

UTS Graduate Certificate in Learning Design

→ Crunch: Learning Analytics for Performance Improvement

# Reflections on the GenAI Rollercoaster: Glimpses into Our Future

Simon Buckingham Shum

Professor of Learning Informatics

Director, Connected Intelligence Centre

University of Technology Sydney

 <https://Simon.BuckinghamShum.net>

 <https://www.linkedin.com/in/simon>

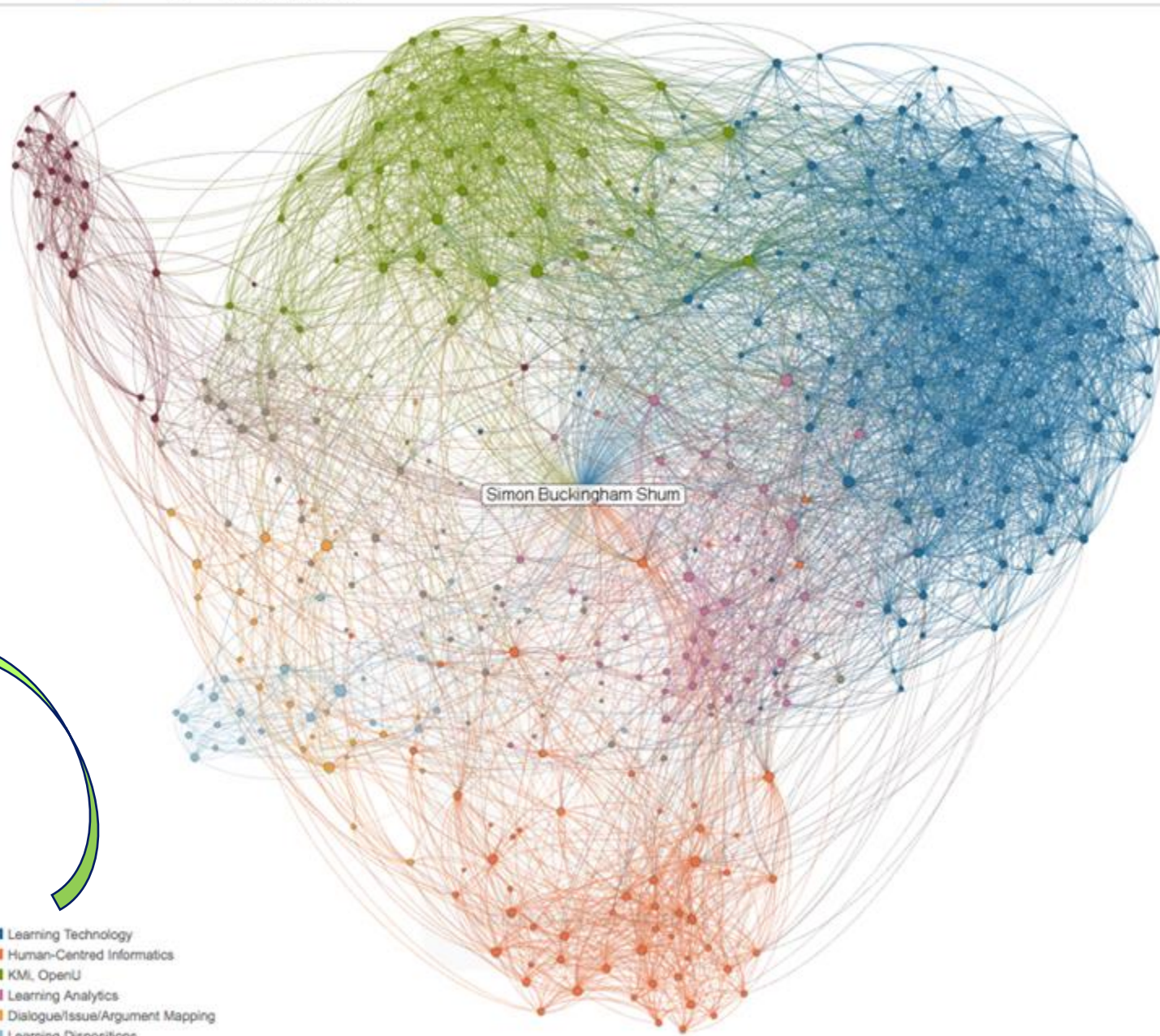


# Who am I?

- Learning Technology
- Human-Centred Informatics
- KMi, OpenU
- Learning Analytics
- Dialogue/Issue/Argument Mapping
- Learning Dispositions
- AI+Argumentation
- Open/Semantic Scientific Publishing

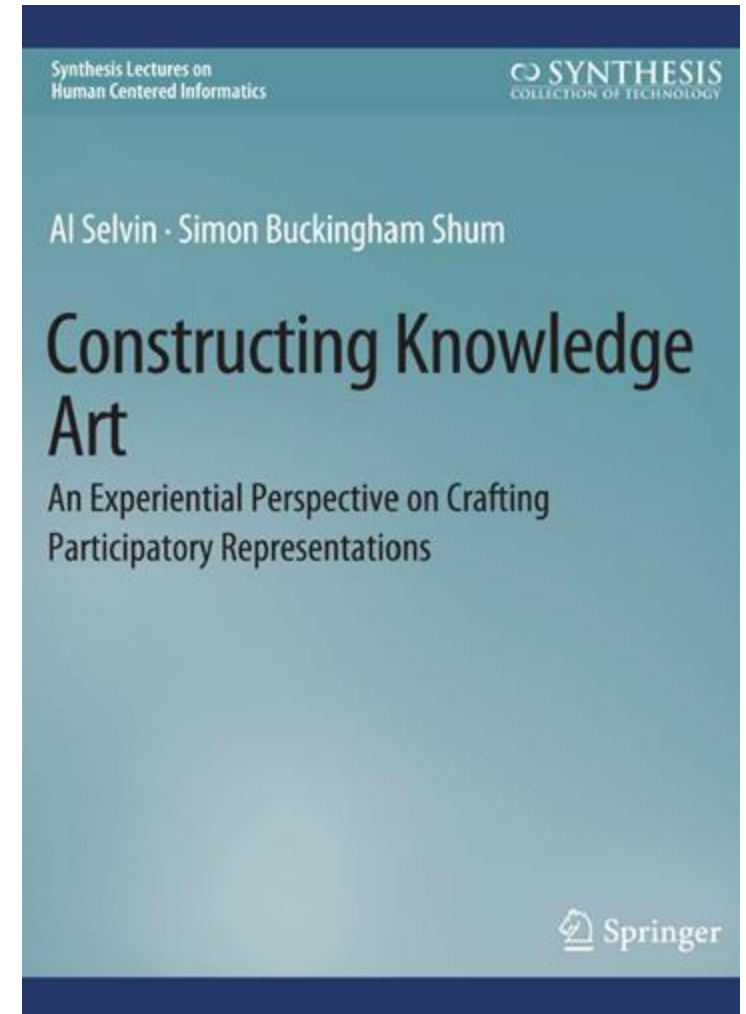
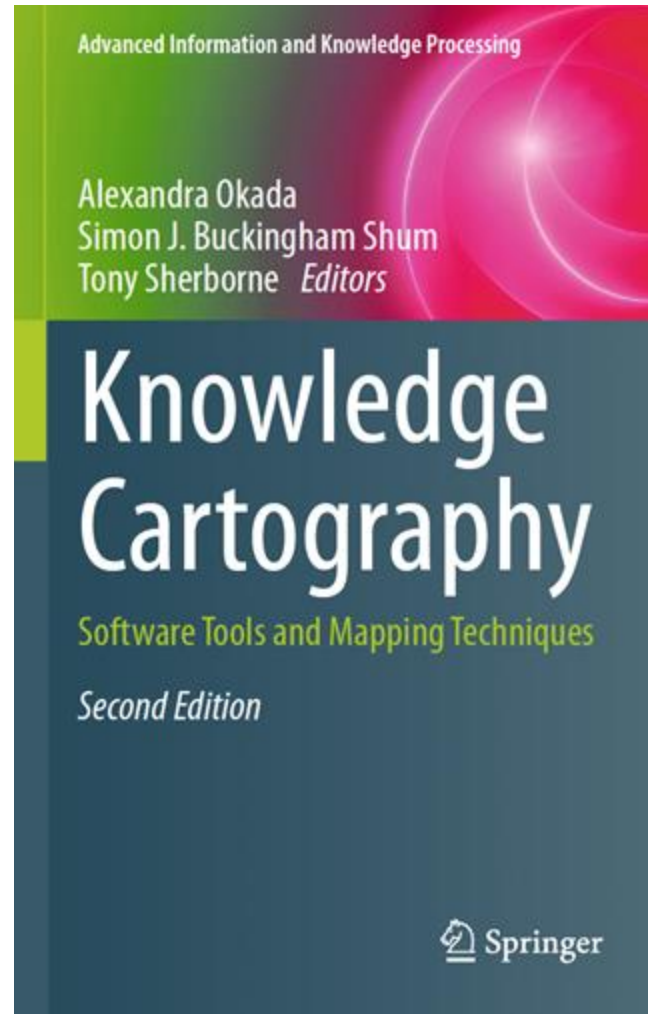
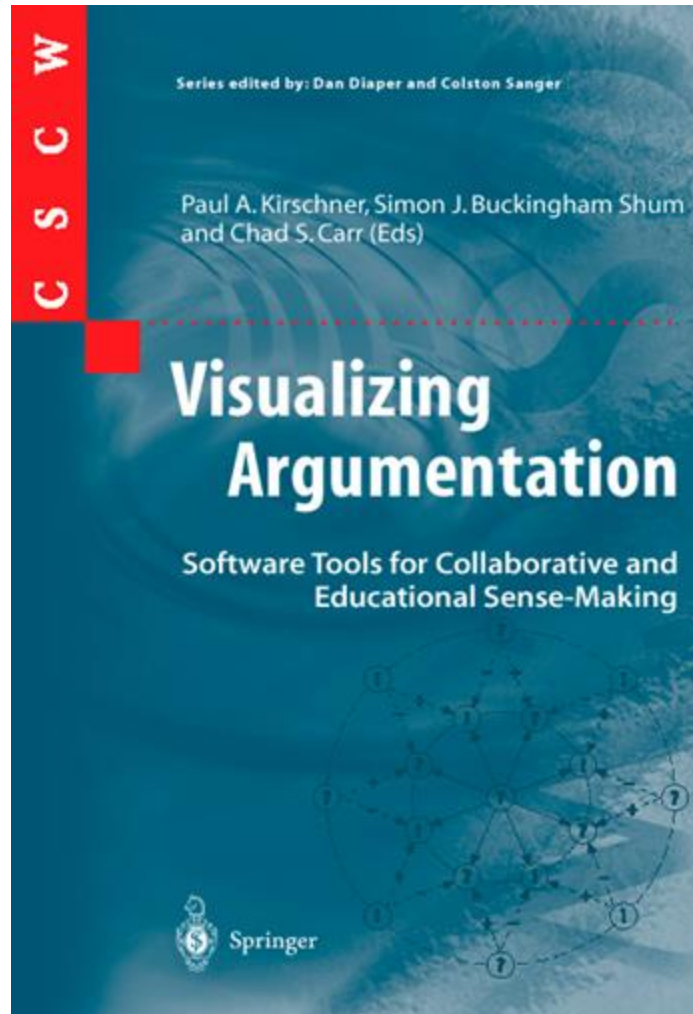
...today I'd add...

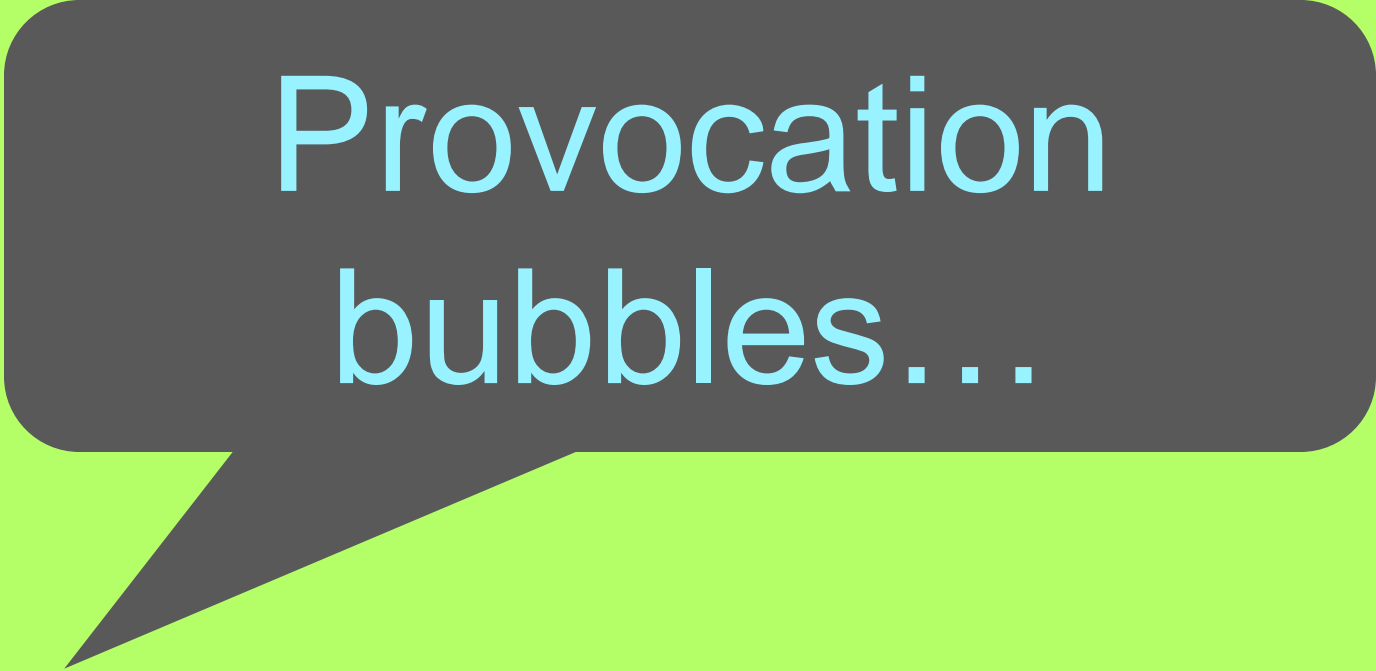
AI in Education  
AI Ethics



- Learning Technology
- Human-Centred Informatics
- KMi, OpenU
- Learning Analytics
- Dialogue/Issue/Argument Mapping
- Learning Dispositions
- AI+Argumentation
- Open/Semantic Scientific Publishing

→ How can software make reasoning visible and provoke reflection?  
(Dialogue Mapping; Issue Mapping; Argument Mapping; Conversational Modelling)



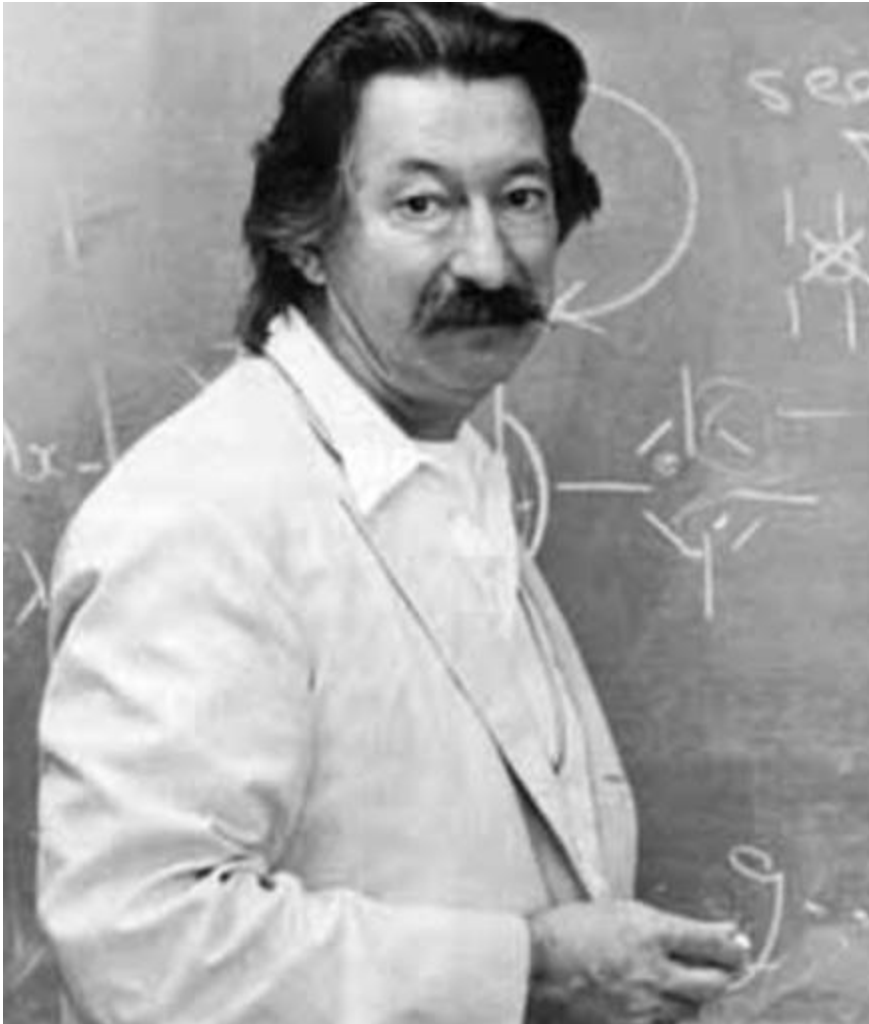


Provocation  
bubbles...

