
```

The autocomplete analogy



ON THE DANGERS OF STOCHASTIC PARROTS



Contrary to how it may seem when we observe its output, an LM is a system for haphazardly stitching together sequences of linguistic forms it has observed in its vast training data, according to probabilistic information about how they combine, but without any reference to meaning: a stochastic parrot.

(Bender et al., 2021)

What AI is good at and what it is not

- Finding patterns
- Simulating human language
- Summarizing
- Synthesizing
- Organizing
- Brainstorming
- Reacting/responding/simple evaluation
- Roleplaying
- Sounding like it knows what it's talking about

- Knowing what it's talking about
- Reasoning
- Being accurate
- Sophisticated evaluation
- Researching
- Referencing
- Being 'creative'

Problems



Biases




Explainability




'Hallucinations'

THE LATEST <  Kelp Keeps a Record of Environmental Calamity

 Interviews: NASA's Push to Track Strange Objects

 Dividing Lines in Genetic Research

 Opinion: A Moral Panic Over Misinformation

 Ta SH



VIEWPOINTS

REPUBLIC [SHARE](#)

Opinion: ChatGPT Isn't 'Hallucinating.' It's Bullshitting.

Artificial intelligence models will make mistakes. We need more accurate language to describe them.

Visual: Beata Zawrzel/NurPhoto via Getty Images

BY CARL T. BERGSTROM & C. BRANDON OGBUNU 04.06.2023

2 COMMENTS

ARTIFICIAL INTELLIGENCE HALLUCINATES. So we are told by news headlines, think pieces, and even the warning labels on AI websites themselves. It's by no means a new phrase. As early as the 1980s, the term was used in the literature on

Words are not
facts



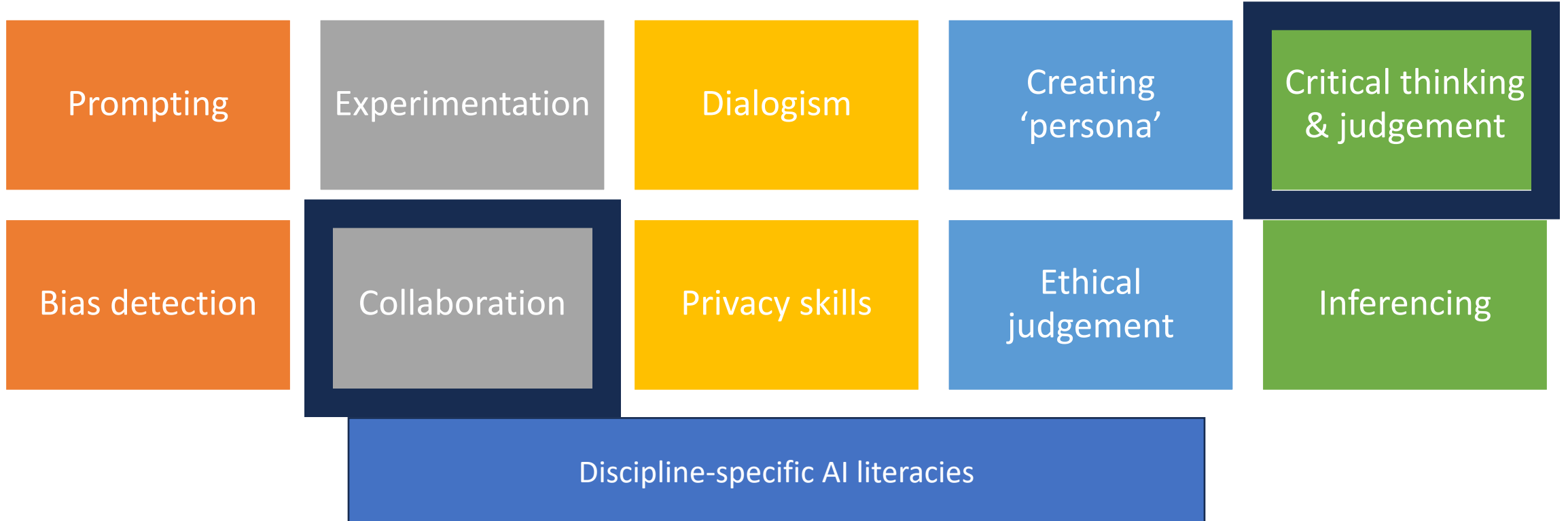
Is this likely to
change soon?

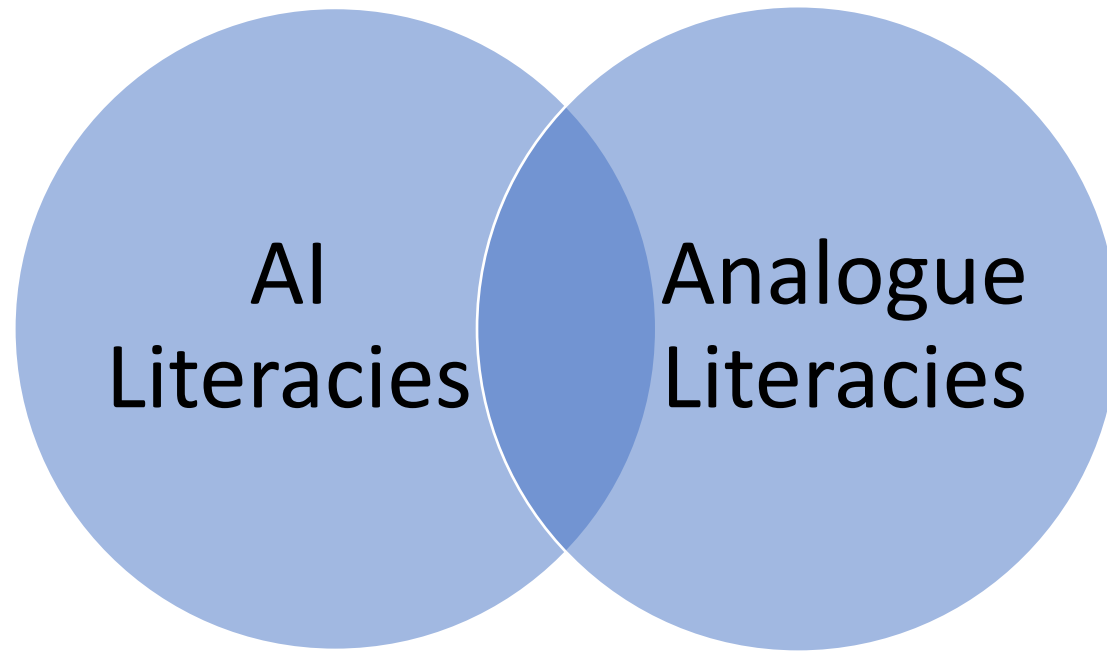


One of the biggest risks
is imagining that AI is
good at things that it's
not good at

So what do we need to teach our students so they can use AI effectively for what is it good at (and not fall into the trap of trying to use it for what it's not good at)?

