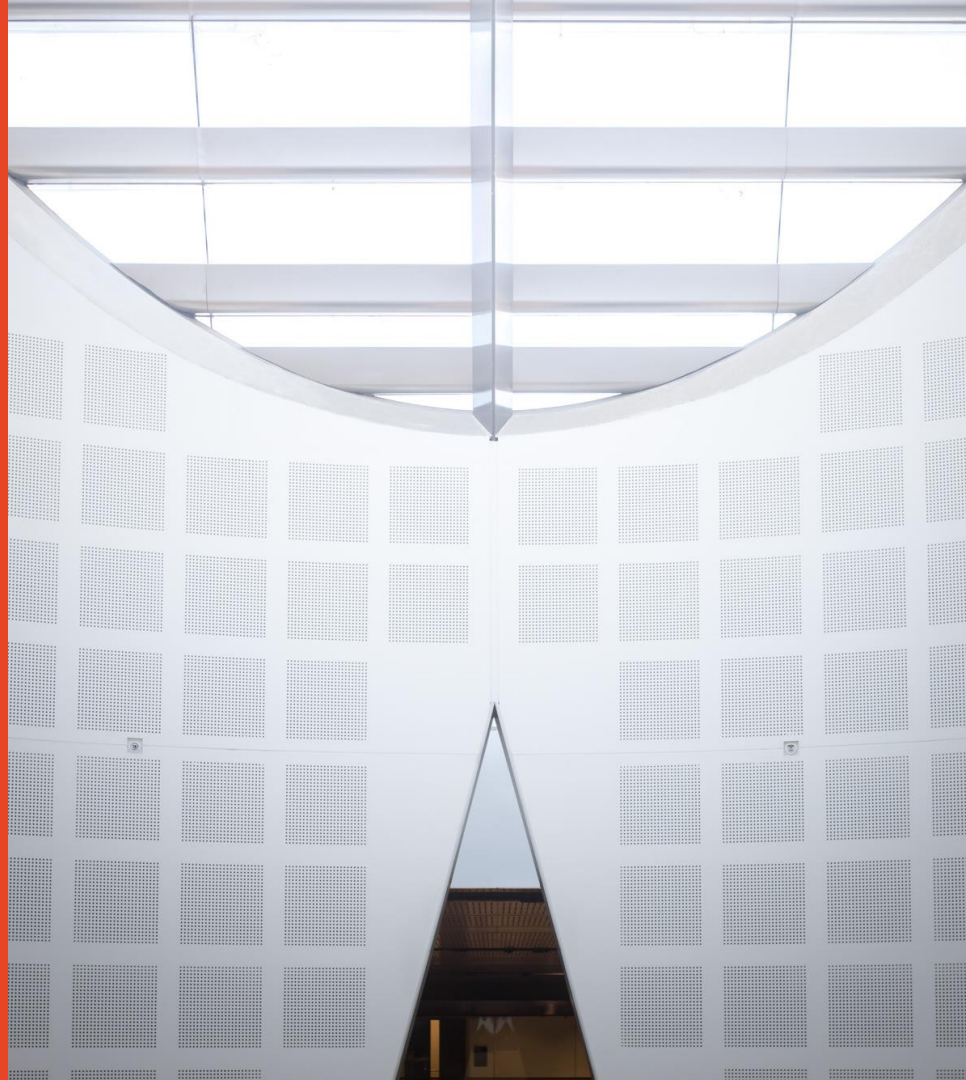
Are we asking the right questions around AI in education?

Danny Liu
DVC (Education and Students) Portfolio

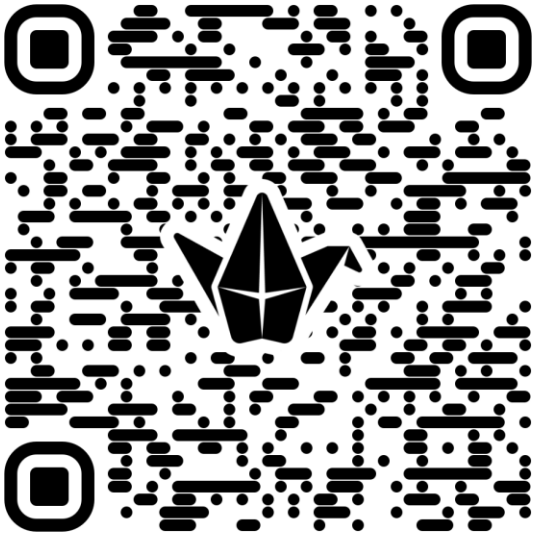
THE UNIVERSITY OF SYDNEY



What does the professional of the future look like?

- For your field, consider:
  What would we like the professional of the future to be?