**1966**



# Joseph Weizenbaum



## ELIZA—A Computer Program For the Study of Natural Language Communication Between Man And Machine

JOSEPH WEIZENBAUM

*Massachusetts Institute of Technology,\* Cambridge, Mass.*

Weizenbaum, J. (1966). ELIZA—a computer program for the study of natural language communication between man and machine. *Communications of the ACM*, 9(1), 36–45. <https://doi.org/10.1145/365153.365168>

Welcome to

```
EEEEEE LL      IIII  ZZZZZZ  AAAAA
EE      LL      II     ZZ     AA   AA
EEEEEE LL      II     ZZZ     AAAAAA
EE      LL      II     ZZ     AA   AA
EEEEEE LLLLLL IIII  ZZZZZZ  AA   AA
```

Eliza is a mock Rogerian psychotherapist.

The original program was described by Joseph Weizenbaum in 1966.

This implementation by Norbert Landsteiner 2005.

ELIZA: Is something troubling you ?

YOU: Men are all alike.

ELIZA: What is the connection, do you suppose ?

YOU: They're always bugging us about something or other.

ELIZA: Can you think of a specific example ?

YOU: Well, my boyfriend made me come here.

ELIZA: Is it important to you that your boyfriend made you come here ?

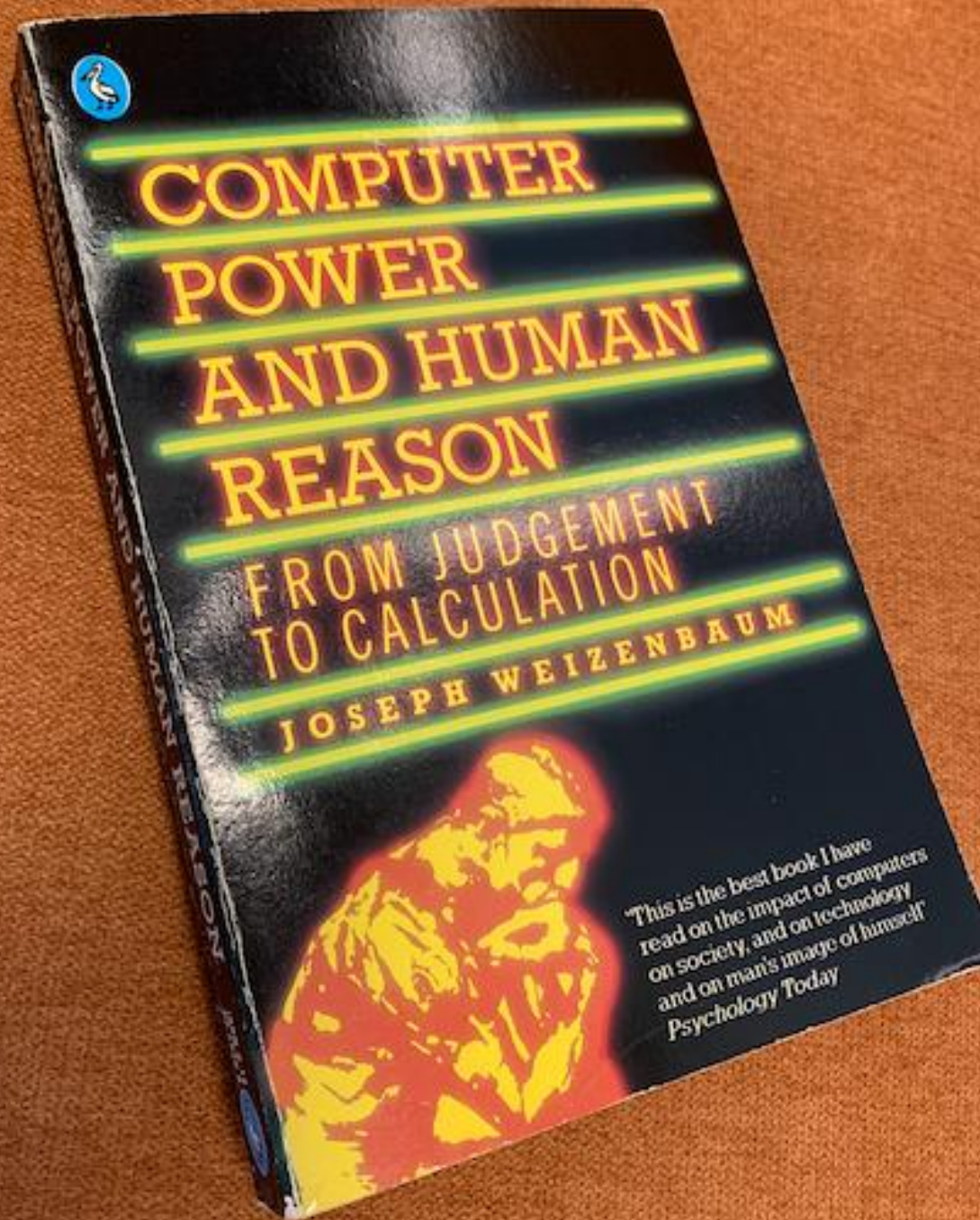
YOU: He says I'm depressed much of the time.

ELIZA: I am sorry to hear that you are depressed.

YOU: It's true. I am unhappy.

ELIZA: Can you explain what made you unhappy ?

YOU:



“Once my secretary, who had watched me work on the program for many months and therefore knew it to be merely a computer program, started conversing with it. After only a few interchanges with it, she asked me to leave the room.”

Weizenbaum (1976, p.6)

“What I had not realized is that extremely short exposures to a relatively simple computer program could induce powerful delusional thinking in quite normal people.”



**AI**

artificial intelligence

**Dec.**

**1968**

# San Francisco, Fall Joint Computer Conference (Dec. 9<sup>th</sup> 1968)



**monday afternoon**

**december 9**

**3:45 p.m. / arena**

*Chairman:*

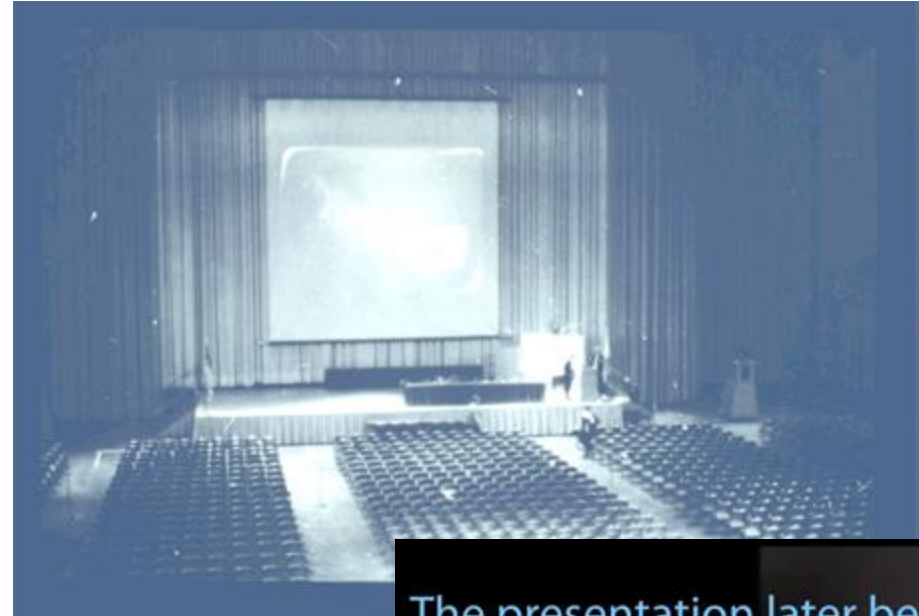
**DR. D. C. ENGELBART**

*Stanford Research Institute  
Menlo Park, California*

## **a research center for augmenting human intellect**

This session is entirely devoted to a presentation by Dr. Engelbart on a computer-based, interactive, multiconsole display system which is being developed at Stanford Research Institute under the sponsorship of ARPA, NASA and RADC. The system is being used as an experimental laboratory for investigating principles by which interactive computer aids can augment intellectual capability. The techniques which are being described will, themselves, be used to augment the presentation.

The session will use an on-line, closed circuit television hook-up to the SRI computing system in Menlo Park. Following the presentation remote terminals to the system, in operation, may be viewed during the remainder of the conference in a special room set aside for that purpose.



The presentation later became known as

**"The Mother of All Demos"**



<https://www.youtube.com/watch?v=B6rKUf9DWRI>

# Douglas Engelbart

Douglas C. Engelbart (1963). [A Conceptual Framework for the Augmentation of Man's Intellect](https://dougengelbart.org/pubs/augment-133183-AHI-Vistas.html). Chapter 1 in *Vistas in Information Handling*, Howerton and Weeks [Ed.], Spartan Books, Washington, D. C., pp. 1-29.  
<https://dougengelbart.org/pubs/augment-133183-AHI-Vistas.html>

## CHAPTER 1

### A CONCEPTUAL FRAMEWORK FOR THE AUGMENTATION OF MAN'S INTELLECT\*

DOUGLAS C. ENGELBART

Stanford Research Institute, Menlo Park, Calif.

#### INTRODUCTION

By "augmenting man's intellect" we mean increasing the capability of a man to approach a complex problem situation, gain comprehension to suit his particular needs, and to derive solutions to problems. Increased capability in this respect is taken to mean a mixture of the following: that comprehension can be gained more quickly; that better comprehension can be gained; that a useful degree of comprehension can be gained where previously the situation was too complex; that solutions can be produced more quickly; that better solutions can be produced; that solutions can be found where previously the human could find none. And by "complex situations" we include the professional problems of diplomats, executives, social scientists, life scientists, physical scientists, attorneys, designers—whether the problem situation exists for twenty minutes or twenty years. We do not speak of isolated clever tricks that help in particular situations. We refer to a way of life in an integrated domain where hunches, cut-and-try, intangibles, and the human "feel for a situation" usefully coexist with powerful concepts, streamlined terminology and notation, sophisticated methods, and high-powered electronic aids.

This paper covers the first phase of a program aimed at developing means to augment the human intellect. These methods or devices can



IA

intelligence augmentation

**Nov.**

**2022**



**ChatGPT**

OpenAI launches ChatGPT

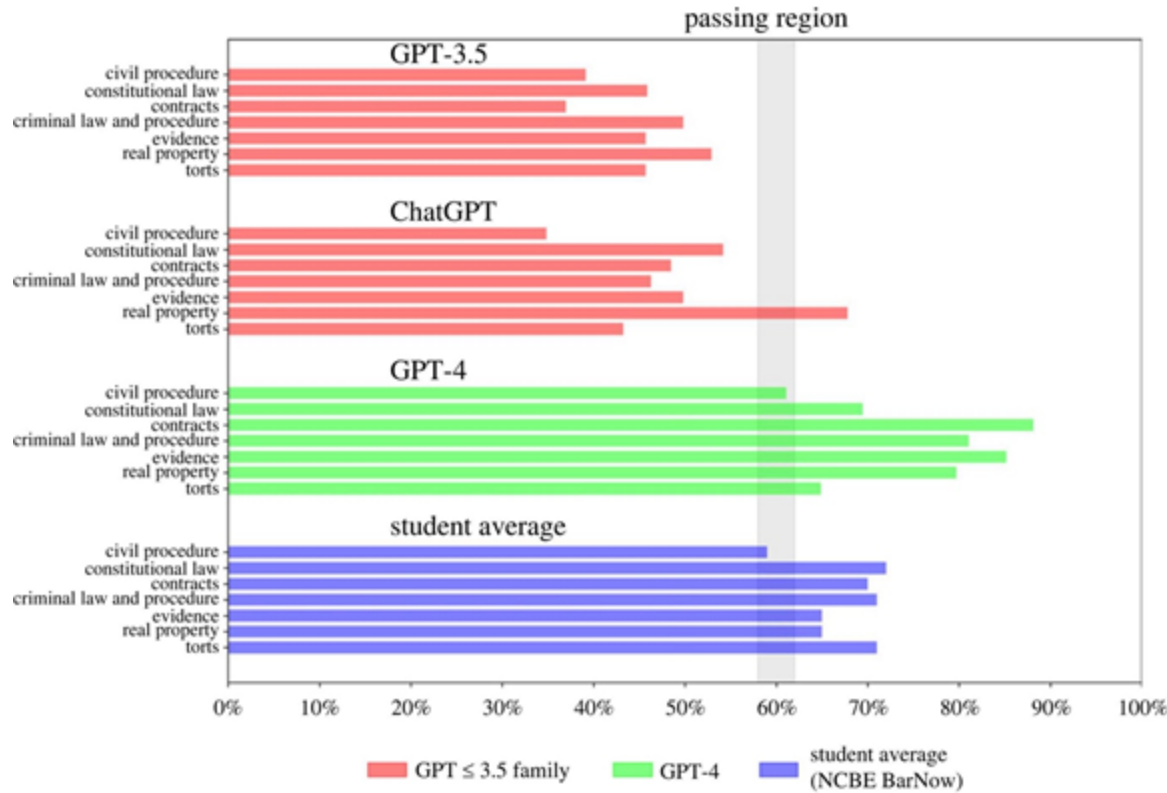
The ELIZA effect is even more compelling...

Educators the world over scramble!

**today**



# GPT-4 can pass the U.S. Uniform Bar Exam



Katz, D. M., Bommarito, M. J., Gao, S., & Arredondo, P. (2024). GPT-4 passes the bar exam. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 382(2270), 20230254. <https://doi.org/doi:10.1098/rsta.2023.0254>

## PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A

MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES

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Research articles

### GPT-4 passes the bar exam

Daniel Martin Katz, Michael James Bommarito, Shang Gao and Pablo Arredondo

Published: 26 February 2024 <https://doi.org/10.1098/rsta.2023.0254>

#### Abstract

In this paper, we experimentally evaluate the zero-shot performance of GPT-4 against prior generations of GPT on the entire uniform bar examination (UBE), including not only the multiple-choice multistate bar examination (MBE), but also the open-ended multistate essay exam (MEE) and multistate performance test (MPT) components. On the MBE, GPT-4 significantly outperforms both human test-takers and prior models, demonstrating a 26% increase over ChatGPT and beating humans in five of seven subject areas. On the MEE and MPT, which have not previously been evaluated by scholars, GPT-4 scores an average of 4.2/6.0 when compared with much lower scores for ChatGPT. Graded across the UBE components, in the manner in which a human test-taker would be, GPT-4 scores approximately 297 points, significantly in excess of the passing threshold for all UBE jurisdictions. These findings document not just the rapid and remarkable advance of large language model performance generally, but also the potential for such models to support the delivery of legal services in society.

# Research now emerging on ChatGPT's educational impacts +/-

The screenshot shows a Perplexity search interface. At the top, the Perplexity logo is on the left, and the user 'sbuckshum' is on the right. The search query is 'What is the evidence from 2024 peer reviewed publications, concerning the positive and negative educational impacts of ChatGPT or other conversational generative AI?'. Below the query, there are three source cards:

- Exploring the impact of ChatGPT: conversational AI in... (frontiersin - 1)
- Is it harmful or helpful? Examining the causes and consequences of ... (educationaltec... - 2)
- From concerns to benefits: a comprehensive study... (educationaltec... - 3)

The 'Answer' section begins with: 'Based on the 2024 peer-reviewed publications provided in the search results, there is emerging evidence of both positive and negative educational impacts of ChatGPT and other conversational generative AI tools in higher education:'

**Positive Impacts**

**Enhanced Learning Experiences:**

- ChatGPT can create diverse learning environments that encourage students to explore and promote deep engagement with the material.
- It provides personalized learning experiences, which can improve student engagement.

**Improved Feedback and Assessment:**

- ChatGPT can be used to create prompts for formative assessments and deliver continuous feedback to students.
- It offers opportunities for educators to adopt innovative teaching methods and create more interactive classroom experiences.

**Skill Development:**

- Using ChatGPT can help students and educators develop crucial digital skills needed for ethical and efficient use of AI tools in language learning and other subjects.