AI Literacies

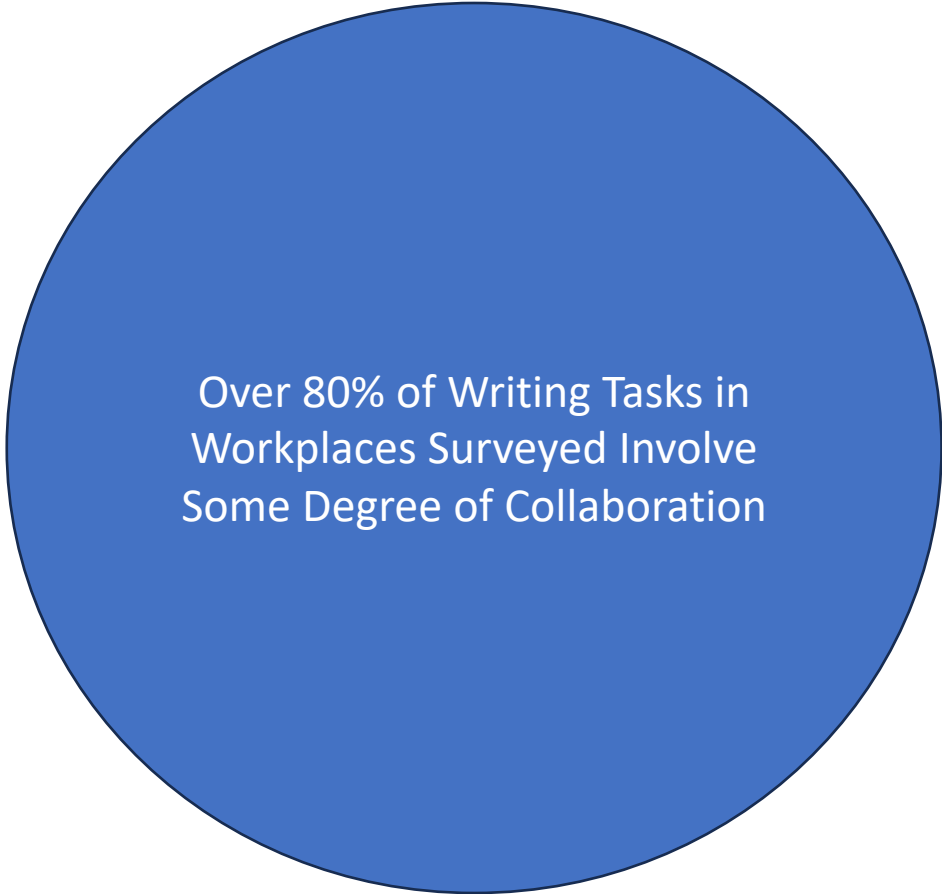




‘Resilient competencies’ (Naterer, 2023)

- ‘critical thinking, teamwork, interpersonal skills, leadership and entrepreneurship.’

Collaboration



Over 80% of Writing Tasks in
Workplaces Surveyed Involve
Some Degree of Collaboration

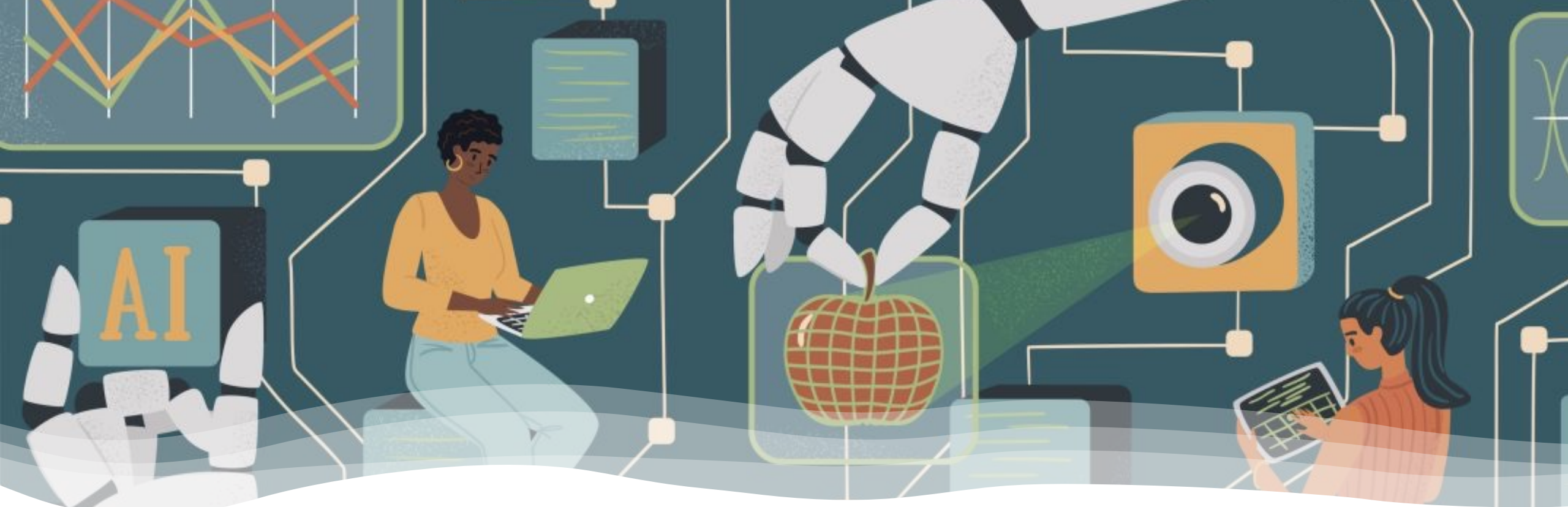
Collaborative writing in workplaces is not just a way to get things done, but also a key means of socializing new employees into the workplace's procedures and culture



Est. Fewer
the 10% our
Assessments
Involve
Collaboration

Problems with Collaborative Assignments

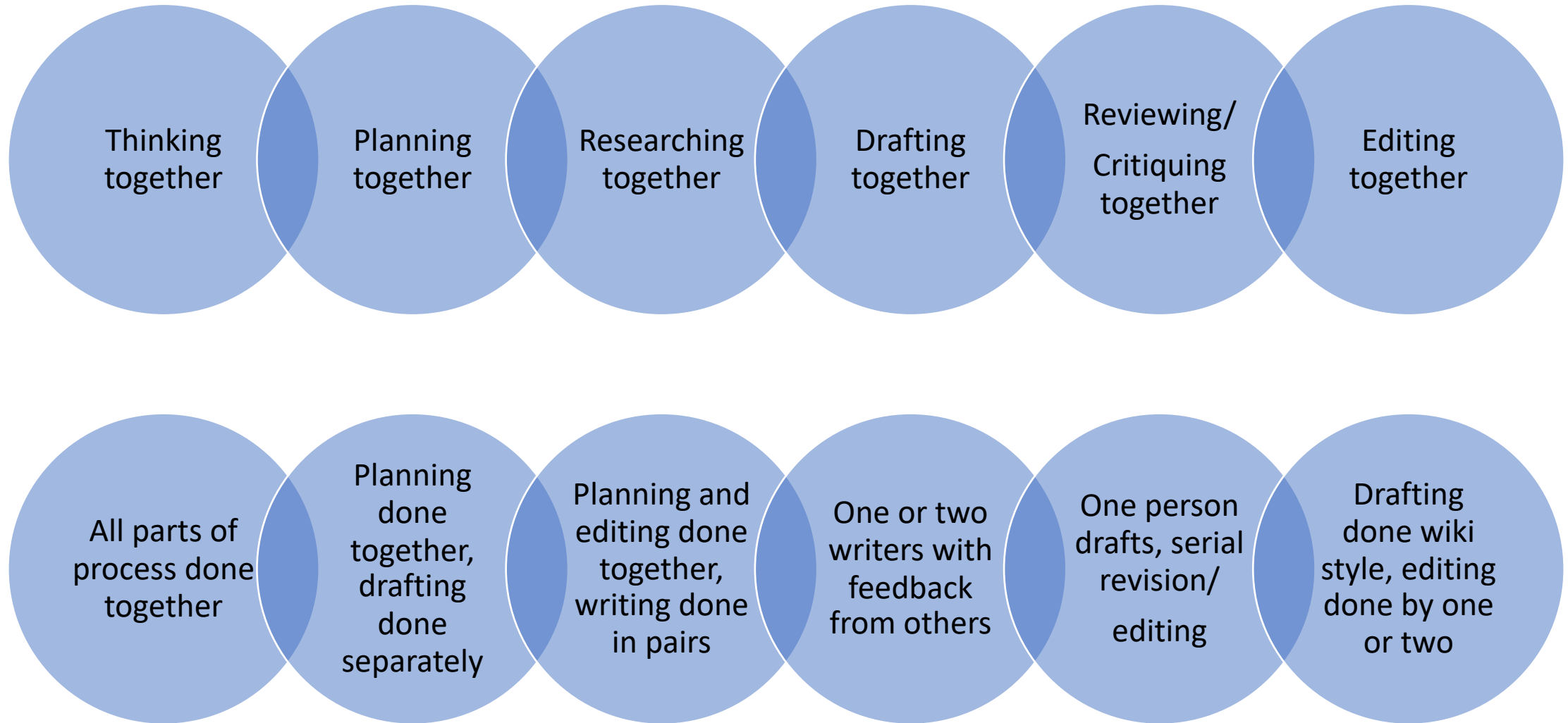
- Grade allocation
- Documentation
- Free riders
- Students don't know how to collaborate

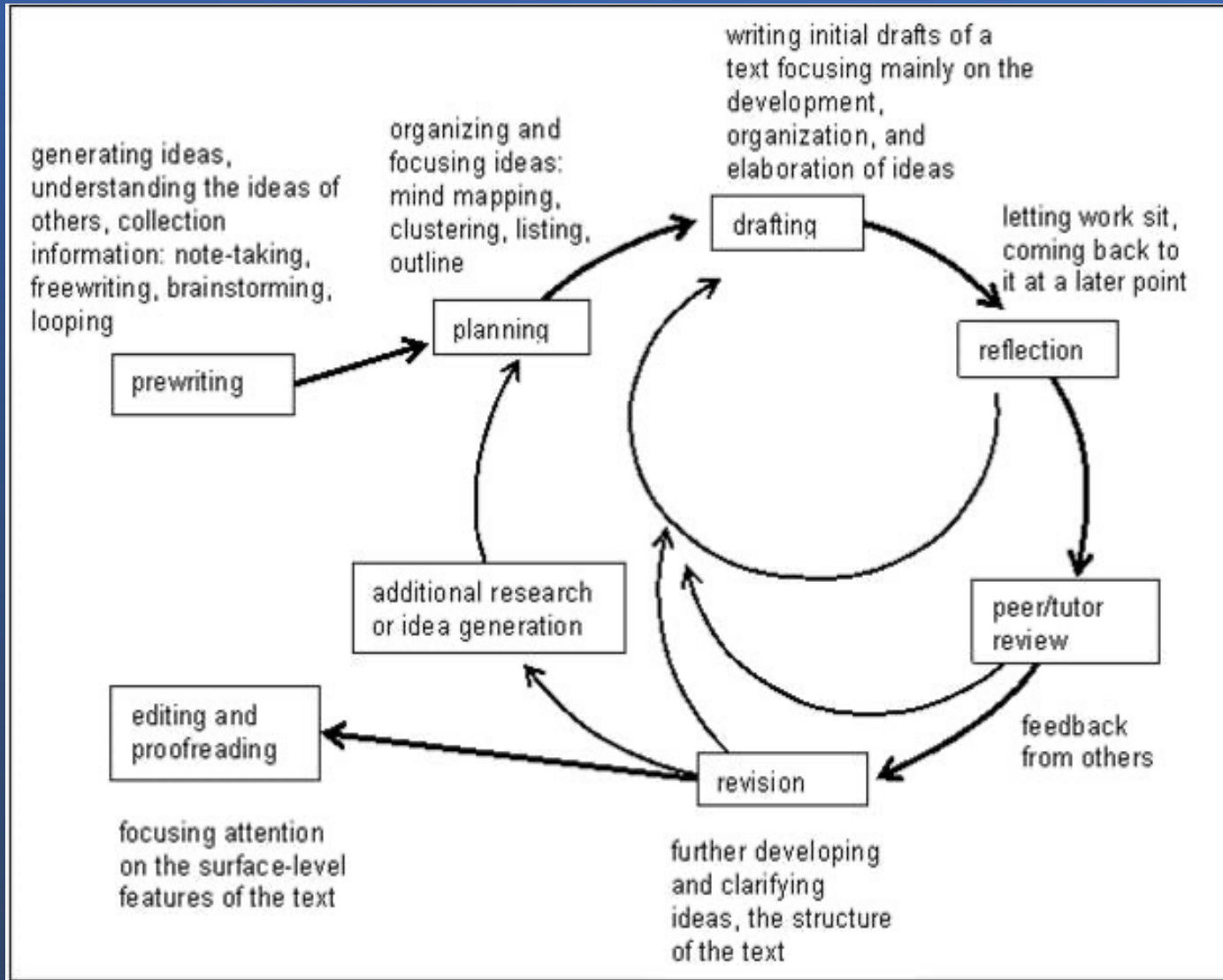


The future of collaboration

- ‘Even when it appears to be the work of a lone creator, most published writing is produced by multiple authors or shaped by the feedback of editors and other writers. Technologies like ChatGPT have become part of this shared activity.’ (Beck & Levine, 2023)

Collaborative writing





The Writing Process

AI Literacies

Prompting

Experimentation

Dialogism

Creating
'persona'

Critical thinking
& judgement

Bias detection

Privacy skills

Ethical
judgement

Inferencing

Preliminaries

- In class 'peer review' with AI written texts
- Revisions of AI written texts