- Type short responses into Padlet:
  https://bit.ly/queensu01



Stanford University

STANFORD DIGITAL ECONOMY LAB | HAI Stanford University Human-Centered Artificial Intelligence

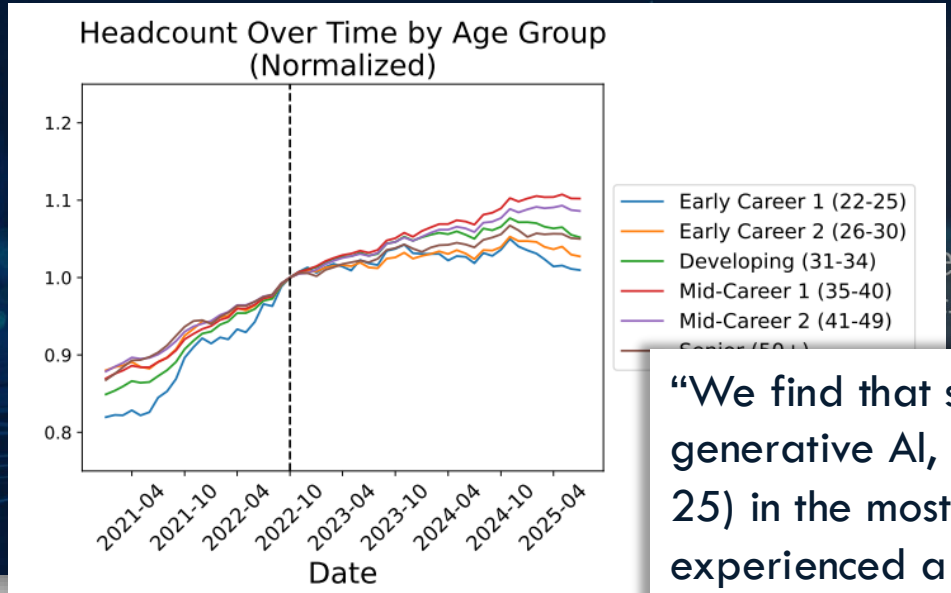


Figure 4: Employment changes by age. Including

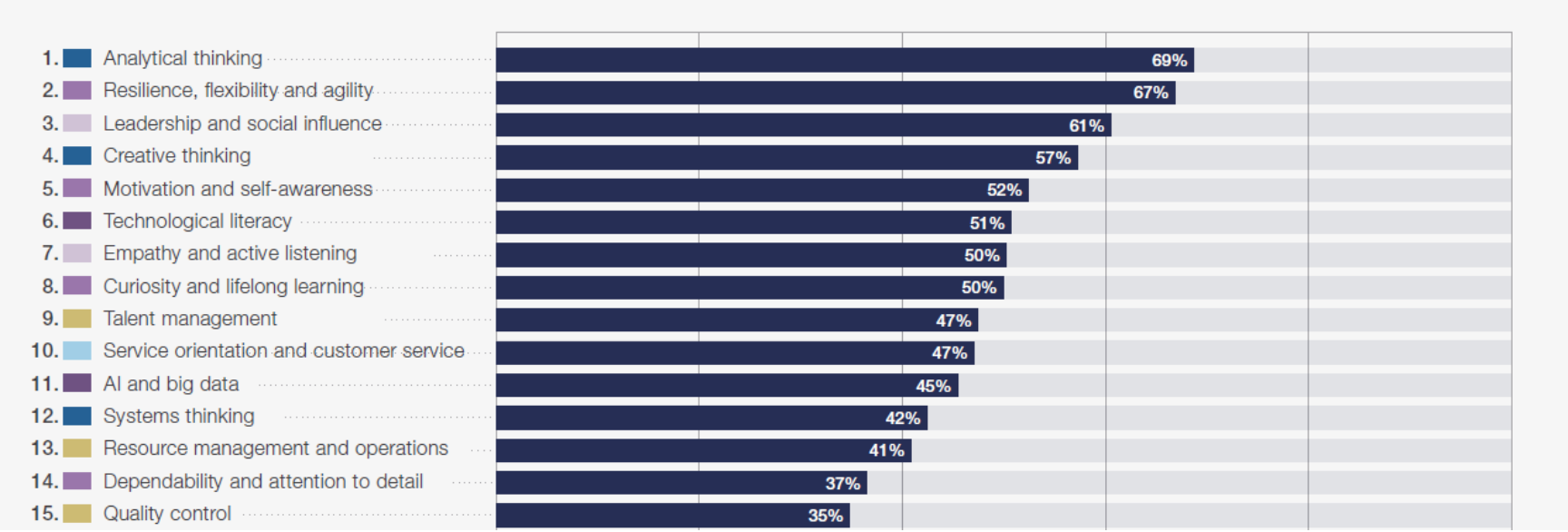
Coal Mine? Six
Recent
fects of Artificial

"We find that since the widespread adoption of generative AI, early-career workers (ages 22-25) in the most AI-exposed occupations have experienced a 13 percent relative decline in employment even after controlling for firm-level shocks.