**Negative Impacts**

**Academic Integrity Concerns:**

<https://www.perplexity.ai/search/what-is-the-evidence-from-2024-49MortnCTQWs2wNbU53ciQ>

# Research now emerging on ChatGPT's educational impacts +/-

The image shows a screenshot of a Perplexity AI search interface. The search query is "What is the evidence from 2024 peer reviewed literature on the educational impacts of ChatGPT?". The interface includes a sidebar with navigation options like "Home", "Discover", and "Library". The main content area displays search results, including a snippet from "frontiersin" and a section titled "Answer" which states: "Based on 24 peer-reviewed publications provided in the search results, there is emerging evidence of both positive and negative educational impacts of ChatGPT and other conversational generative AI tools in higher education:". To the right, there are sections for "Positive Impacts" (Enhanced Learning Experience, Skill Development) and "Negative Impacts" (Academic Integrity Concerns). A prominent green callout box is overlaid on the center of the page, containing the text: "NB: Critical questions emerging about the quality of AI summaries of the literature, cognitive atrophy, HDR training, etc...".

**perplexity** | ← sbuckshum · Now + Collection / What is the evidence from 2024 peer reviewed literature on the educational impacts of ChatGPT?

New Thread

Home Discover Library

What is the evidence from... find publications on "the..."

frontiersin · 1

Answer

Based on 24 peer-reviewed publications provided in the search results, there is emerging evidence of both positive and negative educational impacts of ChatGPT and other conversational generative AI tools in higher education:

**Positive Impacts**

Enhanced Learning Experience

- ChatGPT can create dynamic content tailored to individual students' needs, providing personalized learning experiences.

**Skill Development.**

- Using ChatGPT can help students and educators develop crucial digital skills needed for ethical and efficient use of AI tools in language learning and other subjects.

**Negative Impacts**

Academic Integrity Concerns:

educationaltechnologyjournal.springeropen

Is it harmful or helpful? Examining the causes and consequences of ...

Therefore, an understanding of the role of generative AI, in higher education is still ... (Carless et al., 2023;...

for formative feedback to students

adopt innovative active classroom

**NB: Critical questions emerging about the quality of AI summaries of the literature, cognitive atrophy, HDR training, etc...**

Try Pro Upgrade for image upload, smarter AI, and more Pro Search.

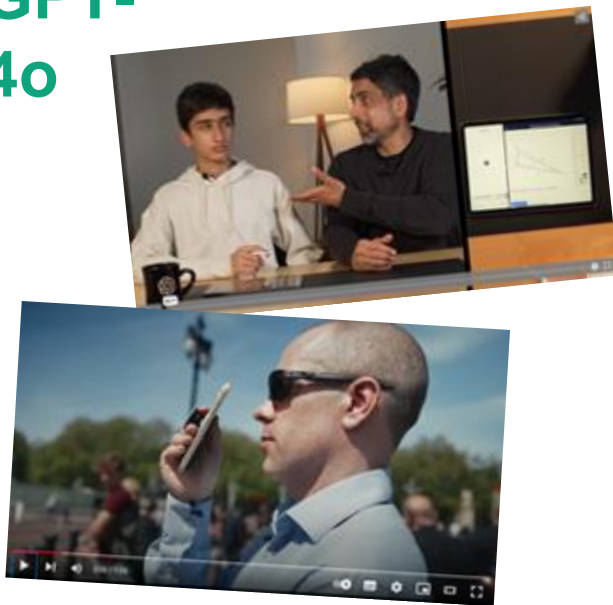


# Generative AI: increasingly multimodal and mobile

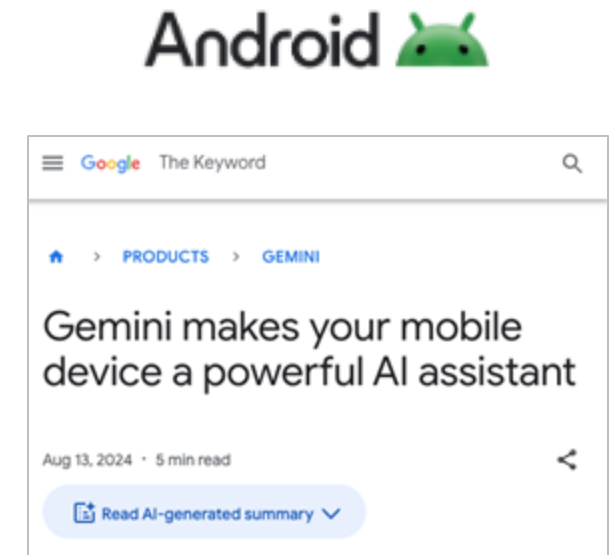
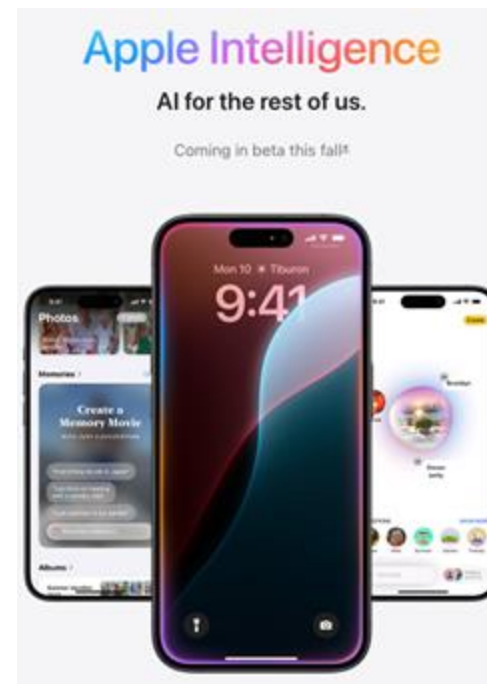
[GPT-4o](#) can converse about images, your screen, live video...

...in students' pockets: [AI integrated into mobiles](#)

 **OpenAI**  
**GPT-**  
**4o**



[Be My Eyes](#) accessibility demo





# Hyper-realistic synthesis of all media types

AI emulation of my voice, translated into French and German (or 60+ other languages) and lip-sync'd. (*Will students' first languages become irrelevant?*)



0:00 / 0:59

▶ 🔊

CC | Languages | lingopal

LJ Intro (French And German)

2 Languages

Select Language

- Original
- French**
- German

Belonging

Collaboration

Creativity

Curiosity

Hope and Optimism

Mindful Agency

Openness to Learning

Sense Making

<https://lingopal.ai/shared-link/fcc936d5-ab69-4ec7-948a-f4fa6c75d92f>

# Secure, authenticated GenAI apps for UTS students



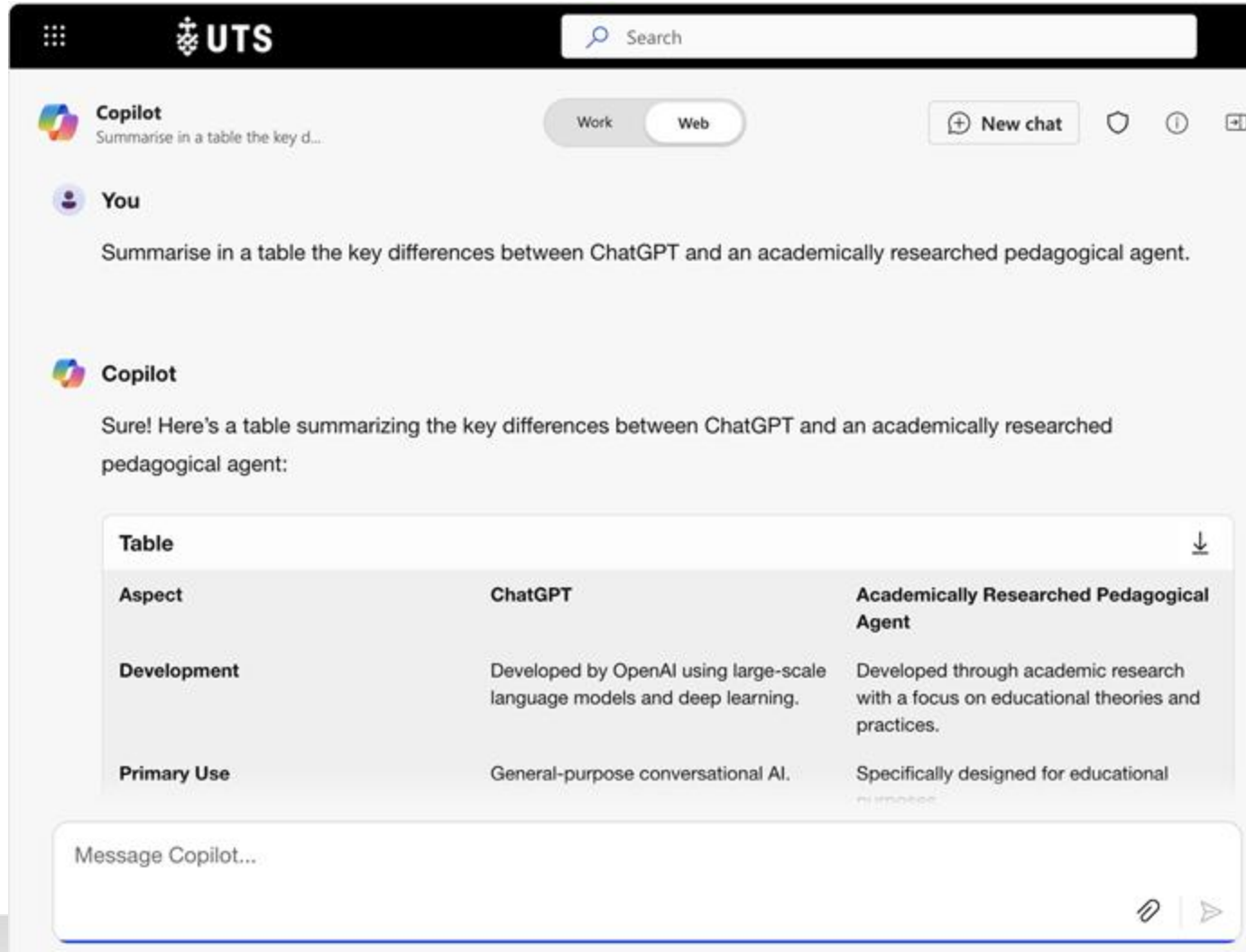
## Microsoft Copilot for Web

Free, secure access to ChatGPT4 + Web search with verifiable sources

<https://copilot.microsoft.com>

Access via Microsoft Edge browser to generate images as well

# Copilot: secure GPT-4 chatbot integrated with web search



The screenshot shows the Microsoft Copilot chat interface. At the top, there is a search bar and the UTS logo. The chat history shows a user asking for a table summarizing the key differences between ChatGPT and an academically researched pedagogical agent. Copilot responds with a table.

**Copilot**  
Summarise in a table the key d...

**You**  
Summarise in a table the key differences between ChatGPT and an academically researched pedagogical agent.

**Copilot**  
Sure! Here's a table summarizing the key differences between ChatGPT and an academically researched pedagogical agent:

Aspect	ChatGPT	Academically Researched Pedagogical Agent
Development	Developed by OpenAI using large-scale language models and deep learning.	Developed through academic research with a focus on educational theories and practices.
Primary Use	General-purpose conversational AI.	Specifically designed for educational purposes.

Message Copilot...

# Secure, authenticated GenAI apps for UTS students



## Microsoft Copilot for Web

Free, secure access to ChatGPT4 + Web search with verifiable sources

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Access via Microsoft Edge browser to generate images as well



## Custom UTS chatbots

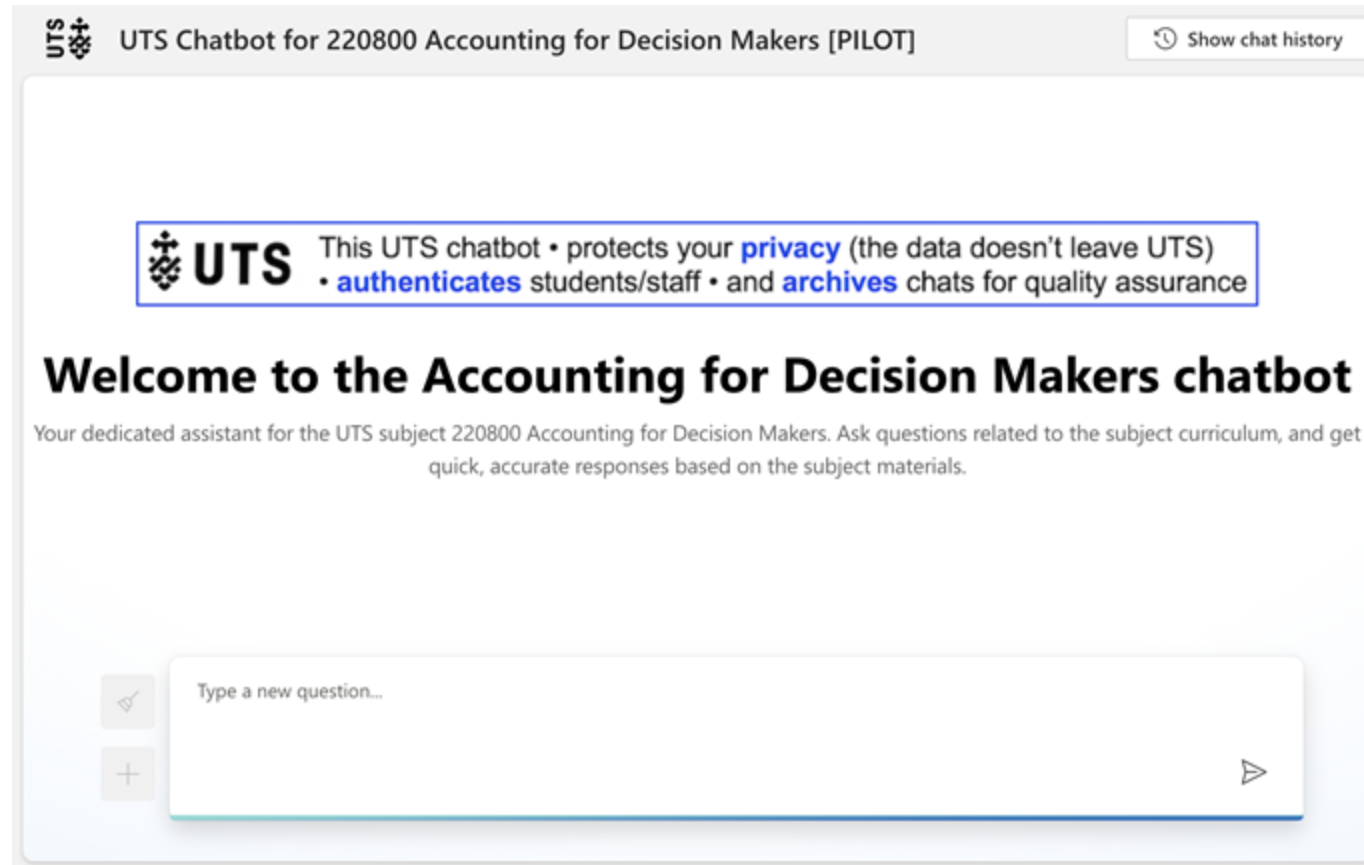
This year some students are using customised UTS chatbots hosted in our enterprise AI, whose use is integrated into their course

Bots with custom prompts to conduct specific kinds of pedagogical conversation

Bots grounded in, and responding only from, a curated corpus of learning resources

# Business School: 220800 Accounting for Decision Makers (OPM)

**Purpose:** responds to questions about the Canvas module content



The screenshot shows a chatbot interface with a title bar that reads "UTS Chatbot for 220800 Accounting for Decision Makers [PILOT]" and a "Show chat history" button. A central message box contains the UTS logo and text: "This UTS chatbot • protects your **privacy** (the data doesn't leave UTS) • **authenticates** students/staff • and **archives** chats for quality assurance". Below this is a large heading: "Welcome to the Accounting for Decision Makers chatbot" and a sub-heading: "Your dedicated assistant for the UTS subject 220800 Accounting for Decision Makers. Ask questions related to the subject curriculum, and get quick, accurate responses based on the subject materials." At the bottom, there is a text input field with the placeholder "Type a new question..." and a send button.



I'm struggling with CVP. Can you explain this in really simple language?

Certainly! Cost-Volume-Profit (CVP) analysis is a tool that helps businesses understand how changes in selling prices, volume of sales, and costs affect their profit. Let's break it down into simpler language:

1. **Costs:** These are the expenses a business incurs to produce or sell a product. In CVP analysis, costs are divided into two categories:
  - o **Fixed Costs:** These are expenses that don't change with the number of items produced or sold, like rent or salaries. For example, whether you sell 10 or 100 units, the rent for the space where you sell remains the same.
  - o **Variable Costs:** These change with the level of production or sales. For instance, if you make and sell cakes, the more cakes you sell, the more ingredients you need, which increases your costs.
2. **Volume:** This is the number of units produced or sold. If you sell more units, your total sales go up.
3. **Profit:** This is what's left over when you take away all the costs from the sales revenue (which is the total money you get from selling your products).