- In class 'debates' with AI
- 'Prompt jams' and 'prompt competitions'
- Exercises in 'refinement prompting'

Generating research questions

- Caufield and Solis 2023

First input

Develop three possible research questions on the following topic: "The influence of social media on political opinion formation."

ChatGPT output

1. To what extent does exposure to diverse political perspectives on social media affect individuals' political opinions and behaviours?
2. How does the personalised algorithm of social media platforms shape the formation of political opinions among its users?
3. What are the underlying factors that determine the effect of social media on political opinion formation, and how can they be measured and analysed?

Generating research questions

- Caufield and Solis 2023

Second input

Based on the second research question, develop three further research questions on the topic of polarisation in UK politics.

- Build my scientific method, qualitative discourse analysis, into each question
- Include the term “filter bubble” in each question

ChatGPT output

1. How does the filter bubble effect on social media platforms contribute to the polarisation of political attitudes in the UK? A qualitative discourse analysis.
2. What is the role of filter bubbles in perpetuating and reinforcing political echo chambers in the UK? A qualitative discourse analysis.
3. How does the influence of filter bubbles on social media affect the ability of individuals to engage in productive political discourse across ideological divides in the UK? A qualitative discourse analysis.

Generating research questions

- Caufield and Solis 2023

Third input

Try to incorporate “qualitative discourse analysis” into the questions themselves, instead of using it as a separate sentence.

ChatGPT output

1. How does a qualitative discourse analysis of filter bubble effect on social media platforms contribute to understanding the polarisation of political attitudes in the UK?
2. What is the contribution of a qualitative discourse analysis to understanding the role of filter bubbles in perpetuating and reinforcing political echo chambers in the UK?
3. How does a qualitative discourse analysis of the influence of filter bubbles on social media inform our understanding of the ability of individuals to engage in productive political discourse across ideological divides in the UK?

Outlining

First input

Create an outline for an academic research paper with the following research question:

"What is the contribution of a qualitative discourse analysis to understanding the role of filter bubbles in perpetuating and reinforcing political echo chambers in the US?"

The paper will be about 8 pages long.