FIGURE 3.3

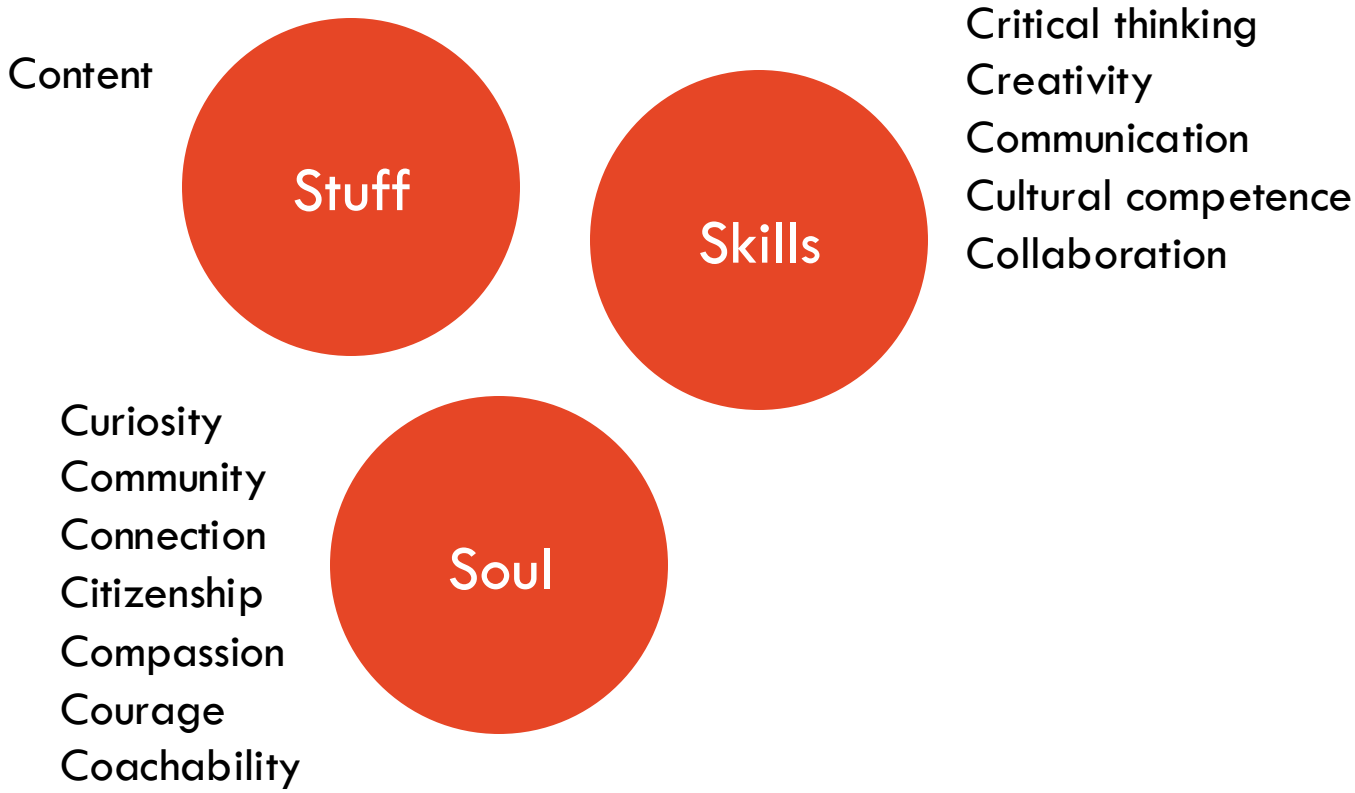
Core skills in 2025

Share of employers who consider the stated skills to be core skills for their workforce.