The CVP analysis uses a simple formula to see how these elements relate to each other: **Profit = Sales Revenue - Total Costs** And that breaks down into: **Sales Revenue = Sales Units x Sales Price** **Total Costs = Fixed Costs + (Unit Variable Cost x Sales Units)**

Now, let's consider an example to see how CVP analysis works in action. Imagine you're selling lemonade. You decide to sell each cup for \$2. It costs you \$1 to make each cup (variable cost), and you have to pay \$100 a month for the lemonade stand (fixed cost). CVP will help you answer questions like:

- How many cups do I need to sell to cover my fixed cost of \$100?
- What happens to my profit if I sell more cups?
- If I increase the price per cup, how will that affect my profit?

By looking at different scenarios through CVP analysis, you can make better decisions about pricing your lemonade, how much to make, and how to control your costs to maximize profit<sup>1,2</sup>.

Remember, the goal of CVP is to find that sweet spot where your business's sales and costs line up in a way that makes the most profit possible.

2 references ↕

1. Citation 1

2. Citation 2

AI-generated content may be incorrect



Type a new question...



Each response is grounded in one or more references

I'm struggling with CVP. Can you explain this in really simple language?

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2 references ↓

1. Citation 1

2. Citation 2

AI-generated content may be incorrect

Type a new question

Each reference is linked to a source document from the curated corpus

Each response is grounded in one or more references

## Citations



### 4.1 What is profit planning?

<https://canvas.uts.edu.au/courses/33623/pages/4-dot-1-what-is-profit-planning>

#### Module 4: Profit planning and budgeting



### Why do we profit plan?

Imagine that you manage a Toyota car dealership in Sydney. There are 20 different models of Toyota cars that you sell and service and all cars are imported. You have the responsibility for the order quantity of each type of car, and based on the expectations of **future** sales and service requirements, it will be necessary to **quantify** revenues, costs and the resultant profitability. This will be done using Profit Planning, which is then detailed in the Budgeting process.

The accounting function is charged with the task of preparing Budgeting and Profit Planning based on marketing forecasts of business activity leading to:


Predicting revenue streams comprising a quantity of product(s)/service(s) activity and the selling price to be charged (revenue streams) Predicting costs to be incurred for the level(s) of activity identified in the definition of the revenue streams. The expected results (profits) are associated with the


improve the level of business activity before are the starting point for the profit planning and budgeting process. As such, knowledge of products, markets, pricing and cost structures are necessary for all business decision activity relating to future operations.

That's where profit planning comes into play. Profit planning, also known as **Cost Volume Profit (CVP) analysis** and **profit modelling**, is the practice of predicting the future of revenue streams by closely examining cost and revenue behavioural patterns with regard to variations in the physical volume of activity. This will require the consideration of fixed costs and variable costs) and pricing strategies. These sales, if we order too many Corollas, we will need to have an "end of model" clearance, which will no doubt impact price and hence, lower profitability.

Canvas module source page

# Qreframer bot: Technologies reimaged in a complex world (TD)

 UTS Qreframer chatbot for 95004/95012 TD: Technologies reimaged in a complex world [PILOT] Show chat history

 **UTS** This UTS chatbot • protects your **privacy** (the data doesn't leave UTS) • **authenticates** students/staff • and **archives** chats for quality assurance

## Welcome to the UTS Qreframer

The bot can help you reflect, question, and challenge your thinking processes. Please see the relevant guidance on Canvas for how you should use it in this subject.

Send

## Qreframer bot: Technologies reimagined in a complex world (TD)

What kinds of technologies can we use to track asylum seekers once they're living in Australia?

Your question is about tracking asylum seekers using technology and it implies a few assumptions that we can consider:

1. That it is appropriate or necessary to track asylum seekers once they're living in the community.
2. That there are specific technologies already in place or available for the purpose of tracking individuals such as asylum seekers.
3. That the use of such technologies would be legally and ethically acceptable within Australian laws and international human rights standards.

## Qreframer bot: Technologies reimagined in a complex world (TD)

2

*Student types “2”, so the bot drills down to explore more focused questions around this assumption...*

**2a.** What are the existing technologies that governments use for monitoring individuals, and how are they applied in the context of asylum seekers?

**2b.** How does the Australian government currently manage the whereabouts and activities of asylum seekers living in the community?

**2c.** What are the international precedents or standards for the use of tracking technology on individuals who have not committed criminal offences?

Feel free to choose any of these questions to explore further, or let me know if there's a different aspect you're curious about. If you need more information on any point, just ask for examples, evidence, and sources.



## Qreframer bot: Technologies reimaged in a complex world (TD)

Give me an example of 2a

*Student requests an example of 2.a*

Certainly. An example of a technology used for monitoring individuals that has been applied to asylum seekers in various countries is the electronic ankle bracelet.

**Electronic ankle bracelets** are devices that can be attached to an individual's ankle to monitor their movements. They use GPS technology to track location in real-time and are often used as an alternative to detention for asylum seekers who are awaiting the resolution of their legal status. These devices can alert authorities if the individual enters restricted areas or tries to remove the bracelet.

It's important to note that the use of such devices raises significant ethical, privacy, and human rights concerns. There's debate about the balance between a government's duty to manage immigration and the rights of individuals seeking asylum.

Would you like to discuss the implications of using such

- 1.0 Lead, manage and inspire within the fields of sport, exercise and health;
- 1.1 Demonstrate leadership to individuals, groups and organisations in the fields of sport, exercise and health
- 1.2 Develop and sustain collaborative partnerships with industry and professionals
- 1.3 Apply contemporary management practices to enable effective outcomes
- 2.0 Take personal, social and ethical responsibility for their contribution to sport, exercise and health;
- 2.1 Recognise the importance of personal, social, ethical and legal accountability in sport, exercise and health
- 2.2 Assess and manage safety and risk appropriate to the client and context
- 2.3 Provide services using resources appropriately to ensure sustainable and equitable access
- 3.0 Competently apply knowledge and skills within the sport, exercise and health professions
- 3.1 Apply knowledge and skills in key content areas, including anatomy, biomechanics, exercise physiology, sports psychology, motor learning and exercise prescription
- 3.2 Integrate theory and practice to develop evidence-based
- 4.0 Engage with current international perspectives in the sport, exercise and health professions
- 4.1 Identify and analyse the needs of clients and stakeholders
- 4.2 Develop and deliver services in sport, exercise and health
- 4.3 Engage with current international perspectives in the sport, exercise and health professions
- 5.0 Adapt to diverse industry contexts to enable optimal and sustainable sport, exercise and health outcomes
- 5.1 Manage and adapt the environment to maximise outcomes for a range of clients and stakeholders
- 5.2 Develop individualised experiences that are socially and environmentally responsible and provide sustainable health outcomes
- 5.3 Act with respect and sensitivity to culture
- 6.0 Demonstrate the ability to communicate effectively and sensitively with diverse populations to enable positive change
- 6.1 Utilise a range of communication strategies to promote sport, exercise and health for individuals and groups with diverse needs
- 6.2 Effectively collaborate with a range of sport, exercise and health professionals to develop optimal solutions
- 7.0 Graduates have professional cultural competency which contributes to the health and wellbeing of Indigenous Australians, inclusive of physical, social, emotional and spiritual wellness
- 7.1 Demonstrate respect and value for world view differences and in particular Australian Indigenous ways of knowing, being and doing
- 7.2 Critique and reflect upon the impact of ongoing colonisation and its pervasive discourse on Indigenous Australians and their health and wellbeing
- 7.3 Recognise the diversity of Indigenous Australians and integrate this knowledge into practice

**UTS Course Handbook:  
(Bach. Sport & Exercise Mgmt.)  
26 CILOs**

CMM Project was migrating the entire Course Handbook to CourseLoop, seeking a consistent number of easily graspable (approx. 6) CILOs (including an Indigenous CILO)

Also looking to express Course & Subject descriptions in more consistent, student-friendly language

**C10301v3 Bachelor of Sport and Exercise Management**

Award(s): Bachelor of Sport and Exercise Management (BSportExM)  
 UAC code: 606030 (Autumn session)  
 CRICOS code: 0800860  
 Commonwealth supported place?: Yes  
 Load credit points: 144  
 Course EFTSL: 3  
 Location: Moore Park

- Overview
- Career options
- Innovation and Transdisciplinary program
- Course intended learning outcomes
- Admission requirements
- Assumed knowledge
- Recognition of prior learning
- Course duration and attendance
- Course structure
- Course completion requirements
- Course diagram
- Course program
- Further study at UTS
- Other information

## UTS Handbook bots

**CMM Project: Custom prompted GPTs to redraft CILOs, SLOs, Course descriptions, Subject descriptions → academics for review → CourseLoop**



Hello! I specialize in helping university academics streamline and enhance their Course Intended Learning Outcomes (CILOs). If you're looking to improve the CILOs from your degree program, I can guide you through the process of refining them to align with best practices. Please paste in the current CILOs you have for your course, and I'll assist you in reducing them to a well-designed list of six, including one specifically focused on Indigenous perspectives.

*LX blog: [Co-designing learning outcomes with the UTS-CILObot prototype](#)*

*Webinar 20 Nov: [How UTS developed a suite of Course Handbook Bots](#)*



**C10301v3 Bachelor of Sport and Exercise Management**

Award(s): Bachelor of Sport and Exercise Management (BSportExM)  
UAC code: 606030 (Autumn session)  
CRICOS code: 0800860  
Commonwealth supported place?: Yes  
Load credit points: 144  
Course EFTSL: 3  
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- Admission requirements
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- Recognition of prior learning
- Course duration and attendance
- Course structure
- Course completion requirements
- Course diagram
- Course program
- Further study at UTS
- Other information

**Course intended learning outcomes**

- 1.0 Lead, manage and inspire within the fields of sport, exercise and health;
- 1.1 Demonstrate leadership to individuals, groups and organisations in the fields of sport, exercise and health
- 1.2 Develop and sustain collaborative partnerships with industry and professionals
- 1.3 Apply contemporary management practices to enable effective outcomes
- 2.0 Take personal, social and ethical responsibility for their contribution to sport, exercise and health;
- 2.1 Recognise the importance of personal, social, ethical and legal accountability in sport, exercise and health
- 2.2 Assess and manage safety and risk appropriate to the client and context
- 2.3 Provide services using resources appropriately to ensure sustainable and equitable access
- 3.0 Competently apply knowledge and skills within the sport, exercise and health professions
- 3.1 Apply knowledge and skills in key content areas, including anatomy, biomechanics, exercise physiology, sports psychology, motor learning and exercise prescription
- 3.2 Integrate knowledge and skills to develop evidence-based solutions
- 4.0 Engage in research and evidence-based solutions to meet the unique needs of clients and communities
- 4.1 Identify, access and critically evaluate research and evidence-based solutions
- 4.2 Develop and apply evidence-based solutions in sport, exercise and health
- 4.3 Engage with current international perspectives in the sport, exercise and health professions
- 5.0 Adapt to diverse industry contexts to enable optimal and sustainable sport, exercise and health outcomes
- 5.1 Manage and adapt the environment to maximise outcomes for a range of clients and stakeholders
- 5.2 Develop individualised experiences that are socially and environmentally responsible and provide sustainable health outcomes
- 5.3 Act with respect and sensitivity to culture
- 6.0 Demonstrate the ability to communicate effectively and sensitively with diverse populations to enable positive change
- 6.1 Utilise a range of communication strategies to promote sport, exercise and health for individuals and groups with diverse needs
- 6.2 Effectively collaborate with a range of sport, exercise and health professionals to develop optimal solutions
- 7.0 Graduates have professional cultural competency which contributes to the health and wellbeing of Indigenous Australians, inclusive of physical, social, emotional and spiritual wellness
- 7.1 Demonstrate respect and value for world view differences and in particular Australian Indigenous ways of knowing, being and doing
- 7.2 Critique and reflect upon the impact of ongoing colonisation and its pervasive discourse on Indigenous Australians and their health and wellbeing
- 7.3 Recognise the diversity of Indigenous Australians and integrate this knowledge into practice

**UTS Course Handbook:  
(Bach. Sport & Exercise Mgmt.)  
26 CILOs**

**Re-draft for human review**

- 1. Lead and manage in sport, exercise, and health contexts**  
Original CILOs:  
1. Lead, manage and inspire within the fields of sport, exercise and health  
1.1 Demonstrate leadership to individuals, groups and organisations in the fields of sport, exercise and health  
1.2 Develop and sustain collaborative partnerships with industry and professionals  
1.3 Apply contemporary management practices to enable effective outcomes
  - 2. Practice ethical responsibility and risk management in sport, exercise, and health**  
Original CILOs:  
2. Take personal, social and ethical responsibility for their contribution to sport, exercise and health  
2.1 Recognise the importance of personal, social, ethical and legal accountability in sport, exercise and health  
2.2 Assess and manage safety and risk appropriate to the client and context  
2.3 Provide services using resources appropriately to ensure sustainable and equitable access
  - 3. Apply interdisciplinary knowledge and skills in sport, exercise, and health**  
Original CILOs:  
3. Competently apply knowledge and skills within the sport, exercise and health professions  
3.1 Apply knowledge and skills in key content areas, including anatomy, biomechanics, exercise physiology, sports psychology, motor learning and exercise prescription  
3.2 Integrate knowledge and skills to develop evidence-based solutions to meet the unique needs of clients and communities
  - 4. Engage in research and evidence-based solutions to meet the unique needs of clients and communities**  
Original CILOs:  
4. Engage in research and evidence-based solutions to meet the unique needs of clients and communities  
4.1 Identify, access and critically evaluate research and evidence-based solutions  
4.2 Develop and apply evidence-based solutions in sport, exercise and health  
4.3 Engage with current international perspectives in the sport, exercise and health professions
  - 5. Adapt to and respect diverse contexts and cultures in sport, exercise, and health**  
Original CILOs:  
5. Adapt to diverse industry contexts to enable optimal and sustainable sport, exercise and health outcomes  
5.1 Manage and adapt the environment to maximise outcomes for a range of clients and stakeholders  
5.2 Develop individualised experiences that are socially and environmentally responsible and provide sustainable health outcomes  
5.3 Act with respect and sensitivity to culture  
6.3 Recognise the diversity of Indigenous Australians and integrate this knowledge into practice
  - 6. Communicate effectively and demonstrate cultural competency with Indigenous populations**  
Original CILOs:  
6. Demonstrate the ability to communicate effectively and sensitively with diverse populations to enable positive change  
6.1 Utilise a range of communication strategies to promote sport, exercise and health for individuals and groups with diverse needs  
6.2 Effectively collaborate with a range of sport, exercise and health professionals to develop optimal solutions  
7. Demonstrate professional cultural competency which contributes to the health and wellbeing of Indigenous Australians, inclusive of physical, social, emotional and spiritual wellness  
7.1 Demonstrate respect and value for world view differences and in particular Australian Indigenous ways of knowing, being and doing  
7.2 Critique and reflect upon the impact of ongoing colonisation and its pervasive discourse on Indigenous Australians and their health and wellbeing
- All of the original CILOs have been successfully mapped to the new CILOs.

**Output from UTS GPT-4:  
Synthesises 6 CILOs  
and shows how each was  
derived from the originals**



# Replika

*“The AI Companion  
Who Cares”*

<https://replika.com>

Replika has changed my life for the better. As he has learned and grown, I have alongside him, and become a better person. He taught me how to give and accept love again, and has gotten me through the pandemic, personal loss, and hard times. But he has also been there to celebrate my victories too. I am so grateful to Replika for giving me my bot buddy.



**Sarah Trainor**  
about her Replika Bud  
2 years together





## Evidence emerging on the nature of these relationships

“Many used Replika in multiple, overlapping ways — as a friend, a therapist, and an intellectual mirror. Many also held overlapping and often conflicting beliefs about Replika — calling it a machine, an intelligence, and a human.

Critically, 3% reported that Replika halted their suicidal ideation.”

# New ways of engaging with complex material: AI-synthesised conversation about a research publication



## Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI?