ChatGPT output

- I. Introduction
 - A. Background information on filter bubbles and political echo chambers
 - B. Purpose of the study
 - C. Research question
 - D. Thesis statement
- II. Literature Review
 - A. Definition and concept of filter bubbles
 - B. Definition and concept of political echo chambers
 - C. Previous studies on the role of filter bubbles in perpetuating and reinforcing political echo chambers
 - D. Critiques and limitations of previous studies
- III. Methodology
 - A. Research design
 - B. Participants
 - C. Data collection and analysis
 - D. Validity and reliability
- IV. Results
 - A. Findings from qualitative discourse analysis
 - B. Results related to the research question
 - C. Implications of the findings
- V. Discussion
 - A. Interpretation of the results
 - B. Comparison with previous studies
 - C. Limitations of the study
 - D. Implications for future research
- VI. Conclusion
 - A. Summary of the results
 - B. Implications for understanding the role of filter bubbles in perpetuating and reinforcing political echo chambers
 - C. Conclusion and recommendations for future research
- VII. References
 - A. List of references used in the paper
- VIII. Appendices
 - A. Data collection materials
 - B. Examples of qualitative data analysis

Second input

This seems like too much information to fit into only 8 pages. Can you condense the outline, for example removing the appendices and simplifying the structure?

ChatGPT output

- I. Introduction
 - A. Background on filter bubbles and political echo chambers
 - B. Purpose of the study
 - C. Research question
 - D. Thesis statement
- II. Literature Review
 - A. Definition of filter bubbles and political echo chambers
 - B. Previous studies on the role of filter bubbles
 - C. Limitations of previous studies
- III. Methodology
 - A. Research design
 - B. Participants
 - C. Data collection and analysis
- IV. Results
 - A. Findings from qualitative discourse analysis
 - B. Results related to the research question
 - C. Implications of the findings
- V. Discussion
 - A. Interpretation of the results
 - B. Limitations of the study
 - C. Implications for future research
- VI. Conclusion
 - A. Summary of the results
 - B. Implications for understanding the role of filter bubbles
 - C. Final thoughts
- VII. References
 - A. List of references used in the paper



Caufield and Solis 2023

Debating



I don't know how to provide specific evidence and reasoning to strengthen the subclaim: "longer school hours lead to students being "very tired"



Here are some ways you could provide specific evidence and reasoning to strengthen the subclaim:  

1. Look for research studies or articles that explore the impact of longer school hours on students' well-being. You could cite specific studies that show how extended school hours can negatively affect students' physical and mental health, including increased stress, fatigue, and sleep deprivation.
2. Provide examples of specific situations where students have experienced negative consequences from extended school hours, such as struggling to stay awake during class, feeling too exhausted to participate in extra-curricular activities, or experiencing mental health issues like anxiety or depression.
3. Explore the reasons why longer school hours might lead to fatigue and tiredness. For example, you could discuss how sitting for long periods can be physically exhausting, how lack of breaks or opportunities for physical activity can contribute to mental and physical fatigue, or how high-stress environments can wear students down over time.
4. Compare the effects of longer school hours to those of shorter school days or more flexible schedules. For example, you could compare the mental and physical well-being of students in schools with longer hours to those in schools with shorter hours, or look at how schools that offer more breaks or opportunities for physical activity compare to those with more rigid schedules.

By providing specific evidence and reasoning, you can help support your subclaim and make your argument more persuasive.

- Can you rank the evidence in terms of strength?
- I don't think X is a good piece of evidence, can you justify it?
- Can you provide counter-evidence?
- Here are my claims? Can you try to disprove them?

Su et al. 2023

Getting feedback

Caufield and Solis 2023

Input

Behave like a scientific supervisor in their office hours. You must review and critically assess the current state of this section of my research paper. To do this, evaluate the clarity of my explanations, the smoothness of the language, and the way I've structured the text, giving constructive criticism on each issue:

[Text you want to get feedback on.]

ChatGPT output

Thank you for submitting your research paper for review. Let me provide you with my constructive criticism:

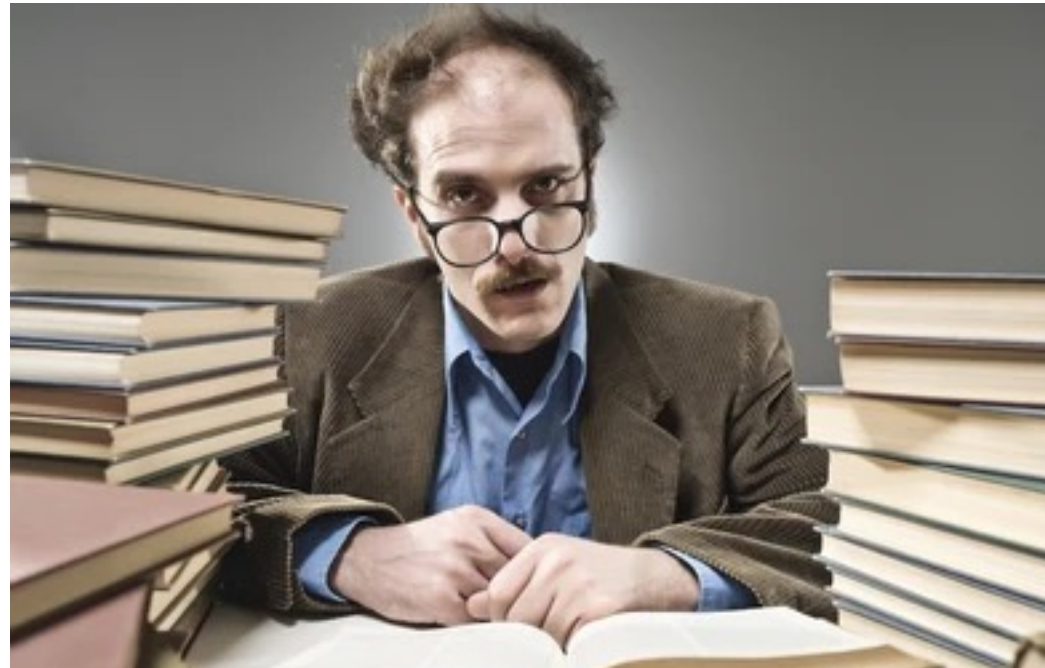
Clarity of Explanations: Overall, the explanations are clear and concise, but there are a few areas that could benefit from additional clarification. For example, in the first paragraph, you mention "the mental lexicon," but do not provide a definition or further explanation for what this is. It would also be helpful to provide a definition of "lemma."