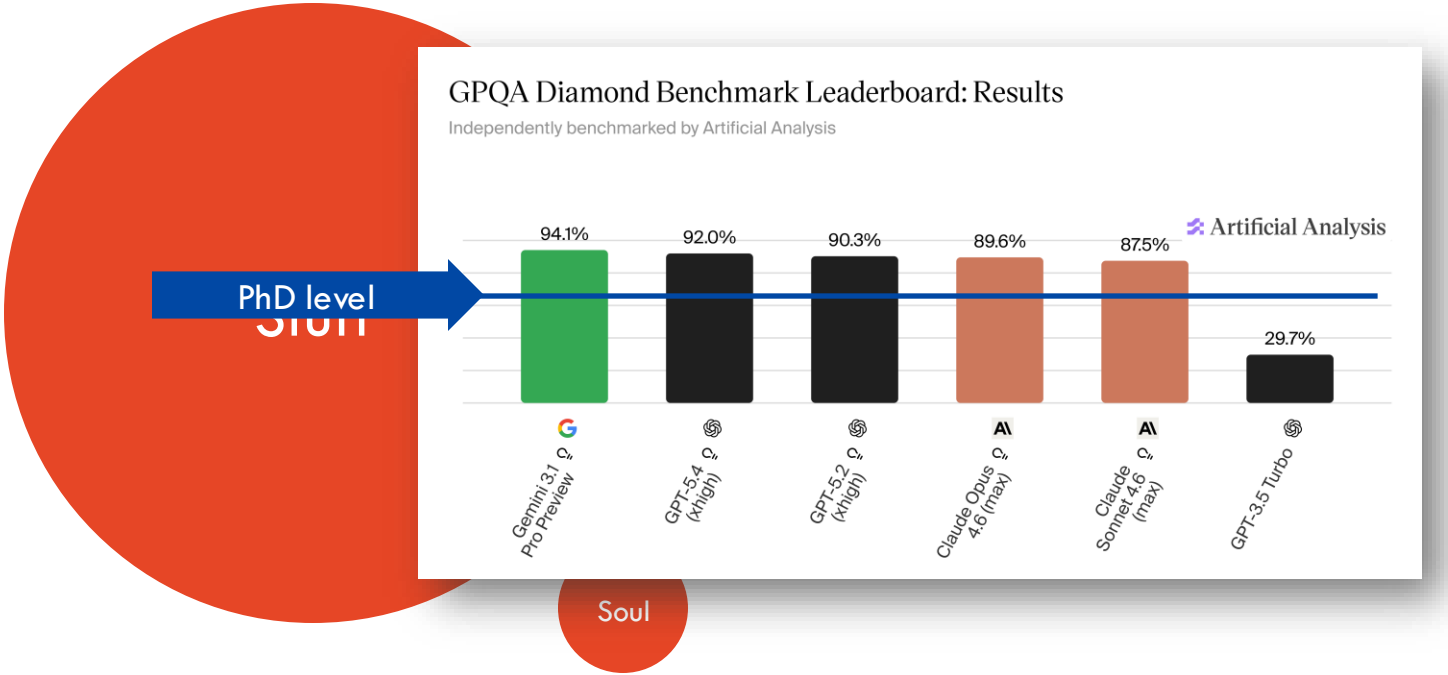


Source: WEF Future of Jobs Report 2025

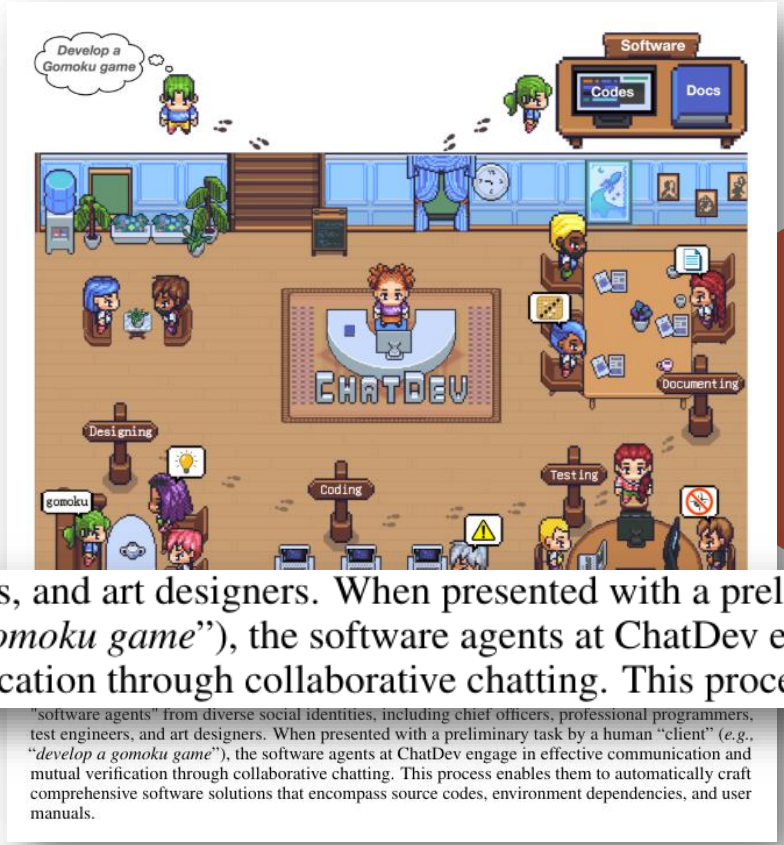
What is our focus in higher education?



What is our focus in higher education?



What is our focus in higher education?