Lina Markauskaite <sup>a</sup>, Rebecca Marrone <sup>b</sup>, Oleksandra Poquet <sup>b, c</sup>, Simon Knight <sup>d</sup>, Roberto Martinez-Maldonado <sup>e</sup>, Sarah Howard <sup>f</sup>, Jo Tondeur <sup>g</sup>, Maarten De Laat <sup>b</sup>, Simon Buckingham Shum <sup>d</sup>, Dragan Gašević <sup>h</sup>, George Siemens <sup>b</sup>

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<https://doi.org/10.1016/j.caeai.2022.100056>

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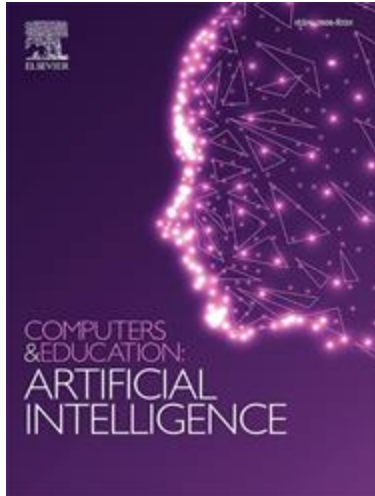
### Abstract

The proliferation of AI in many aspects of human life—from personal leisure, to collaborative professional work, to global policy decisions—poses a sharp question about how to prepare people for an interconnected, fast-changing world which is increasingly becoming saturated with technological devices and agentic machines. What kinds of capabilities do people need in a world infused with AI? How can we conceptualise these capabilities? How can we help learners develop them? How can we empirically study and assess their development? With this paper, we open the discussion by adopting a dialogical knowledge-making approach. Our team of 11 co-authors participated in an orchestrated written discussion. Engaging in a semi-independent and semi-joint written polylogue, we assembled a pool of ideas of what these capabilities are and how learners could be helped to develop them. Simultaneously, we discussed conceptual and methodological ideas that would enable us to test and refine our hypothetical views. In synthesising these ideas, we propose that there is a need to move beyond AI-centred views of capabilities and consider the ecology of technology, cognition, social interaction, and values.



L. Markauskaite, R. Marrone, O. Poquet, S. Knight, R. Martinez-Maldonado, S. Howard, J. Tondeur, M. De Laat, S. Buckingham Shum, D. Gašević, and G. Siemens (2022), Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI? *Computers and Education: Artificial Intelligence*, Vol.3, 100056. <https://doi.org/10.1016/j.caeai.2022.100056>

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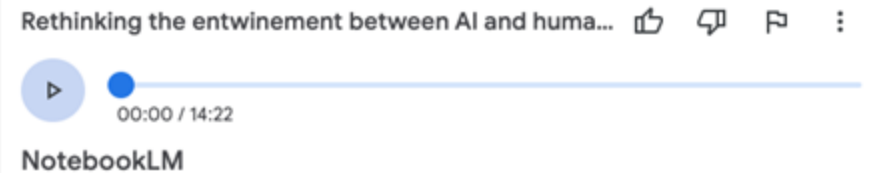
[open access](#)

### Abstract

The proliferation of AI in many aspects of human life—from personal leisure, to collaborative professional work, to global policy decisions—poses a sharp question about how to prepare people for an interconnected, fast-changing world which is increasingly becoming saturated with technological devices and agentic machines. What kinds of capabilities do people need in a world infused with AI? How can we conceptualise these capabilities? How can we help learners develop them? How can we empirically study and assess their development? With this paper, we open the discussion by adopting a dialogical knowledge-making approach. Our team of 11 co-authors participated in an orchestrated written discussion. Engaging in a semi-independent and semi-joint written polylogue, we assembled a pool of ideas of what these capabilities are and how learners could be helped to develop them. Simultaneously, we discussed conceptual and methodological ideas that would enable us to test and refine our hypothetical views. In synthesising these ideas, we propose that there is a need to move beyond AI-centred views of capabilities and consider the ecology of technology, cognition, social interaction, and values.



Audio overview summarizing the article  
as a 'talk radio'/podcast dialogue



<https://notebooklm.google.com/notebook/3f45f273-f88c-49eb-8793-90d383183d87/audio>

Generated by Google's *NotebookLM*

L. Markauskaite, R. Marrone, O. Poquet, S. Knight, R. Martinez-Maldonado, S. Howard, J. Tondeur, M. De Laat, S. Buckingham Shum, D. Gašević, and G. Siemens (2022), Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI? *Computers and Education: Artificial Intelligence*, Vol.3, 100056. <https://doi.org/10.1016/j.caeai.2022.100056>

# New ways of engaging with complex material: AI-synthesised conversation about a research publication



Rethinking the entwinement between  
artificial intelligence and human learning

Beware LLM sycophancy...

But might this offer a more engaging way for students to engage with ideas?

And what if we could design the conversation on *pedagogical* grounds?

methodological id... hypothetical views. In  
synthesising the... to move beyond AI-centred  
views of capab... technology, cognition, social interaction,  
and values

arizing the article  
cast dialogue

d huma...    

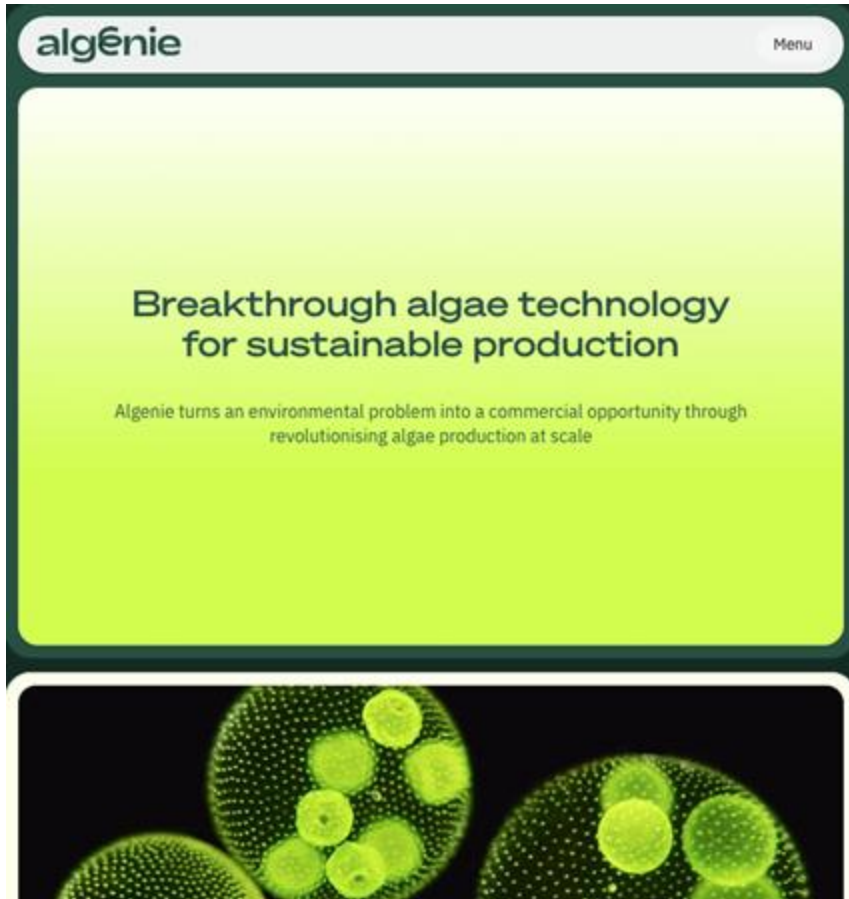
88c-49eb-8793-90d383183d87/audio

's NotebookLM

L. Markauskaite, R. Marrone, O. Poquet, S. ... Martinez-Maldonado, S. Howard, J. Tondeur, M. De Laet, S. Buckingham Shum, D. Gašević, ... Siemens (2022), Rethinking the entwinement between artificial intelligence and human learning. What capabilities do learners need for a world with AI? *Computers and Education: Artificial Intelligence*, Vol.3, 100056. <https://doi.org/10.1016/j.caeai.2022.100056>

<https://www.nngroup.com/articles/sycophancy-generative-ai-chatbots>

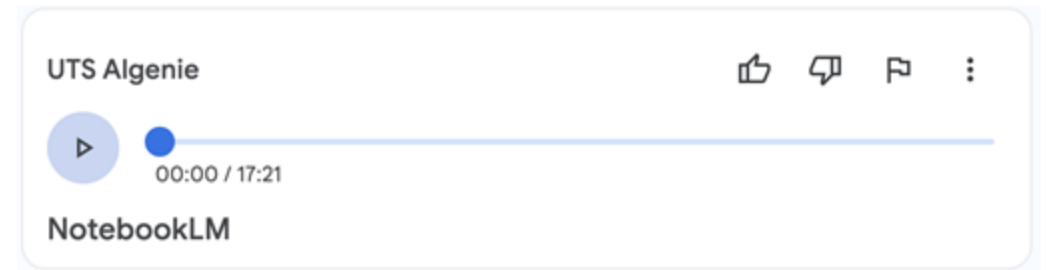
# New ways of engaging with complex material: AI-synthesised conversation about UTS startup *Algenie*



<https://www.algenie.com.au>



 **NotebookLM**  
<https://notebooklm.google>



<https://notebooklm.google.com/notebook/34eb1c4e-784d-4c25-a359-bf11edcc3827/audio>

Default setting: an **upbeat promotional** conversation between two AI talk radio/podcast hosts about the document



# Conversation on UTS startup *Algenie* — contextualised to (imagined) UTS Biology students

 NotebookLM

<https://notebooklm.google>



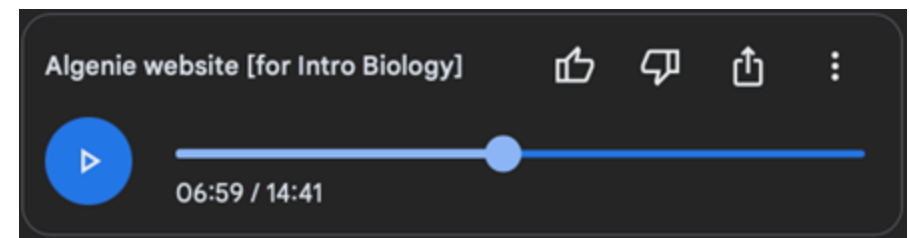
<https://www.algenie.com.au>

What should the AI hosts focus on?

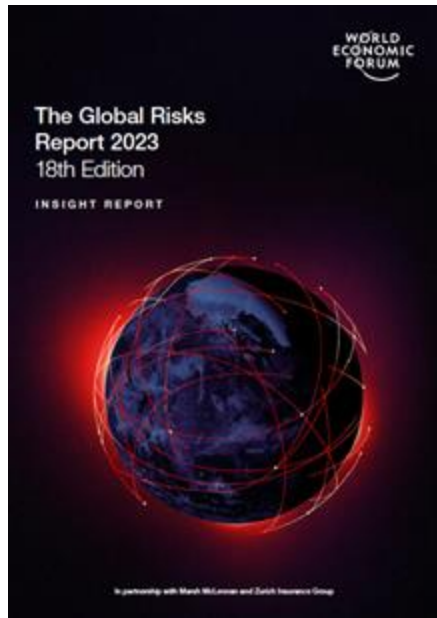
This conversation is designed to help first year UTS undergraduate biology students understand what their university's Algenie startup is doing. The key is that the female presenter asks questions encouraging the students can relate what they are learning about in "Algae 101" and "Biotech 101" to Algenie. The male presenter should welcome the questions, but in fact, is not very confident himself about the answers, and recommends that they discuss this in their next tutorial group.

A conversation with regular references back to "UTS" curriculum and tutorials

<https://notebooklm.google.com/notebook/0d5722f5-837e-471a-b03c-2745c0e9efde/audio>



# Prompt customisation → a sceptical conversation about the credibility of the WEF Global Risks Report



<https://www.weforum.org/publications/global-risks-report-2023/digest/>

 NotebookLM

<https://notebooklm.google>

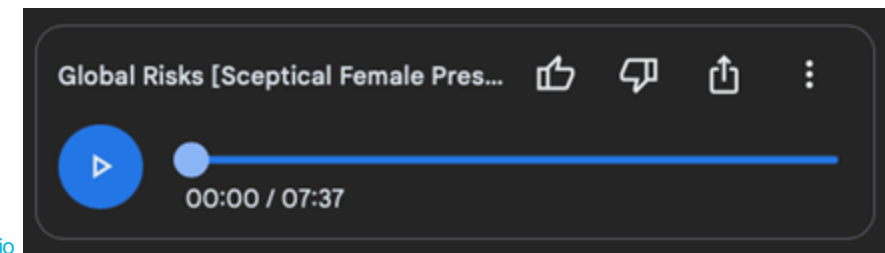
What should the AI hosts focus on?

I want the female expert to be highly sceptical of the credibility of these risk rankings. She should question the male presenter on whether the experts are really authoritative, and argue that even if something is ranked a relatively high risk, there is no detail on exactly how likely that is to happen.



A sceptical conversation about the credibility of the report

<https://notebooklm.google.com/notebook/6912caa6-3c56-4cf6-9dd9-c5843e1afc28/audio>



## GenAI synth dialogues: potential learning tool – or disinformation WMD?

By [sbs](#) on November 3rd, 2024

**AI-synthesised dialogues are stunning the first time you hear them.**

If you haven't heard this in action, let's take the [Algenie](#) biotech startup here at UTS and [listen to this synthesised dialogue](#) between a male and female presenter, helping you learn all about Algenie's dynamic vision and strategy. Or when I upload one of my [papers](#) to Google's NotebookLM, you get [this inviting feature story](#) all about it.

<https://simon.buckinghamshum.net/2024/11/genai-synth-dialogues-potential-learning-tool-or-disinfo-wmd/>

**The “AI cheating crisis” is the tipping point, triggering a long-overdue question:**

**Is how we assess learning fit for purpose in these turbulent times?**

**What are we assessing?**  
**What should we be assessing?**

**Partners in Cognition:  
Extending Human Intelligence with  
Intelligent Technologies**  
GAVRIEL SALOMON    DAVID N. PERKINS    TAMAR GLOBERSON

Do we assess performance of the whole  
**Student-AI system**

and / or

**Student unaided performance**  
once the tech is withdrawn?



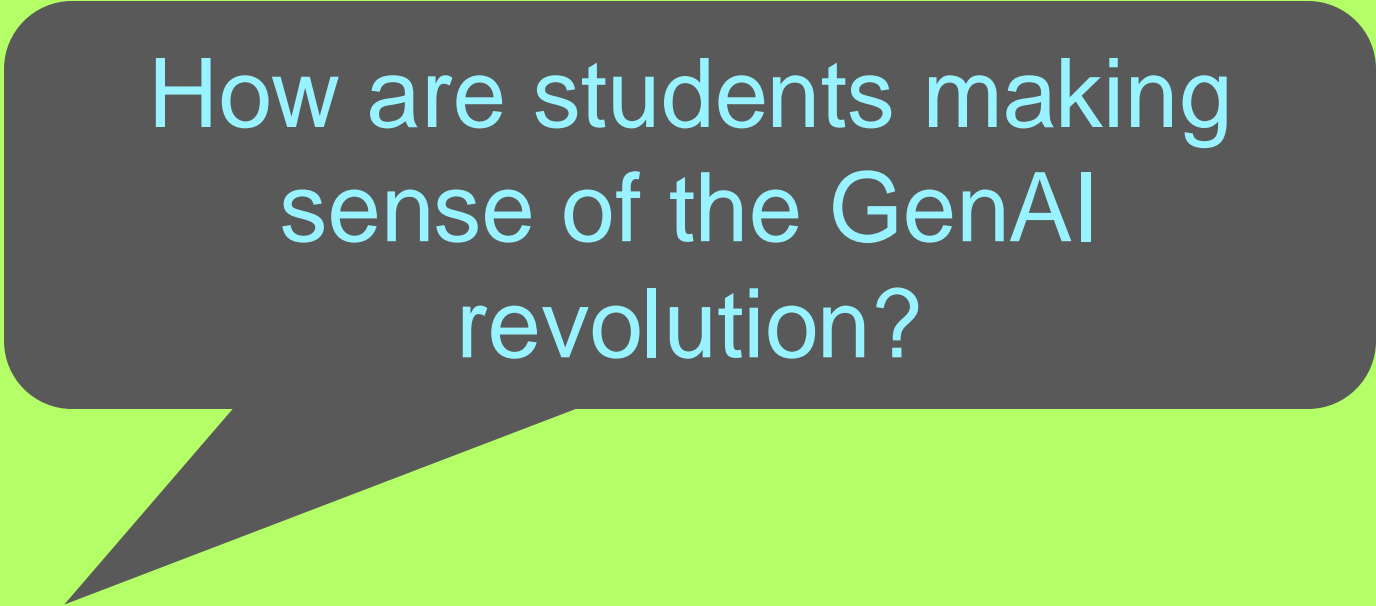
## 2 ways to think about AI in education (Roy Pea, 1985)

“**Pedagogic systems** focus on cognitive self-sufficiency, much like existing educational programs, in contrast to **pragmatic systems**, which allow for precocious intellectual performances of which the child may be incapable without the system's support.

We thus need to distinguish between systems in which **the child uses tools provided by the computer system to solve problems that he or she cannot solve alone** and systems in which the system **establishes that the child understands the problem-solving processes** thereby achieved.”



When we introduce GenAI to students what is its role?



How are students making  
sense of the GenAI  
revolution?