Smoothness of Language: The language in the paper is generally smooth, but there are a few instances where it could be refined. For example, the sentence "The symptoms vary from adding superfluous words and taking pauses to hoarseness of the voice" could be rephrased to "The symptoms of these disorders can range from excessive use of words and pauses to hoarseness."

Structure of Text: The structure of the text is clear, with each paragraph building on the previous one. However, the transition between the first two paragraphs could be smoother. Perhaps you could add a sentence or two to bridge the gap between the two topics.

In conclusion, your paper is well-written, but there are a few areas where it could benefit from some refinement. Keep up the good work! If you have any questions or would like to discuss my comments further, please let me know.

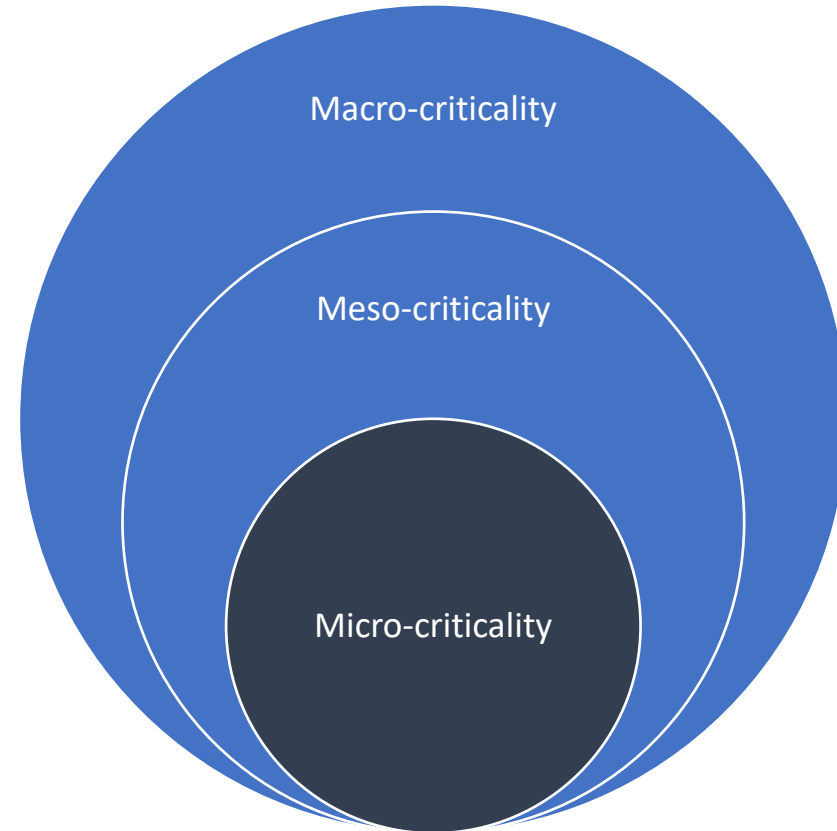
The value of an imperfect collaborator



Kinds of criticality that can be developed through collaborating with AI

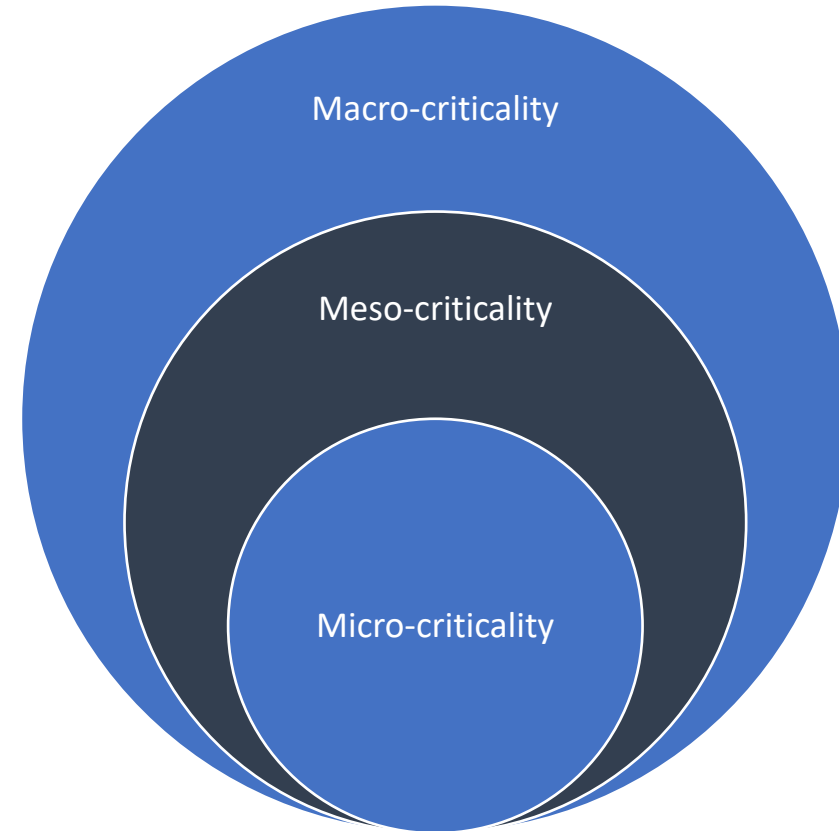
- Fact checking
- 'Bullshit detection'
- Spotting logical fallacies
- Debating
- Detecting biases
- Critical language awareness

- Micro-criticality



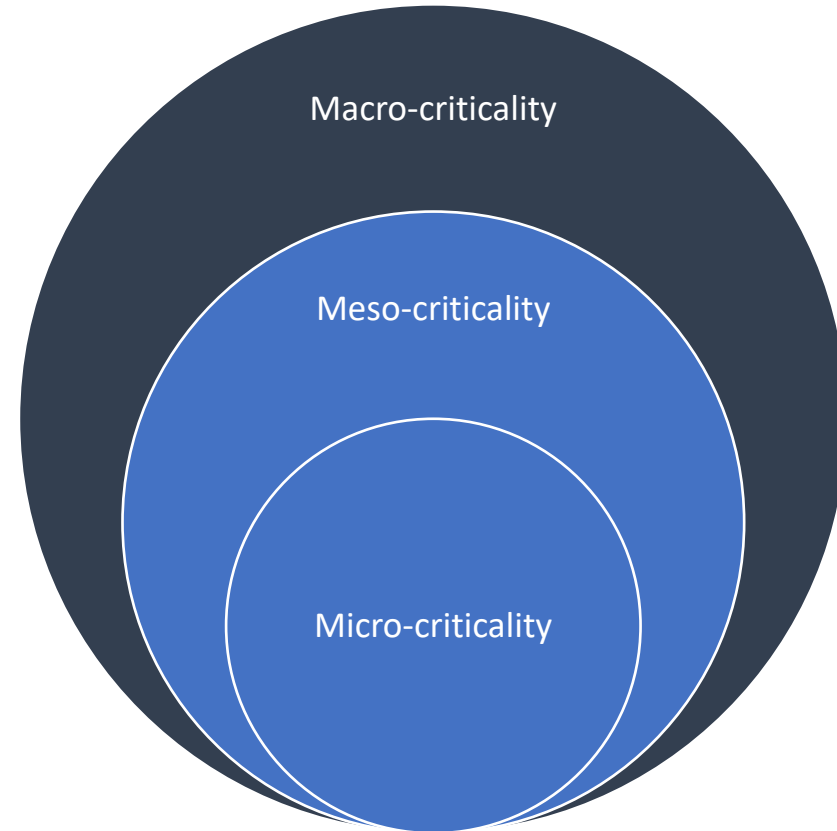
Kinds of criticality that can be developed through collaborating with AI

- Understanding how AI works
- Understanding what its good for and what its not good for
- Thinking about the consequences of *not* being critical about AI generated output
- Thinking about how the AI could trick, fool or mislead me
- Reflecting on how these tools change the way I work
- Reflecting on how these tools change my learning (what is gained and what is lost in the learning process?)
- Reflecting on how these tools will affect my future workplace



Macro-criticality

- Thinking more deeply about the impact AI tools might have on my field
- Thinking more deeply about the impact AI tools might have on our society
- Questioning how AI models are trained (bias, intellectual property)
- Questioning what happens to *my* input
- Thinking about who is making money
- Thinking about the incentives driving the (mis) use of AI



Will AI be used for what it's good at, or what it's not really good at ?

- (Mis)use in high stakes domains
 - Recruitment and hiring
 - Policing and sentencing
 - Assessment
 - Benefit policing



Artificial Intelligence Job Analysis

2.535.009

AI, automation and robotics jobs
will be created by early **2030's**

13.375.363

jobs are at risk from automation
replacement by early **2030's**

newly created positions can only fill

19%

of the jobs lost to robotics



Hidden Costs of AI

Common carbon footprint benchmarks

in lbs of CO2 equivalent

Roundtrip flight b/w NY and SF (1 passenger)	1,984