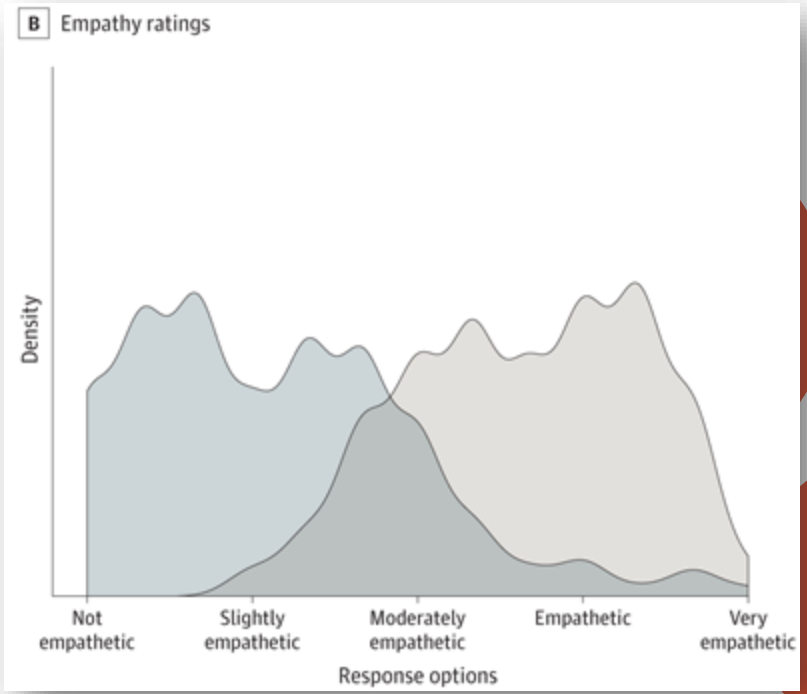


Skills

test engineers, and art designers. When presented with a preliminary task by a human "client" (*e.g.*, "*develop a gomoku game*"), the software agents at ChatDev engage in effective communication and mutual verification through collaborative chatting. This process enables them to automatically craft

"software agents" from diverse social identities, including chief officers, professional programmers, test engineers, and art designers. When presented with a preliminary task by a human "client" (*e.g.*, "*develop a gomoku game*"), the software agents at ChatDev engage in effective communication and mutual verification through collaborative chatting. This process enables them to automatically craft comprehensive software solutions that encompass source codes, environment dependencies, and user manuals.

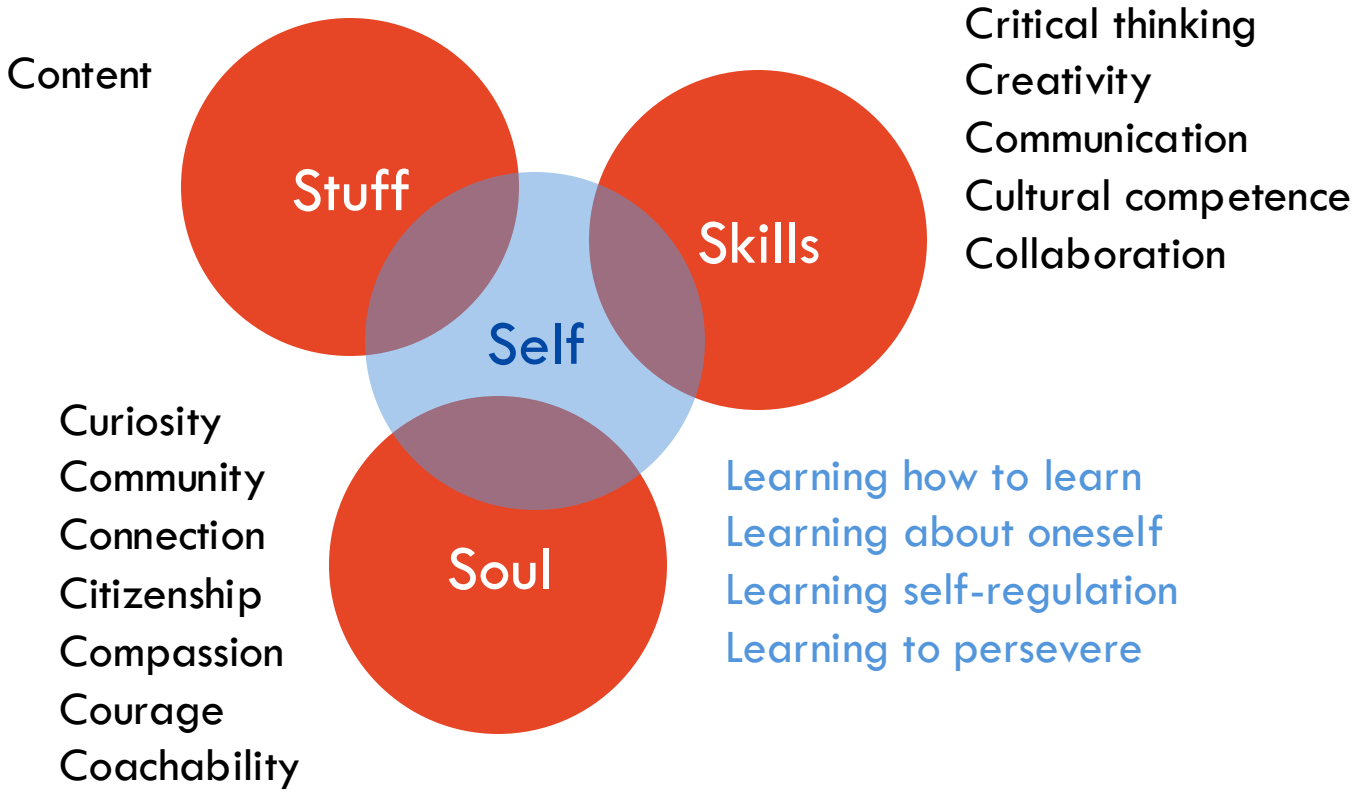
What is our focus in higher education?