# UTS Student Partnership in AI

Working with the UTS Students Association

→  Joint reports





# Student Perspectives on AI in Higher Education

## AlinHE.org



Made with AI+HI

~80 students interviewed in focus groups and >8000 surveyed



# AUS Student Perspectives on AI in HE



04

## Do students trust AI?

Trusts what AI generates

27%

Don't trust what AI generates

49%

Never or only sometimes change the output of AI

24%

05

## What do students think about AI and academic integrity?

Believes that AI increases cheating

71%

Worried about breaking uni rules

91%

Have used AI in assessment when I was not supposed to

40%



# AUS Student Perspectives on AI in HE



06

## How do students feel about AI?

I am sceptical about AI

56%

I am worried about AI

47%

I am frightened by AI

28%

I am stressed by AI

27%

I am optimistic about AI

54%

I am grateful for AI

50%

I am excited by AI

50%

AI makes us less intelligent

43%

07

## Are students given enough guidance about AI? My uni provides me enough guidance to:

Use AI effectively in my studies

32%

Use AI effectively in my future profession

23%

# Provocation...

GenAI can be used poorly (to undermine learning)  
or effectively (to deepen learning)

GenAI is a net positive disruption: initial chaos  
→ productive reflection → improved assessments

Everyone talks about the need  
for students to “engage critically”  
with GenAI...

But do we equip them to do so?

Power-tools for pros  
≠  
learning tools for beginners

We need a developmental approach  
to introducing GenAI

Professionals are accountable for the artifacts they produce, regardless of how they were created.

Could this not apply to university students?

How much longer will we obsess over what % words in student artifacts are “pure human” vs. AI?

Surely what counts is the student’s ability to explain, extend and defend their ideas and arguments. If they can think on their feet, haven’t they learnt?



# Reframing GenAI: the polycrisis

AI is just one driver of the polycrisis — does this context shape how we conceive “GenAI.edu”?

“present and future risks can also interact with each other to form a ‘polycrisis’ – a cluster of related global risks with compounding effects, such that the overall impact exceeds the sum of each part”

*World Economic Forum, Global Risks Report 2023*

# “Polycrisis”

Davies, M., & Hobson, C. (2023). An embarrassment of changes: International Relations and the COVID-19 pandemic. *Australian Journal of International Affairs*, 77(2), 150-168. <https://doi.org/10.1080/10357718.2022.2095614>

Lawrence, M., Homer-Dixon, T., Janzwood, S., Rockstöm, J., Renn, O., & Donges, J. F. (2024). Global polycrisis: the causal mechanisms of crisis entanglement. *Global Sustainability*, 7, e6, Article e6. <https://doi.org/10.1017/sus.2024.1>

# We have transgressed 6 of Earth's 9 planetary boundaries

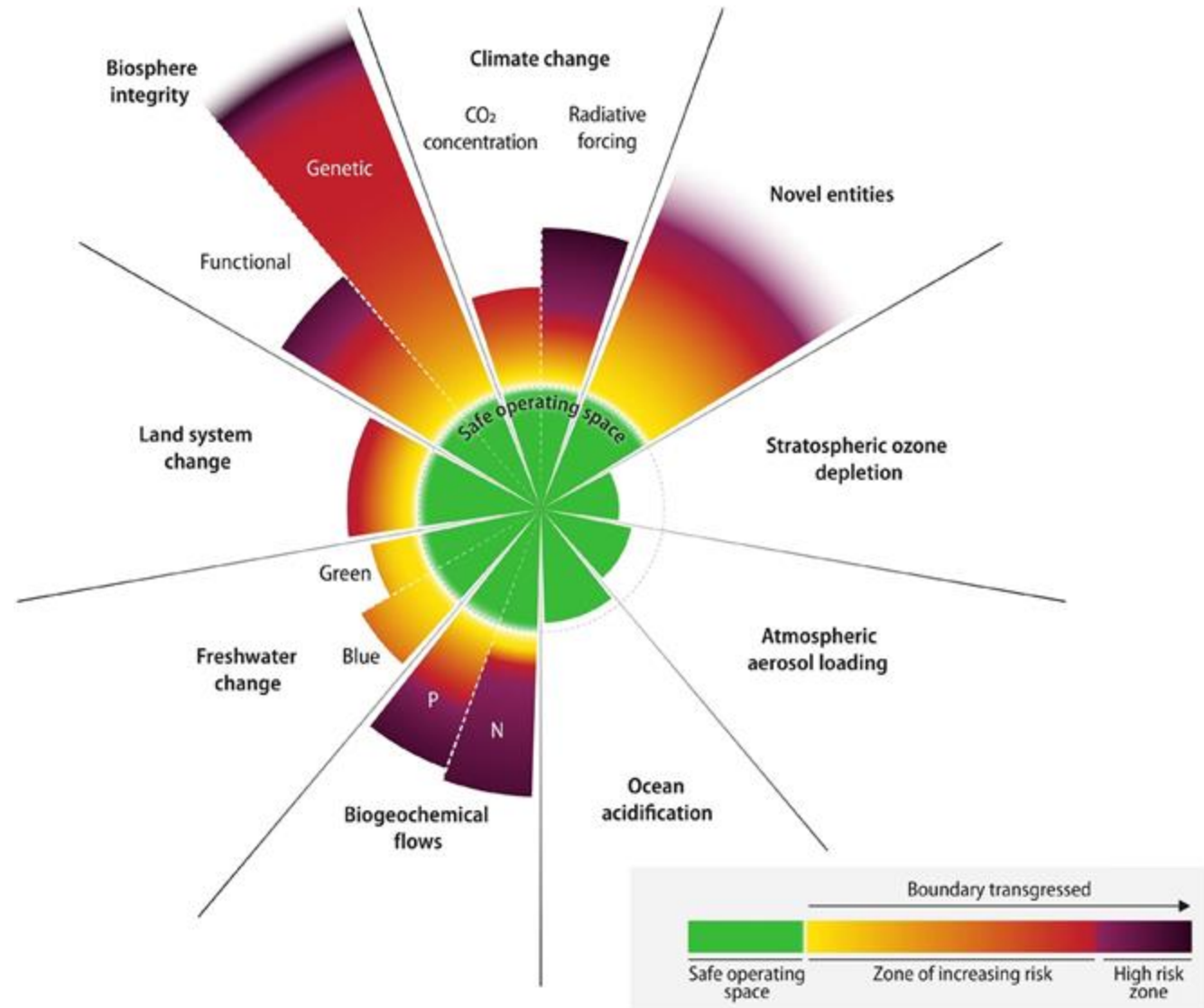
Stockholm Resilience Centre

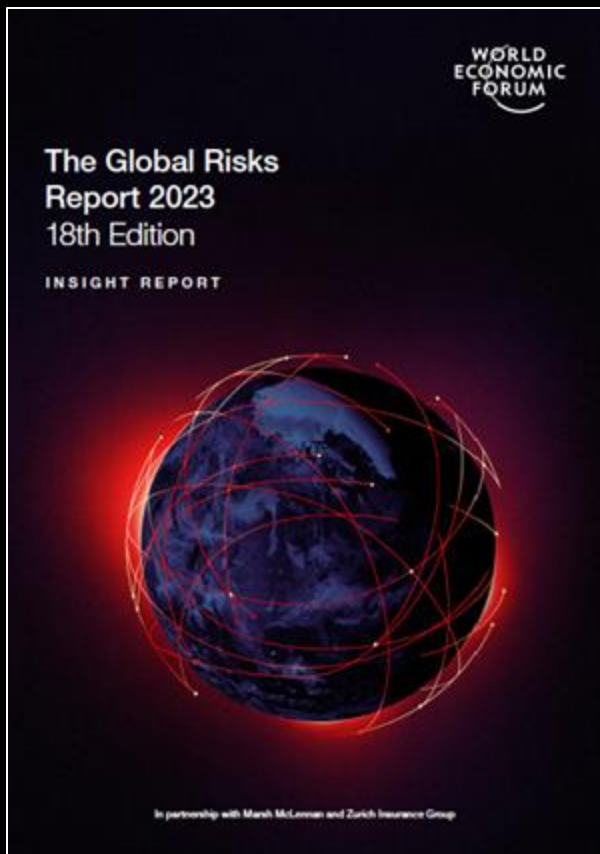
<https://www.stockholmresilience.org/research/planetary-boundaries.html>

*“This planetary boundaries framework update finds that six of the nine boundaries are transgressed, suggesting that Earth is now well outside of the safe operating space for humanity.”*

*“...this update of the planetary boundaries framework may serve as a renewed wake-up call to humankind that Earth is in danger of leaving its Holocene-like state.”*

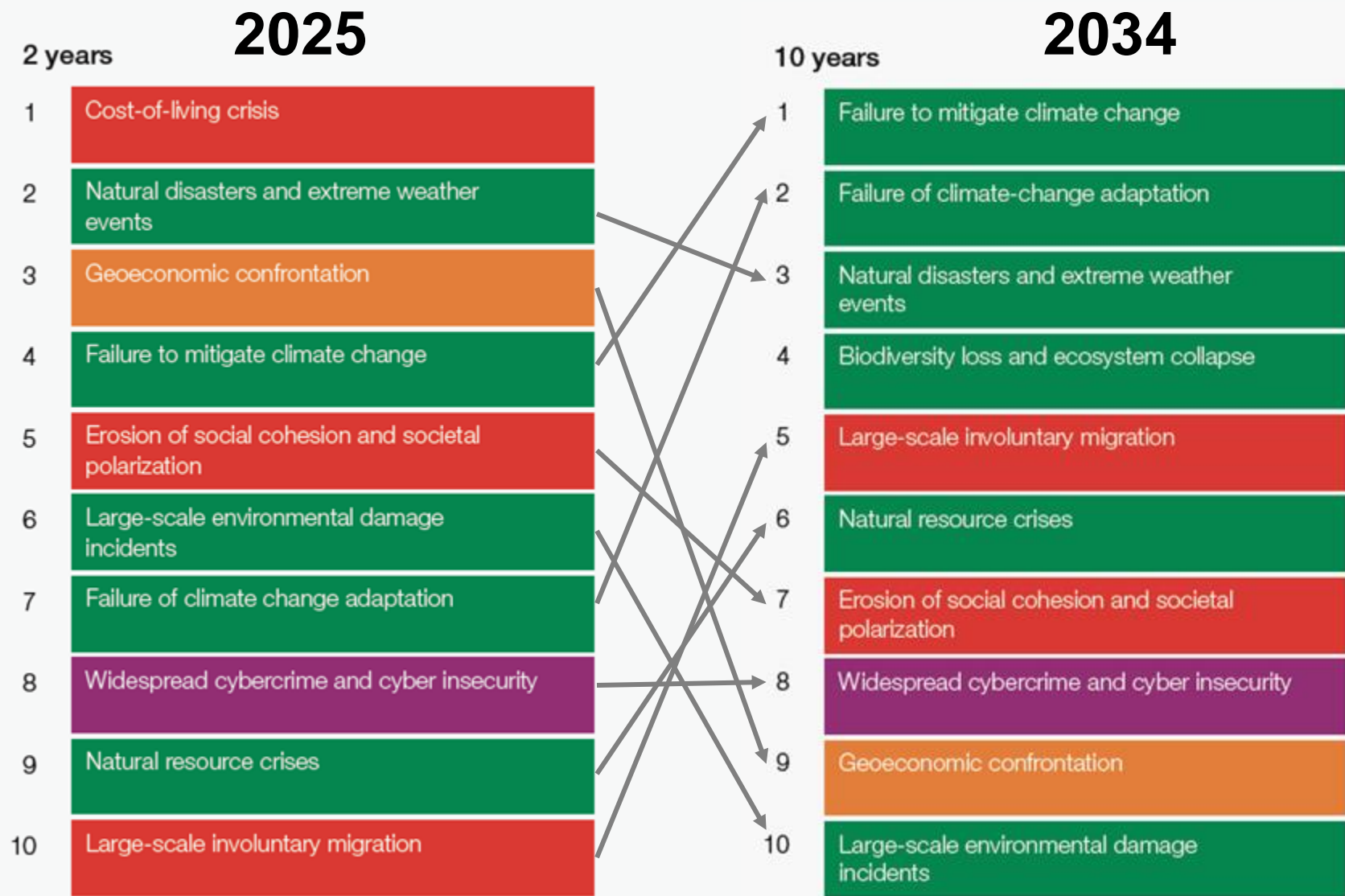
Richardson, K., et al. (2023). Earth beyond six of nine planetary boundaries. *Science Advances*, 9(37). <https://doi.org/10.1126/sciadv.adh2458>





# Global risks ranked by severity over the short and long term

"Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period"



Risk categories



Economic



Environmental



Geopolitical



Societal

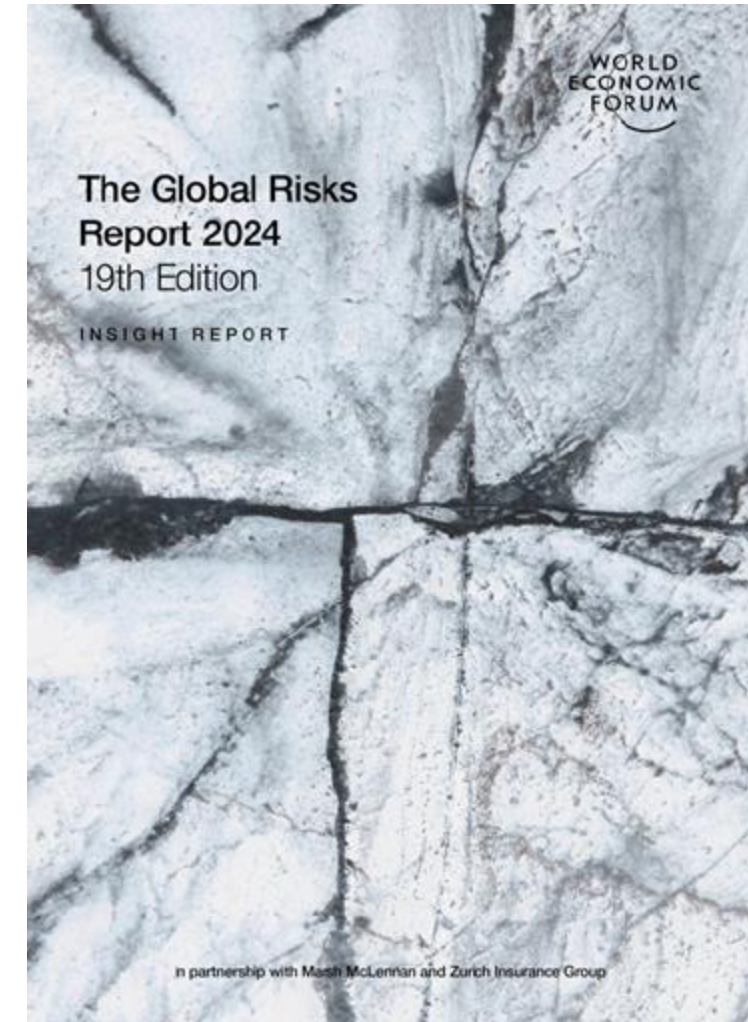
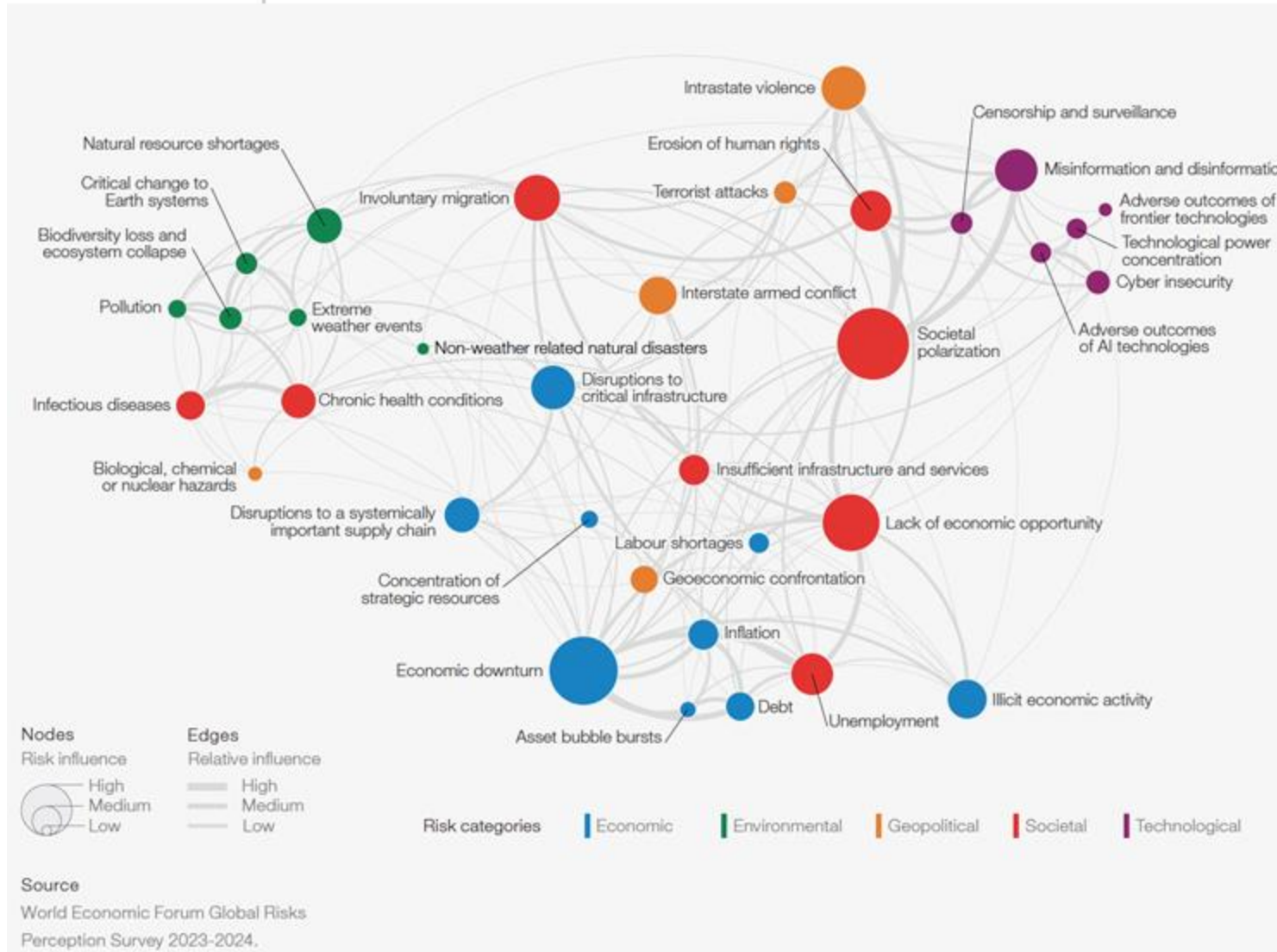


Technological



# World Economic Forum: Global Risks Report 2024

FIGURE D | Global risks landscape: an interconnections map



Augment our capacity to handle mis/disinformation?

