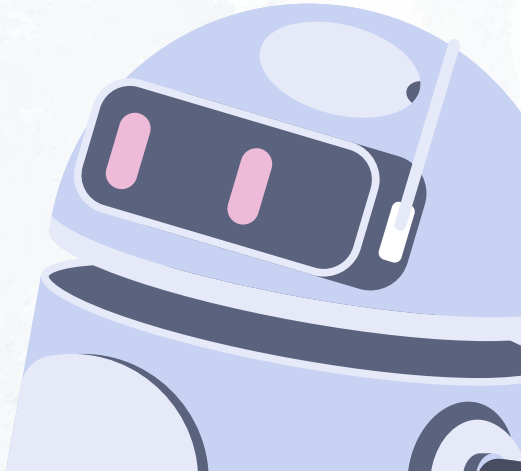
Recommendations for GenAI Boundaries in Teaching & Learning Practice



Outline of Presentation

01 → The Cognitive Labour We Shouldn’t Outsource to GenAI (Dylan)

02 → Key Student Capabilities (Angie)

03 → Bridging Minds: The Human Touch in an AI-Driven Education (Sally)

04 → Balancing AI & Human Mentorship to Enhance Learning (Hajrah)

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06 → AI as a tool for marking assessments (Oscar)

01 →

The Cognitive Labour We Shouldn’t Outsource to GenAI

Dylan

The Cognitive Labour we Shouldn’t Outsource to GenAI

- Guided by the educational goals of the course/class, there are types of cognitive labour that GenAI can replace but shouldn't
- For example, writing in most areas of study plays a larger role than just document creation - the process enacts our skills to think critically, analytically, reflectively, and be expressive and persuasive
- When this process is outsourced to GenAI, the development of this skills is lost
- There are less obvious ways using GenAI inhibits skill acquisition across disciplines

The Cognitive Labour we Shouldn’t Outsource to GenAI

“We study the impact of generative AI on human learning in the context of math classes at a high school… Consistent with prior work, our results show that access to GPT-4 significantly improves performance. However, we additionally find that when access is subsequently taken away, students actually perform worse than those who never had access. That is, access to GPT-4 can harm educational outcomes”

“Our results suggest that students attempt to use GPT-4 as a “crutch” during practice problem sessions, and when successful, perform worse on their own. Thus, to maintain long-term productivity, we must be cautious when deploying generative AI to ensure humans continue to learn critical skills.”

Bastani, Hamsa and Bastani, Osbert and Sungu, Alp and Ge, Haosen and Kabakcı, Özge and Mariman, Rei. “Generative AI Can Harm Learning” (July 15, 2024). The Wharton School Research Paper, http://dx.doi.org/10.2139/ssrn.4895486

The Cognitive Labour we Shouldn’t Outsource to GenAI

- In general, the types of cognitive labour that shouldn’t be replaced vary across area of study as determined by the educational goals of that area
- This idea illustrates our broader perspective that the goals and values of education are prior to the capabilities of GenAI
- Therefore, GenAI crosses boundaries when it replaces types of cognitive labour and skill acquisition that are relevant to a given course/discipline’s educational goals

02 →

AI's Dual Impact on Key Student Capabilities

Angie

AI's Dual Impact on Key Student Skills:

Enhancement

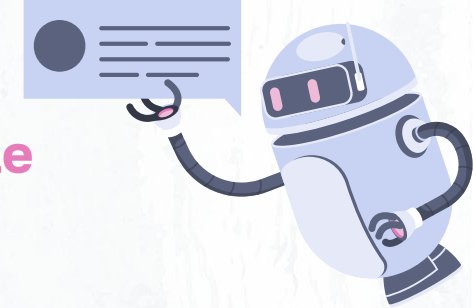
AI can help students complete tasks more efficiently by offering data, suggestions, and resources. It supports brainstorming, enhances language skills, provides instant feedback, and assists in logical analysis.