Skills

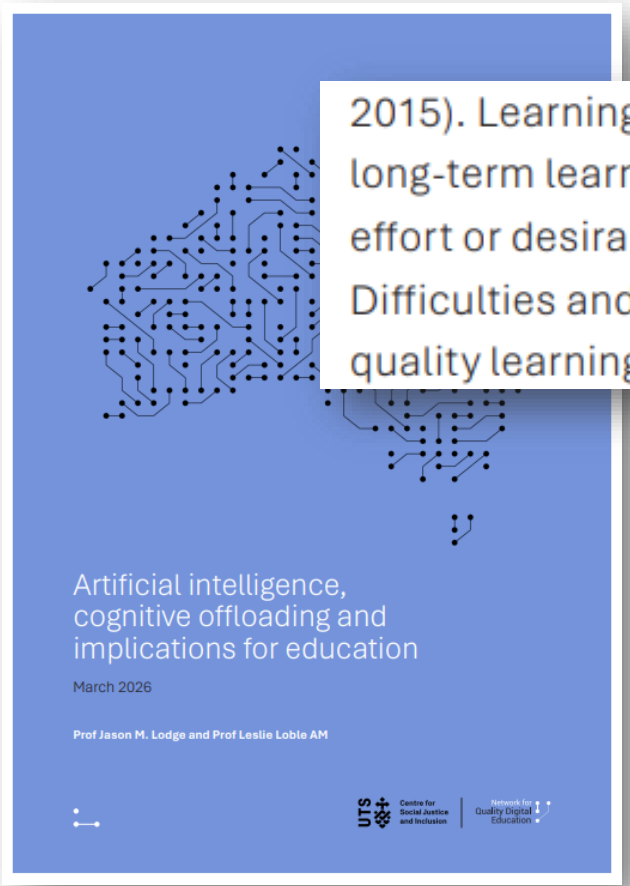
Soul

What is fundamental to being an educated human?



Implications for teaching and learning

Source: Daniel Nouri on Pexels



2015). Learning is not meant to be effortless. Durable, long-term learning requires a degree of cognitive effort or desirable difficulty (de Bruin et al. 2023). Difficulties and challenges are fundamental to high-quality learning in mar

As synthesised by Helal and colleagues (2025), the impact of AI is entirely dependent on the pedagogical design. The default, unstructured answer oracle activates cognitive inhibitors like automation bias and quick-solution dependence. In contrast, intentional, pedagogically sound design activates cognitive mediators like self-regulated learning and metacognitive critique.

Preprint. Under review.

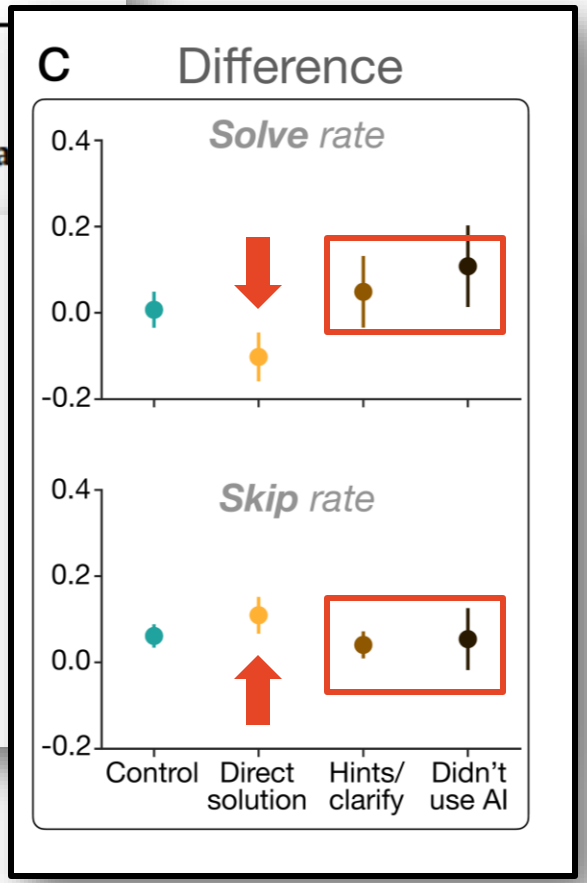
AI Assistance Reduces Persistence and Hurts Independent Performa

Grace
Carne
gliu2

a

Solve rate over time

"… we find that the majority of participants (61%) used AI to get answers directly. These participants showed the largest declines in performance and persistence — not only compared to control participants but also compared to participants who used AI for hints or clarifications. **Participants who used AI for hints showed no significant impairments relative to control**."