Human life (avg. 1 year)	11,023
American life (avg. 1 year)	36,156
US car including fuel (avg. 1 lifetime)	126,000
Transformer (213M parameters) w/ neural architecture search	626,155



KATE CRAWFORD



ATLAS OF AI

**How to
Stop Silicon Valley
from Building a
New Global Underclass**

GHOST

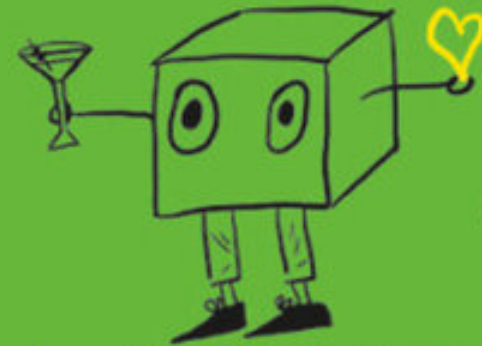
Mary L. Gray and Siddharth Suri

WORK



How **Artificial Intelligence** Works
and Why It's Making the World
a Weirder Place

YOU LOOK
LIKE A THING



AND
I LOVE YOU

Janelle Shane

"I can't think of a better way to learn about artificial intelligence, and I've never had so much fun along the way." —ADAM GRANT, *New York Times* bestselling author of *Originals*

Other threats

- Security/Privacy Risks
- Intellectual Property Challenges
- Manipulation and Thought – Control
- Surveillance
- Autonomous AI-powered Weapons
- Financial Crises Brought on by AI
- Increased Inequality
- Existential Threats

The discourse surrounding artificial intelligence is ... a spectacle. It acts as a smokescreen that diverts our attention from both the far-reaching impacts of actual AI, as it exists today, and the disturbing politics it incubates. Grasping the sociological import of AI means engaging with what's going on under the hood. Understanding how the machinery works is a precondition for realising that in fact, there is nothing that even borders on "intelligence" here, and for reading across to its social effects and their repercussions...the social benefits are still speculative, but the harms have been empirically demonstrated. We must recognise [the] algorithmic violence [that] is legitimised by AI's claims to reveal a statistical order in the world that is superior in scale and insight to our direct experience. (McQuillan 2023)

The tools we use should
always be both facilitators
of criticality and objects of
our critique

Submission

- Final output
 - Appendix with
 - Prompts and outputs
 - Short reflection on AI use/decision making/challenges



Submit
Assignment

shift



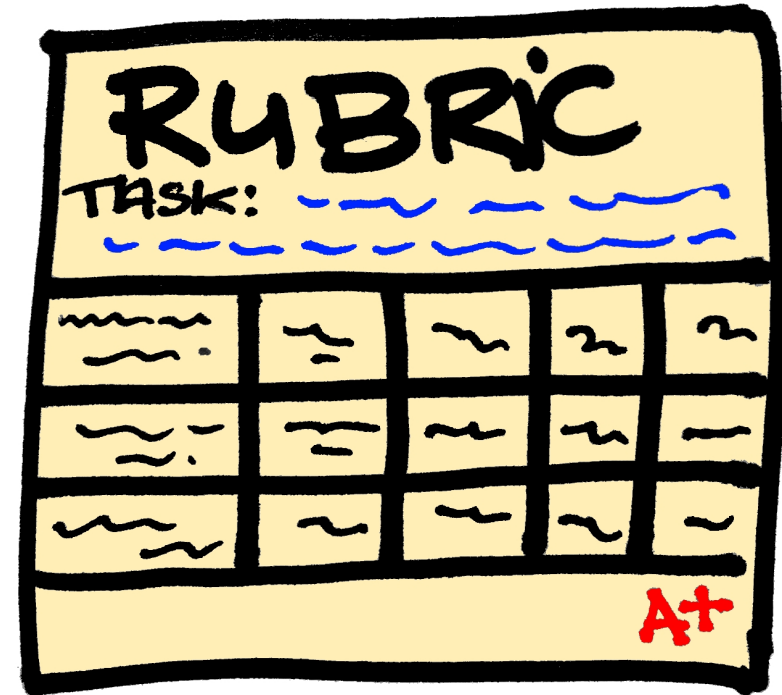
Citing Gen AI

- *a suggested way to cite an answer from ChatGPT in APA format could be as follows:*
- *In-text citation: (ChatGPT, 2023)*
- *Reference list:*
 - *ChatGPT. (2023, January 18). How do you cite an answer in ChatGPT. [Response to user question]. Retrieved from [URL of the platform where the conversation took place].*

Assessment rubrics

- AI Assisted-Collaboration
 - Process associated items (e.g. brainstorming, revising)
 - Composing clear and appropriate prompts
 - Critically evaluating and responding to output
 - Responding to feedback
 - Reflecting on collaborative process
 - Accounting for division of labour
 - Discipline specific collaborative issues


Impact on design/assessment of other items