VS.

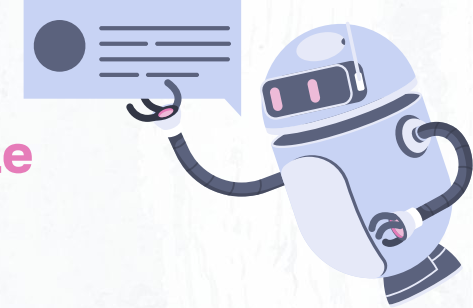
Over-Reliance

Over-relying on AI can hinder students' development of critical skills, potentially leading to skill degradation. AI lacks emotions, ethical judgment and creativity. If students rely solely on it for assignments, it may impair their critical thinking and independence.

Key Skills Enhanced by AI but Not Fully Replaceable



- **Professional skill:** AI supports learning technical knowledge, but hands-on experience and independent application are essential.
- **Critical thinking skills:** AI provides data and perspectives, but true analysis and independent judgment need active engagement.
- **Ethics/judgement:** Data-driven AI lacks empathy and context; ethical decisions require human values.



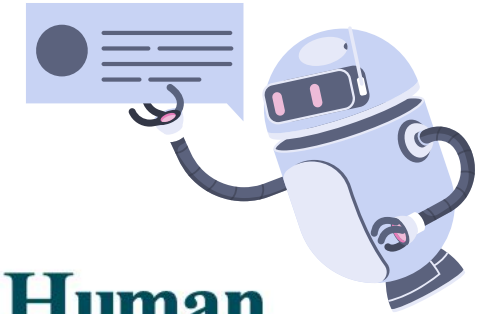
Key Skills Enhanced by AI but Not Fully Replaceable

- **Communication skills (written and verbal):** AI can draft and edit text, but effective communication requires a personal touch. Verbal skills need emotional expression, non-verbal cues, and real-time interaction that AI cannot replicate.
- **Language learning skills:** For Non-native English speakers, AI aids translation, but language fluency and cultural nuances come from immersion.

AI-supported language learning tutorials specifically tailored for non-native English-speaking students ❓

03 →

Bridging Minds: The Human Touch in an AI-Driven Education



Sally

AI in Education: The Power of Human Touch

- AI enhances learning through personalised feedback and efficiently but lacks **emotional intelligence** and human understanding.

- Real world skills - **problem-solving**, **collaboration**, **leadership**, and **communication** - are developed through human interaction, not AI-driven solutions

- University acts as a **bridge** between education, work, and adult life where interpersonal relationship foster essential professional and social skills.

Beyond AI: The Human Edge in University Life

- Example: In group projects, students **learn compromise, negotiation, and teamwork** through interaction, not AI.

- Soft skills like **leadership**, **time management**, and **emotional intelligence** are nurtured through hands-on experiences that AI cannot replicate.
- While AI can support education, the **university experience** is critical for preparing students to navigate the complexities of real-world environments through human connection.

04 →

Balancing AI & Human Mentorship to Enhance Learning

Hajrah

AI as a Foundational Tool

✅ What it Should Do:

- Help students grasp **basic concepts** as starting point which educators can expand upon through **in-depth discussions**
- Provide **diverse resources** to spark **curiosity** and prompt students to ask questions and seek more knowledge
- Provide **personalised learning** that supports a student’s need where a traditional teaching method couldn’t

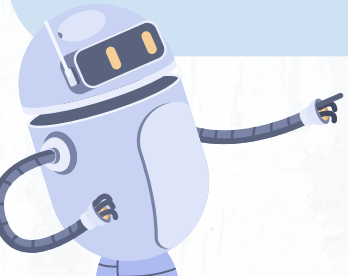
❌ What it Shouldn’t Do:

- Replace **human mentorship** as it cannot provide the **human insight** needed for personalised guidance
- Shouldn't encourage **passive consumption of information**, students should actively engage
- Be the **sole provider of information**. Over-reliance can discourage student’s developing skills which are enhanced through **human interaction**

Key Recommendations

Define AI Use Guidelines

Set clear roles for GenAI in learning—support for basic research, but not in critical analysis.