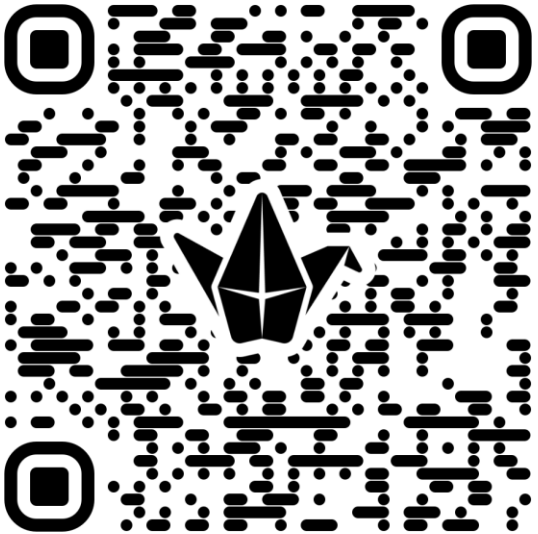
What are we giving up, possibly without realising?

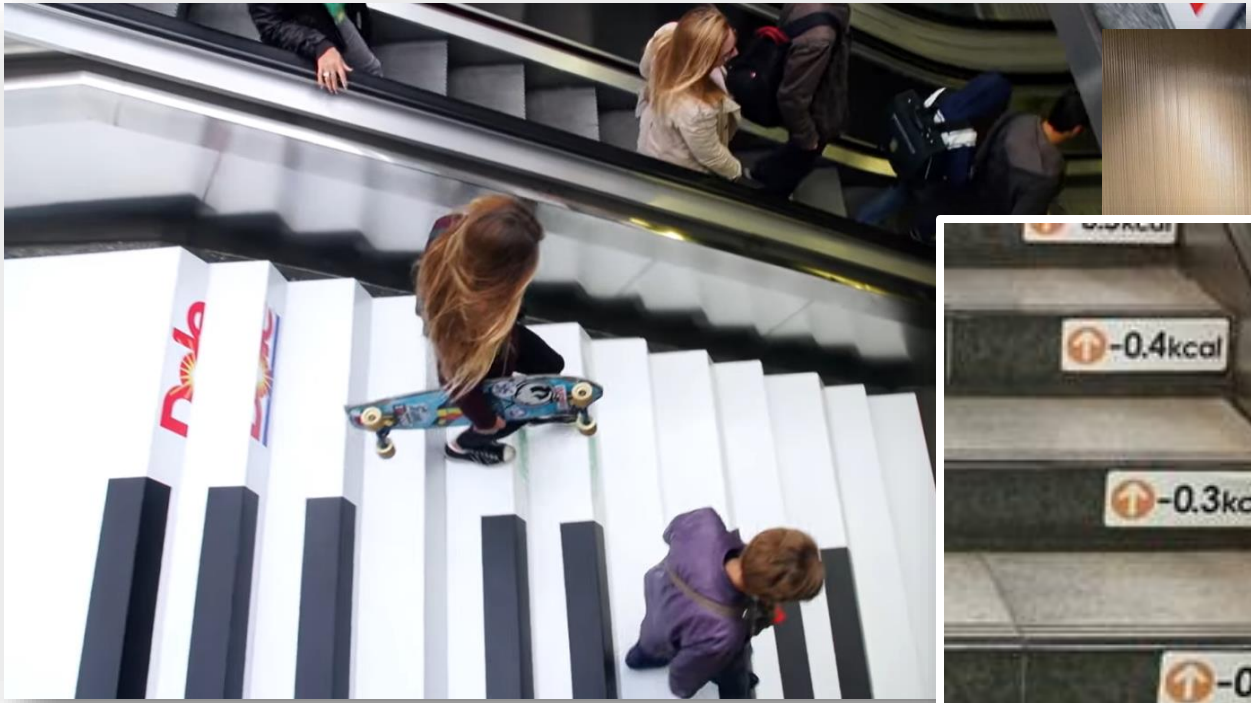
	Surrender	Offloading	Agency
Cognitive			
Meta-cognitive			

How does one learn to become this professional?

- For your field, consider:
  What would we like the professional of the future to be?
  How does someone learn to become this professional?

- Type short responses into Padlet:
  https://bit.ly/queensu02





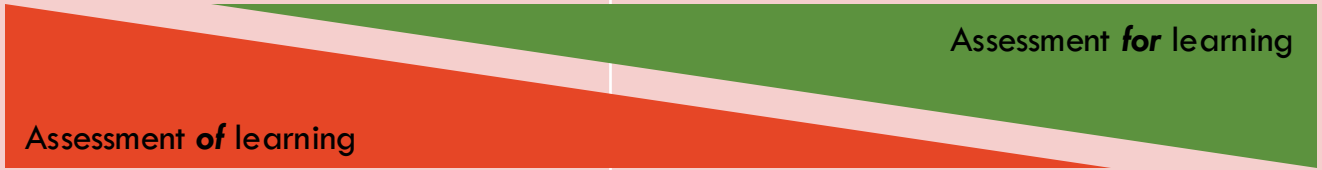

-0.4kcal
-0.3kcal
-0.2kcal

-1.2kcal
-1.1kcal
-1.0kcal
-0.9kcal
-0.8kcal
-0.7kcal
-0.6kcal
-0.5kcal
-0.4kcal
-0.3kcal
-0.2kcal