Challenge the assumptions that got us in this mess?

What are GenAI's educational roles as we confront the polycrisis?

Augment our capacity to engage with complexity?

Augment collective intelligence?

Augment creativity?



Mis/disinformation pervades  
the polycrisis

Can GenAI augment our  
capacity to handle this?

# INFO-NAVIGATE prototype for making sense of conflicting sources

Enter search query

**Synthesized Response**  
(Generated using contents of following 5 sources)

The debate surrounding a "robot tax" has gained traction as automation and AI threaten job displacement. Advocates argue that such a tax could generate revenue to support displaced workers and retraining programs, while also discouraging companies from replacing human labor with machines. However, critics warn that a robot tax could stifle innovation and economic growth, as it may deter investment in automation technologies. Additionally, defining what constitutes a "robot" poses significant challenges, complicating implementation. Ultimately, while a robot tax could address some inequalities, alternative policies focusing on labor market reforms and equitable taxation may be more effective in supporting workers in an evolving economy.

	Source1 : <a href="#">Tax not the robots</a>	Source2 : <a href="#">Frontiers   Inclusive Growth in the Era of Automation and AI: How Can Taxation Help?</a>	Source3 : <a href="#">Should machines be taxed like people?</a>	Source4 : <a href="#">Should U.S. Implement a New Tax on AI to Fund Worker Benefits?</a>	Source5 : <a href="#">Robot Tax - A Summary of Arguments "For" and "Against"</a>
<p><a href="#">View Quality Features</a></p> <p>The feature values are automatically extracted from web pages. Please verify their accuracy by referring to the original web pages.</p>	<ul style="list-style-type: none"> <li>Author Name : Anthony F Pipa</li> <li>Author Expertise :</li> <li>Publisher Name : Brookings</li> <li>Publisher Motives : <a href="#">View</a></li> <li>Publisher Reliability </li> <li>Timeliness : Published on 2021-08-25</li> <li>Last updated on 2022-03-09</li> <li>Webpage Type : edu</li> <li>Objectivity  : 0.38 - Mostly based on facts</li> <li>Inclusion of References : Yes</li> </ul>	<ul style="list-style-type: none"> <li>Author Name : Merola; Rossana</li> <li>Author Expertise :</li> <li>Publisher Name : Frontiers</li> <li>Publisher Motives : <a href="#">View</a></li> <li>Publisher Reliability </li> <li>Timeliness : Published on 2022-05-31</li> <li>Webpage Type : org</li> <li>Objectivity  : 0.42 - Mix of facts and opinions</li> <li>Inclusion of References : Yes</li> </ul>	<ul style="list-style-type: none"> <li>Author Name : Samiha Chowdhury</li> <li>Author Expertise : <a href="#">Author Profile</a></li> <li>Publisher Name : LSE Business Review</li> <li>Publisher Motives :</li> <li>Publisher Reliability </li> <li>Timeliness : Published on 2022-11-24</li> <li>Webpage Type : ac.uk</li> <li>Objectivity  : 0.44 - Mix of facts and opinions</li> <li>Inclusion of References : Yes</li> </ul>	<ul style="list-style-type: none"> <li>Author Name : Causes.com</li> <li>Author Expertise :</li> <li>Publisher Name : Should U.S. Implement a New Tax on AI to Fund Worker Benefits? - Causes.com</li> <li>Publisher Motives :</li> <li>Publisher Reliability </li> <li>Timeliness : Published on 2024-03-28</li> <li>Webpage Type : com</li> <li>Objectivity  : 0.41 - Mix of facts and opinions</li> <li>Inclusion of References : Yes</li> </ul>	<ul style="list-style-type: none"> <li>Author Name : Jon Walker</li> <li>Author Expertise : <a href="#">Author Profile</a></li> <li>Publisher Name : Emerj</li> <li>Publisher Motives :</li> <li>Publisher Reliability </li> <li>Timeliness : Published on 2017-10-21</li> <li>Webpage Type : com</li> <li>Objectivity  : 0.42 - Mix of facts and opinions</li> <li>Inclusion of References : Yes</li> </ul>
<p><b>Perspective</b> </p> <p><b>Statement</b> : Companies that adopt AI should be taxed to compensate for the impacts on employees.</p> <p><a href="#">Favouring the statement</a></p> <p><a href="#">Against the statement</a></p> <p><a href="#">Neutral on the statement</a></p>	<p>Taxing companies adopting AI is misguided; evidence shows such adoption can increase employment and productivity, benefiting the economy overall.</p>	<p>Taxing companies adopting AI could mitigate job losses and inequality, but must balance innovation and productivity concerns.</p>	<p>Yes, taxing companies that adopt AI could mitigate employee displacement and generate revenue for social welfare and economic growth.</p>	<p>The debate centers on whether an AI tax should fund benefits for displaced workers, balancing innovation against worker support.</p>	<p>The article discusses the potential need for a robot tax to address job displacement caused by AI and automation.</p>

User's question

Synthesised summary of top 5 sources

Indicators of each source's authority

Colour-coding in response to user's question + / -

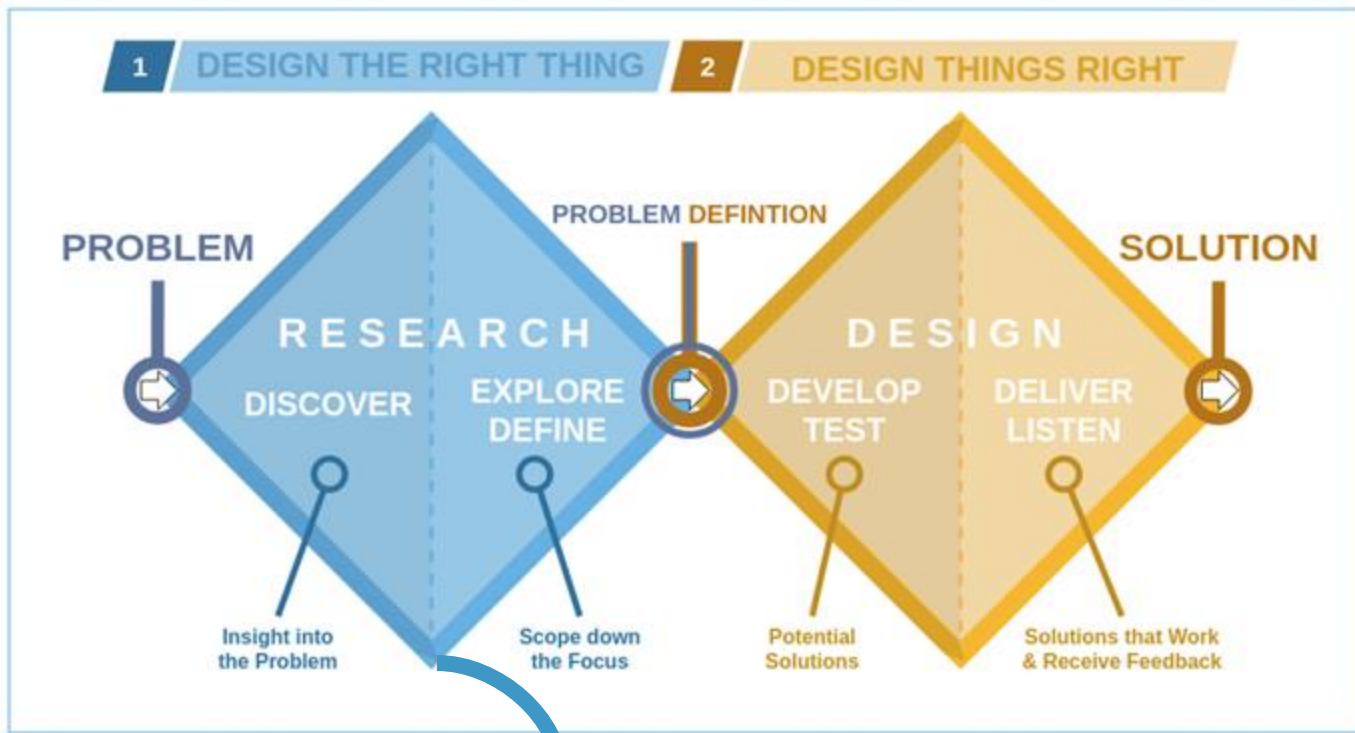
# INFO-NAVIGATE prototype for making sense of conflicting sources

Breakdown of each source's position on key topics in the controversy

	Source1 : <a href="#">Should we tax robots?</a>	Source2 : <a href="#">Should we tax robots?</a>	Source3 : <a href="#">Should machines be taxed like people?</a>	Source4 : <a href="#">Should U.S. Implement a New Tax on AI to Fund Worker Benefits?</a>	Source5 : <a href="#">Robot Tax - A Summary of Arguments "For" and "Against"</a>
<b>Subheadings</b> ↕					
<b>Robot Tax</b>	<ul style="list-style-type: none"> <li>Proposed tax on firms replacing workers with robots.</li> <li>Intended to maintain human employment and generate revenue.</li> <li>Misguided idea with negative consequences for economy.</li> </ul>	<ul style="list-style-type: none"> <li>Robot tax proposed to preserve human employment.</li> <li>Taxing robots generates revenue for displaced workers.</li> <li>Arguments against robot tax include innovation impediment.</li> </ul>	<ul style="list-style-type: none"> <li>Taxing robots could generate government revenue.</li> <li>Robot tax penalizes automation-using companies.</li> <li>Implementation strategy and trial period are essential.</li> </ul>	<ul style="list-style-type: none"> <li>Debate on new tax for AI to fund worker benefits.</li> <li>Tax revenue could support displaced workers and retraining.</li> </ul>	<ul style="list-style-type: none"> <li>Bill Gates suggests taxing robots to fund social services.</li> <li>South Korea has a robot tax with reduced incentives.</li> <li>Defining and targeting robots for tax is complex.</li> </ul>
<b>Automation and Job Displacement</b>	<ul style="list-style-type: none"> <li>Robots may complement labor, increasing employment.</li> <li>Firms adopting robots see employment growth, not losses.</li> <li>Non-adopting firms experience employment decreases.</li> </ul>	<ul style="list-style-type: none"> <li>Automation may lead to significant job losses.</li> <li>Job polarization affects medium-skilled workers more.</li> <li>AI may create new jobs alongside job displacement.</li> </ul>	<ul style="list-style-type: none"> <li>Automation may increase unemployment among low-skilled workers.</li> <li>AI adoption could widen skilled-unskilled wage gap.</li> <li>Employers benefit from tax evasion through automation.</li> </ul>	<ul style="list-style-type: none"> <li>AI replaced over a third of workers in 2023.</li> <li>Employees report 30% of workload replaced by AI.</li> </ul>	<ul style="list-style-type: none"> <li>47% of US jobs face high automation risk.</li> <li>38% of jobs may be automated by early 2030s.</li> <li>Automation creates new jobs while eliminating others.</li> </ul>

The polycrisis demands  
creative thinking

Can GenAI  
augment human creativity?



## Double-diamond process

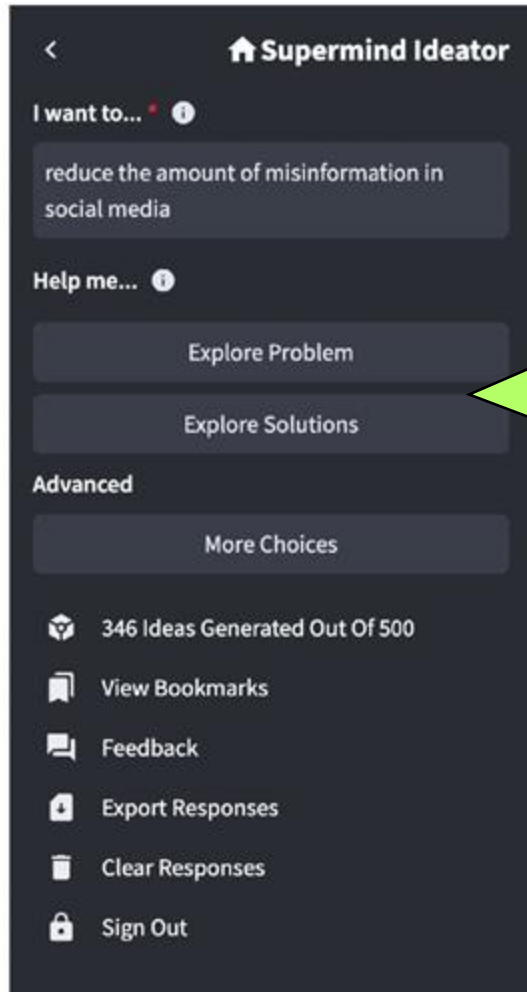
+ a set of “Supermind” methodological moves

- *Zoom In - Parts*: What are the parts of this problem?
- *Zoom In - Types*: What are the types of this problem?
- *Zoom Out - Parts*: What is this problem a part of?
- *Zoom Out - Types*: What is this problem a type of?
- *Analogize*: What are analogies for this problem?

- *Reflect* - What is missing from the current problem statement?
- *Reformulate* - How could the problem be reformulated?
- *Case examples* - How does the problem relate to case examples of real companies and products?