Promote Active Engagement in Assessments

Update assessments to require AI critique, comparison to human insights, or simulated dialogues for deeper understanding.

Adopt a Flipped Classroom Model

Use AI for preliminary learning, reserving class time for human-led discussion, problem-solving, and collaboration.

Strengthen AI Literacy & Ethics Training

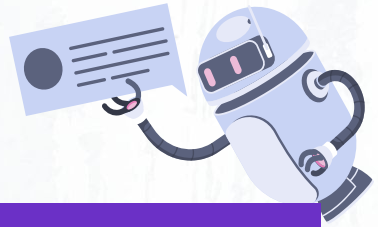
Provide AI literacy modules to help students understand AI's limitations and ethical considerations.

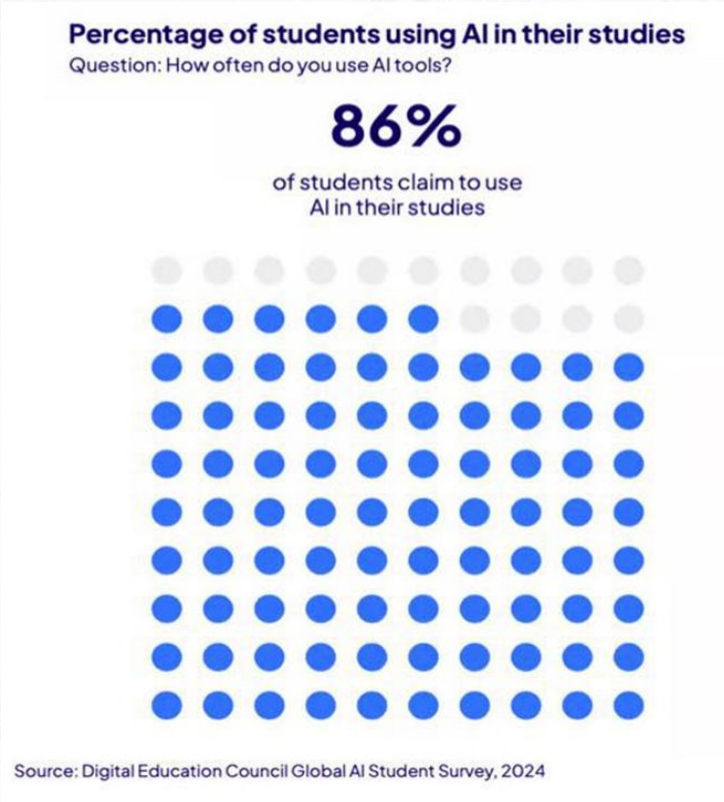
05 →

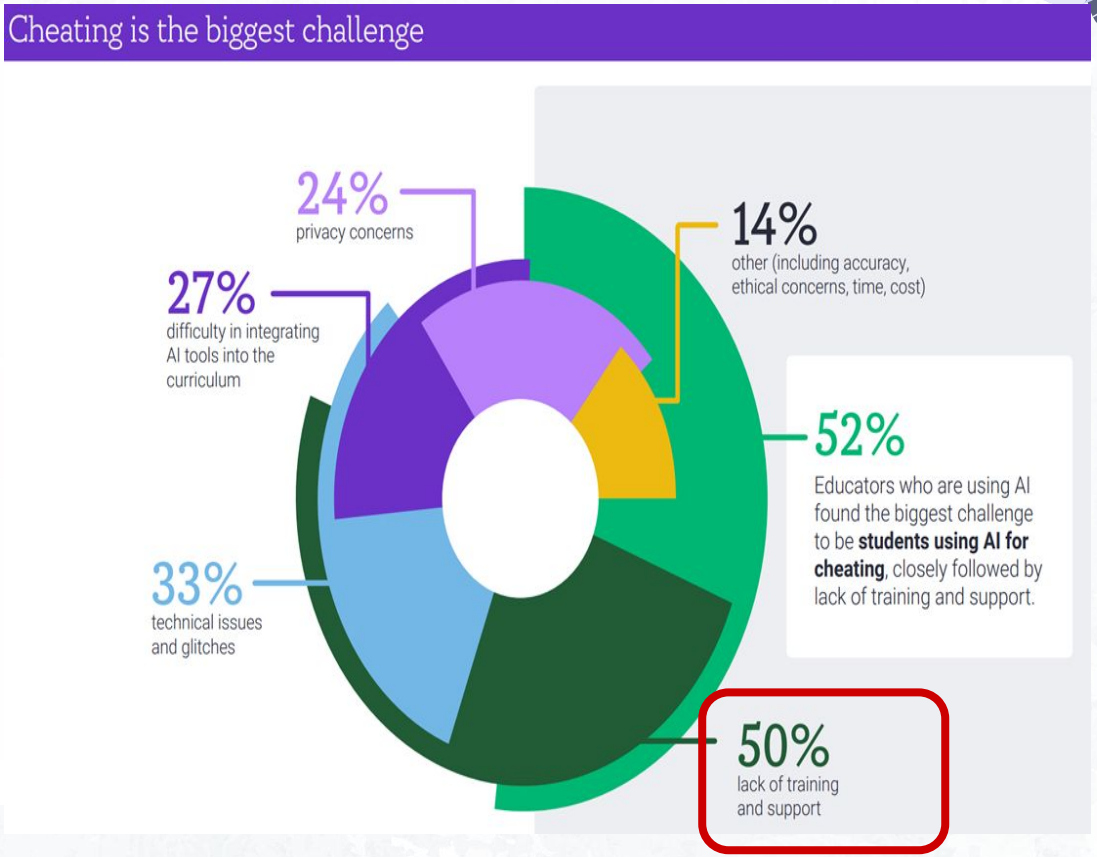
Importance of AI literacy

Chun

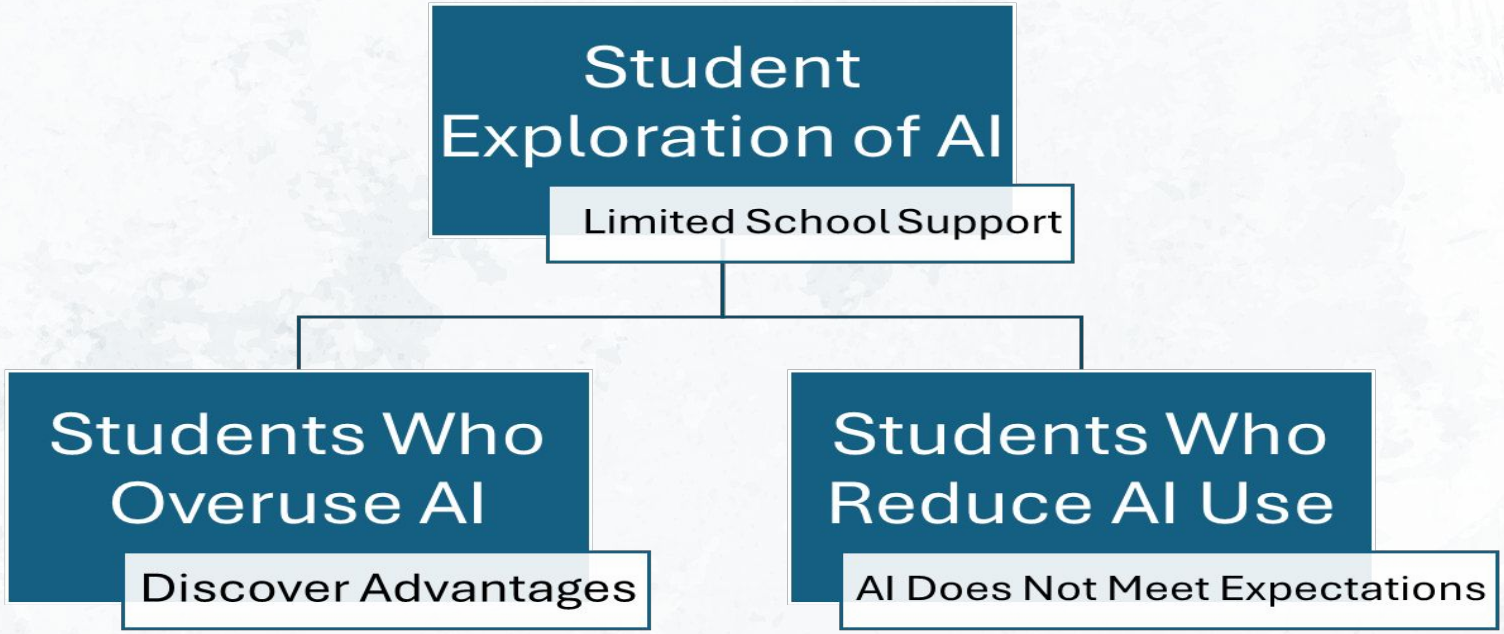
Current situation







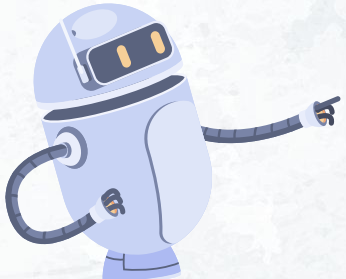
Two Common Phenomena



Integrating AI Literacy: Setting Boundaries and Providing Guidance

Higher Education

- **Being**
  - Student Identities—What students can/want to do in the future? (Socratic Tutor)
  - Teacher-student Relationship (Adversarial)
- **Doing**
  - Learning and Teaching Process (Attitudes; Prompts; Guidance)
- **Knowing**