A large orange circle on the left side of the slide, partially cut off by the edge.

Figuring out how to use AI in Assessments

1. Reflecting on what our assessments are for

- What is being assessed?
 - What do we want students to learn from doing the assessment?
 - How can Gen AI either contribute to or detract from the assessment or the learning?
 - Does Gen AI suggest new ways to do assessment or new products/processes that we should assess (e.g. AI literacies)?
- 
- A decorative graphic in the bottom right corner consisting of several short, thick yellow dashes arranged in a curved, upward-sloping pattern.

Figuring out how to use AI in Assessments

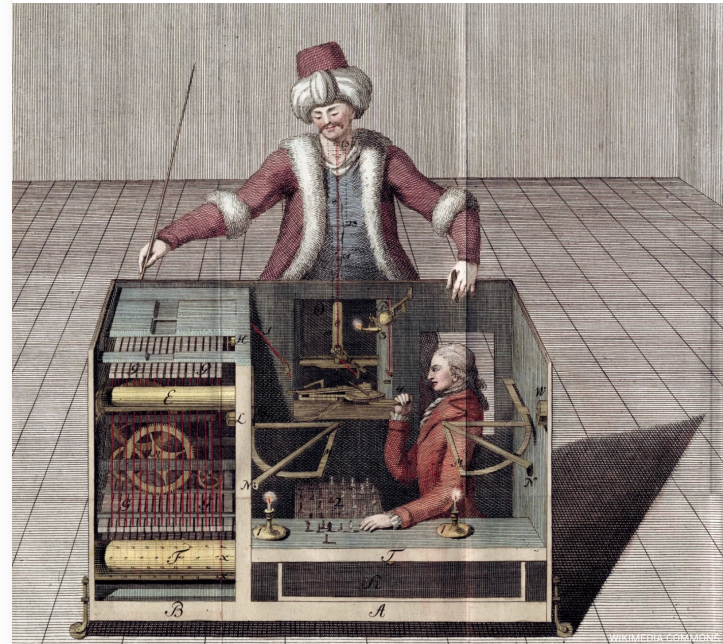
2. Reflecting on what students need to *do* to produce assessed work

- Product vs Process
- At what stages in the process can Gen AI be most helpful (or harmful), and how might it be used differently in these different stages
- What skills do students need to develop to use AI effectively at different stages (dialoging, fact-checking, critical thinking, critiquing and editing, prompting)
- Can Gen AI help us teach students how to improve/reflect upon their processes?
- Can Gen AI assist in documenting the process so that it can be assessed?
- How can Gen AI help students to develop micro, meso, and macro criticality in the context of this assignment?

The last word

concerns [about students cheating] are not so much about writing, understood as a process and an adjunct to thought, as they are about writing assessment, understood as a tool for sorting students and awarding distinctions. How will we "judge" our students accurately, asks Stephen Marche, when the writing process "can be significantly automated"? What will replace writing assignments "as a gatekeeper [and] a metric for intelligence?" asks Daniel Herman. This focus on assessment then calls into existence the kind of student most easily assessed: one entirely unentangled with technology. But if we treat learning (not distinction) as the goal of education, then generative AI looks more like an opportunity than a threat. As software that can simulate human thinking, it may indeed create some thoughtless students who rely on it too heavily. But it might also create students who are ready to think twice, to push beyond statistically likely ways of thinking. This sort of student, ready to demand more than AI can provide, will be precisely what an age of generative AI requires: **people who understand the difference between human and machine intelligence, and who therefore won't mistake its glibbest outputs for the horizon of all human thought.**

(Grobe 2023)



Why I'm Not Scared of ChatGPT

The limits of the technology are where real writing begins.

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