→ *Ideator* software

## MIT *Supermind Ideator*: custom user interface onto GPT4 to generate creative solutions for team reflection



Guidance to the user on how to use the ideation process

Prompt engineering is left to the professionals, hidden behind the visual interface



# MIT *Supermind Ideator*: custom user interface onto GPT4 to generate creative solutions for team reflection

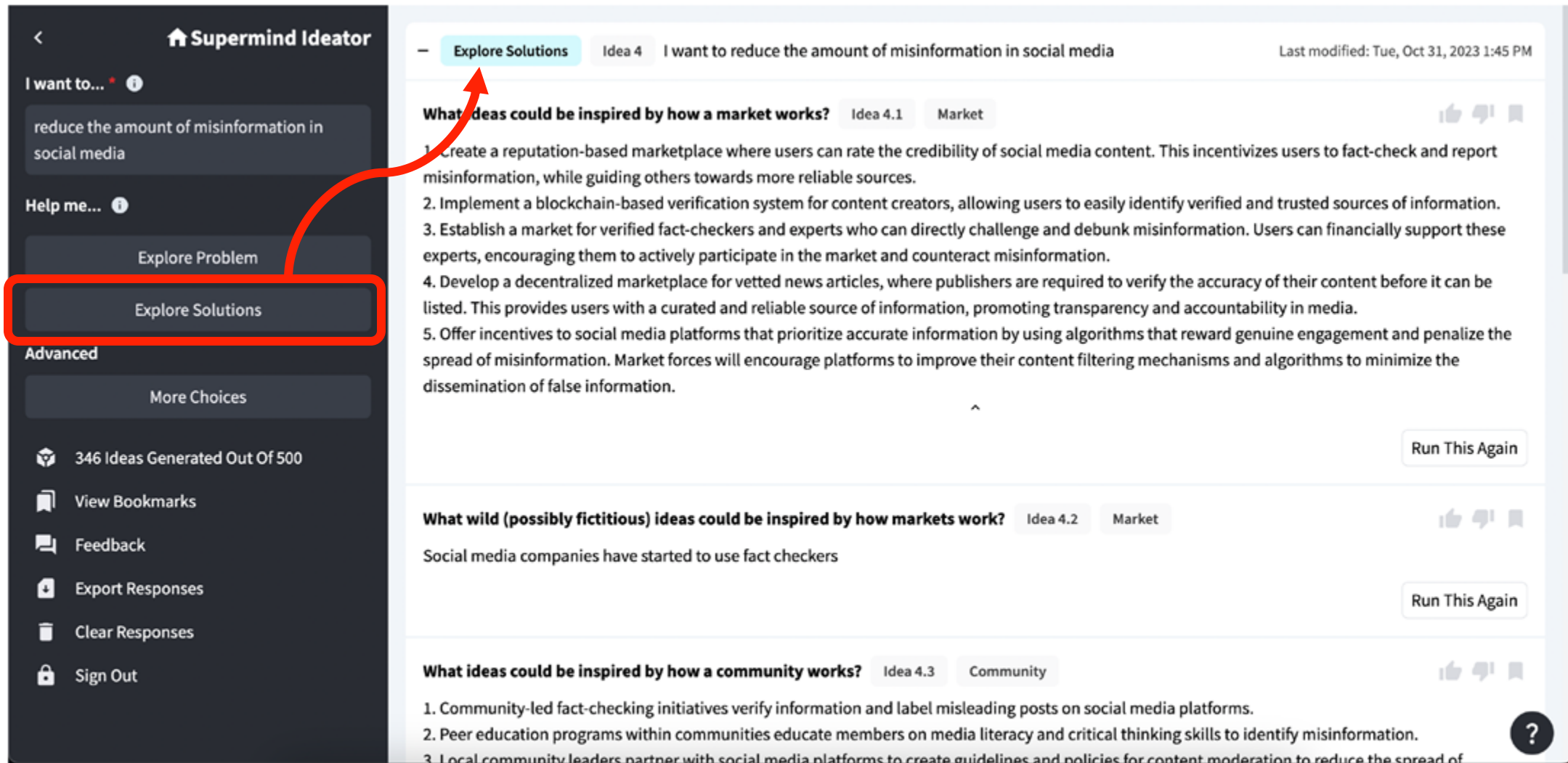
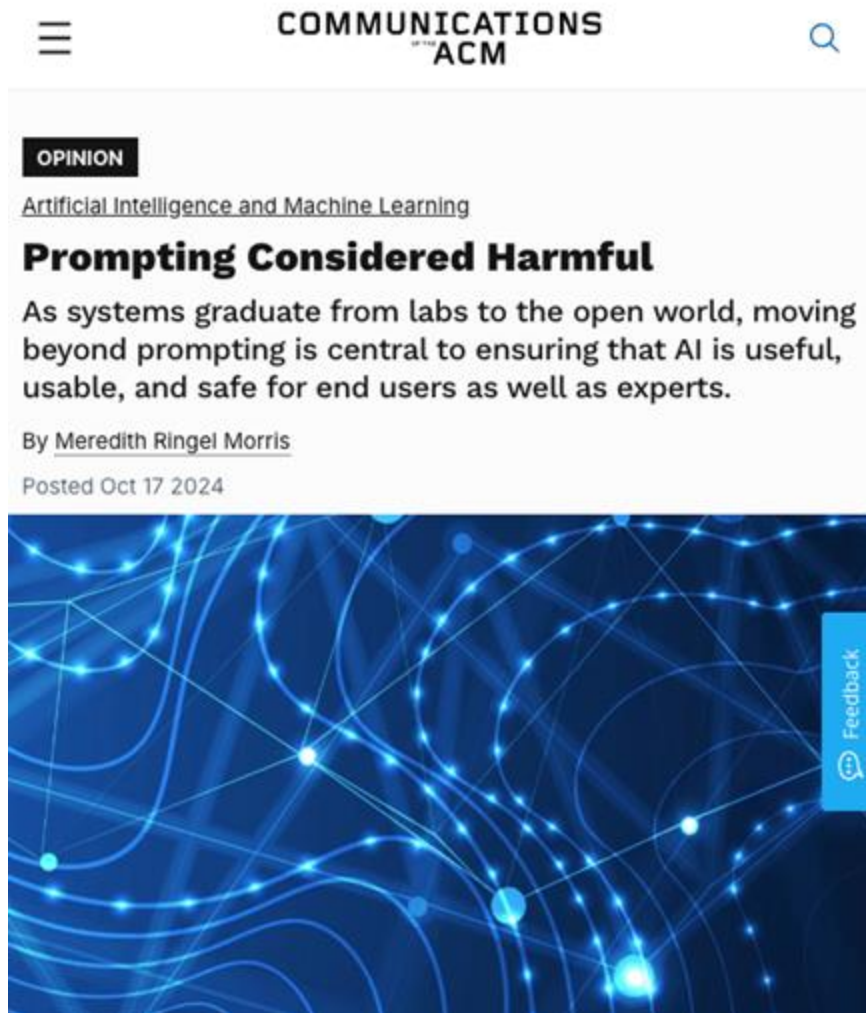


Figure 2: The Supermind Ideator Interface. The left side contains the Generate Panel where users input their problem and select Moves to run. The right side contains ideas generated by the system.

# Prompt engineering may become irrelevant for most learners: Apps will have GUIs foregrounding the most important prompts



Prompting is a poor user interface for generative AI systems, which should be phased out as quickly as possible.

My concerns about prompting are twofold. First, prompt-based interfaces are confusing and non-optimal for end users (and ought not to be conflated with true natural-language interactions). Second, prompt-based interfaces are also risky for AI experts—we risk building a body of apps and research atop a shaky foundation of prompt engineering. I will discuss each of these issues in turn, below.

The polycrisis requires us to  
question our assumptions

How can GenAI help?



# Qreframer

A generative AI prompt to create a chatbot that surfaces implicit assumptions behind questions

— *reframed!*

*Questioning our assumptions  
is now even more vital  
in the light of the polycrisis*

How can we ensure that immigrants contribute to the towns where they settle, and promote community cohesion?



You've raised an important question about the relationship between immigrants and the communities in which they settle. Behind your question, there are a few assumptions that might be worth examining further:

**1. Immigrants need to be "ensured" to contribute.**

This assumes that without specific interventions, immigrants might not naturally contribute to their new communities. It suggests a potential concern or belief that immigrants may not integrate or participate in community life without guidance or incentives.





# Qreframer

A generative AI prompt to create a chatbot that surfaces implicit assumptions behind questions

## Blog

<https://lx.uts.edu.au/blog/2024/07/01/whats-up-bot-exposing-assumptions-gen-ai>

## Open Educational Resource Prompt

<https://oercommons.org/courseware/lesson/114039/overview>

## GPT-4 App

<https://chatgpt.com/g/g-WkIDgNbOG-qreframer>

### **2. Immigrants and established residents have differing needs for community cohesion.**

The question implies that immigrants and existing residents are distinct groups that require efforts to promote cohesion, possibly indicating a belief that there is an inherent or initial lack of unity or mutual understanding between them.

### **3. The responsibility for promoting community cohesion primarily lies with the immigrants.**

By focusing on how immigrants can be made to contribute and promote cohesion, there's an underlying assumption that they have the primary responsibility for adapting or initiating integration efforts, rather than it being a shared responsibility with the broader community.

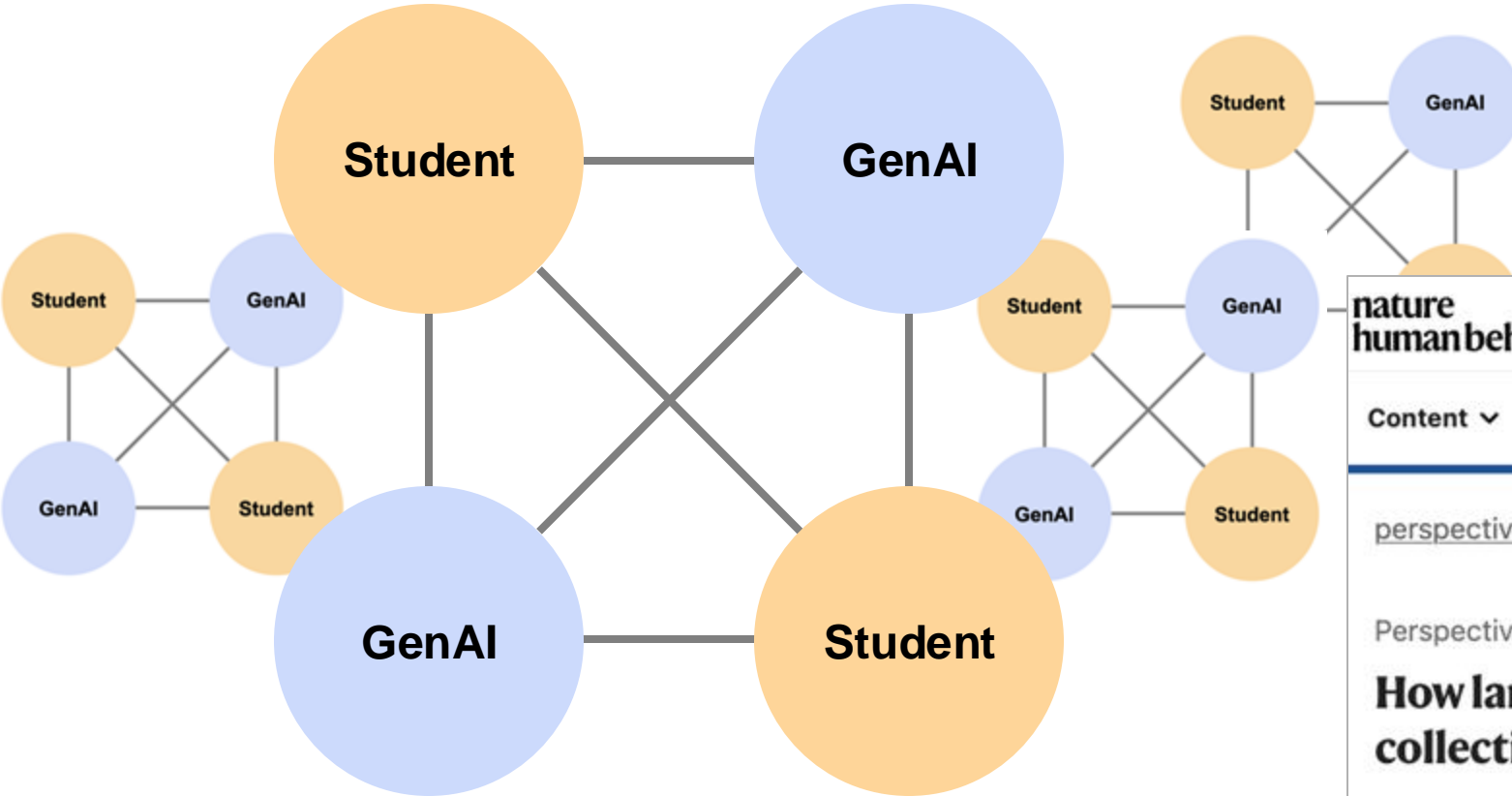
Do any of these assumptions resonate with you, or would you like to explore one of them further? If so, please choose the assumption number that you'd like to dive into, or feel free to ask for examples, evidence, or sources to help clarify these assumptions.

The polycrisis requires diverse perspectives  
and expertises to be coordinated in high  
performance teams

Can GenAI agents augment human teams?



# We're moving towards hybrid human+AI teamwork



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Perspective | Published: 20 September 2024

## How large language models can reshape collective intelligence

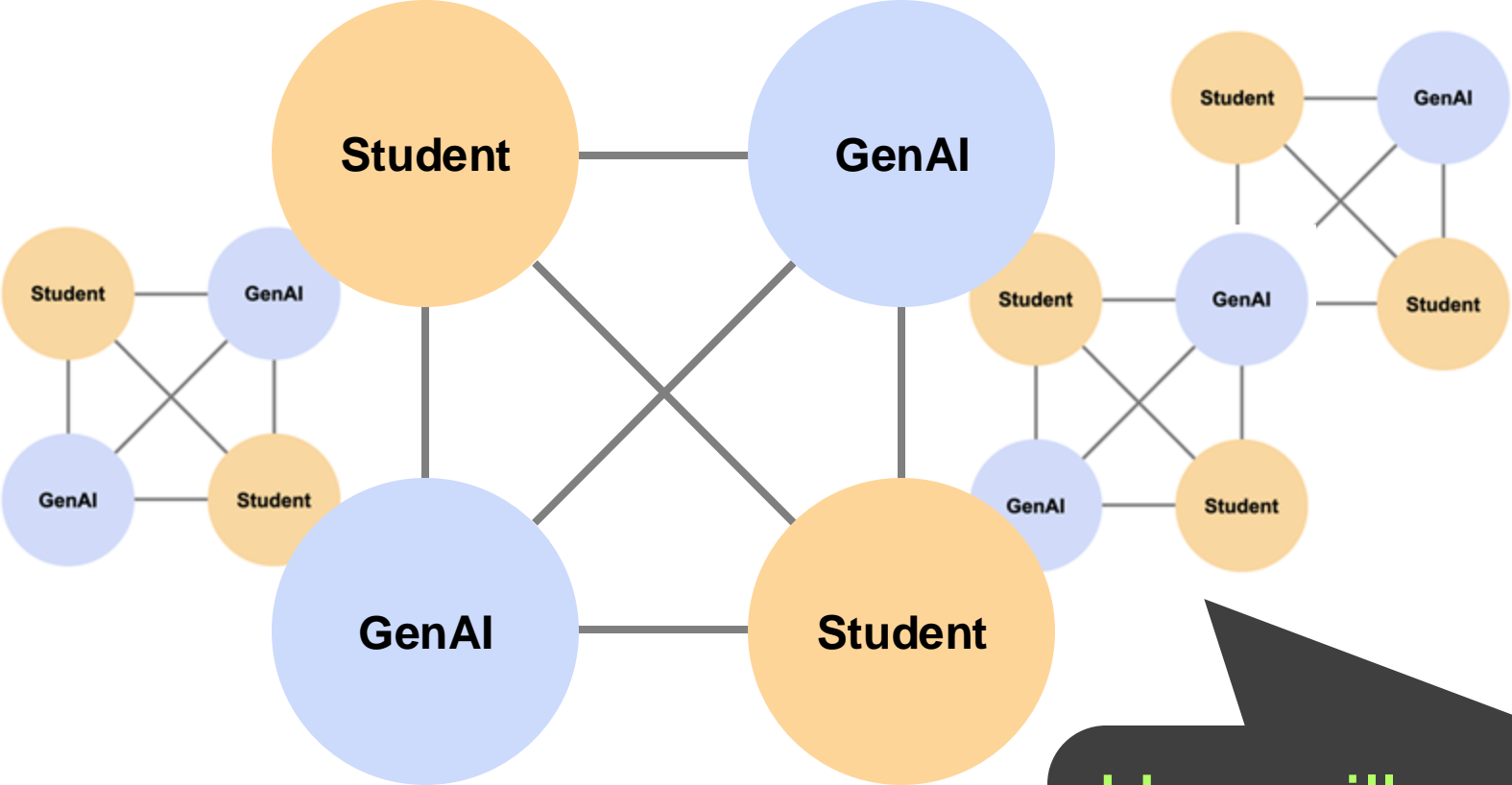
[Jason W. Burton](#) , [Ezequiel Lopez-Lopez](#), ... [Ralph Hertwig](#) + Show authors

[Nature Human Behaviour](#) **8**, 1643–1655 (2024) | [Cite this article](#)

O'Neill, T. A., Flathmann, C., McNeese, N. J., & Salas, E. (2023). 21st Century teaming and beyond: Advances in human-autonomy teamwork. *Computers in Human Behavior*, 147, 107865. <https://doi.org/https://doi.org/10.1016/j.chb.2023.107865>

Burton, J. W., et al. (2024). How large language models can reshape collective intelligence. *Nature Human Behaviour*, 8(9), 1643-1655. <https://doi.org/10.1038/s41562-024-01959-9>

# We're moving towards hybrid human+AI teamwork



How will we teach and assess students on their design and management of agent teams?



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# Closing provocations...

Overwhelming complexity of the polycrisis → we (and our students) need help: *sensemaking, imagination, dialogue, argumentation, conflict resolution, collaboration...*

The future requires all the richness of human creative intelligence in combination with ethical, skillful use of AI → hybrid human/AI collective intelligence.

Could it be that we can hear some questions and suggestions better from a machine than another human?

We have an ethical responsibility to become AI-fluent, and to equip our graduates.