  - Engagement in Education (Evaluate the accuracy; Reflection on the course design)



Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. The Macmillan Company.

06 →

AI as a tool for marking assessments

Oscar

AI marking tools: Current capabilities

Strengths	Weaknesses

• Reduce staff workload
• Shorten assignment turnaround time
• Scalability
	• Failure to comprehend some nuance and context
	• Amplify bias
	  ○ In training data
	  ○ In rubrics
	  ○ In model responses

AI marking tools: Emerging/future capabilities

Strengths

- Reduce staff workload
- Shorten assignment turnaround time
- Scalability
- Consistency in marking, mitigate bias
- Comprehensive analysis
  - Advanced language processing
  - Broader context window

Weaknesses

- ~~Failure to comprehend some nuance and context~~
- ~~Amplify bias~~
  - ~~In training data~~
  - ~~In rubrics~~
  - ~~In model responses~~

Marking policy aims

- Uphold student rights
- Reflect institutional educational goals
- Be flexibly applicable to new technologies
    - Not a reactionary response to current technologies

Importance of human marking and feedback

Authenticity
Human responses are perceived as more genuine, strengthening student-educator relationships, encouraging reflection, and reducing automation bias

Accountability
Professional accountability for assessors among students, peers and subject coordinators builds trust in the academic integrity of the university

Social Learning
Human assessors have a social presence that AI lacks, the interaction, modelling and feedback provides a more engaging and constructive pathway for students

Key recommendations

- For essay, creative, and other freeform assessment tasks, AI and algorithmic decision-making should never be the sole marker
- For calculation-based or assessments with otherwise objectively correct answers, AI can be an invaluable tool to reduce staff workload and ensure students receive marks sooner
- Where AI is being used to assist human markers, students are clearly informed in the assignment brief, and the human assessor is ultimately responsible for the final grade they assign with AI’s help.