Implications for assessment and curriculum

THE UNIVERSITY OF SYDNEY

Two-lane approach to assessment

	Lane 1 ‘secure’	Lane 2 ‘open’
Focus		
Purposes of assessment	✅ Verification of capability ✅ Providing for moments of feedback ✅ Motivating student work ✅ Signalling what’s important ✳ Engage with AI	❌ Verification of capability ✅ Providing for moments of feedback ✅ Motivating student work ✅ Signalling what’s important ✅ Engage with AI
Security & integrity	Observed, in person	Not observed live
Position on generative AI	May or may not be allowed by examiner	As relevant, use of AI scaffolded & supported

A metaphor for agency: AI × assessment menu

As a critical friend - Soups

- Suggest analyses
- Provoke reflection
- Provide study/organisation tips
- Practicing

Getting started - Entrees

- Suggesting structure
- Brainstorming ideas

Engaging with literature - Bread service

- Suggesting search terms
- Performing searches
- Summarising literature
- Identifying methodologies
- Explaining jargon
- Fixing reference list

Generating content - Mains

- Writing some text
- Making images, video, audio
- Making slidedecks

Analyses - Lighter mains

- Performing analyses of data, text
- Suggesting counterarguments

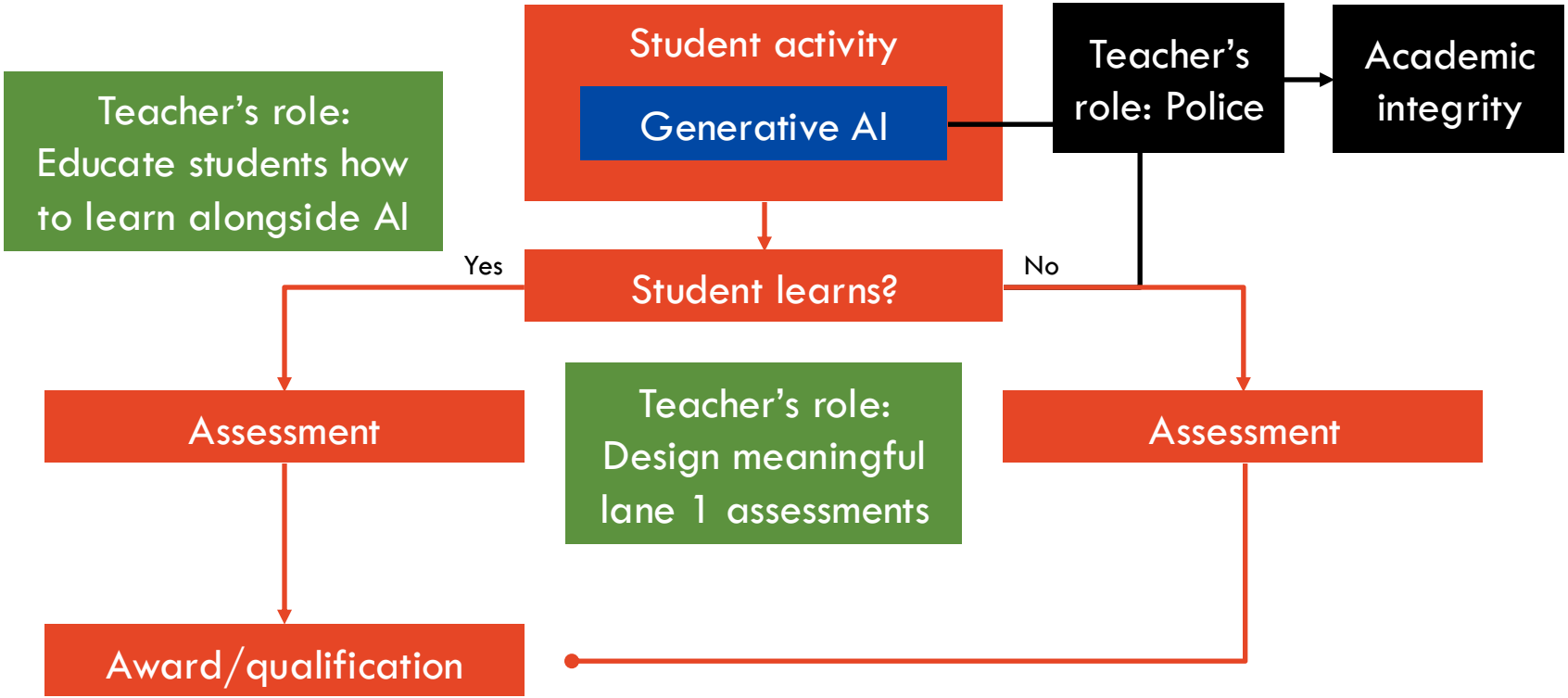
Editing - Coffees

- Editing tone
- Improving clarity and readability
- Fixing grammar
- Shortening

Feedback - Desserts

- On all of the above elements
- Specifically on rubric criteria

Main messages of the two-lane approach



Assume and integrate: Language learning example

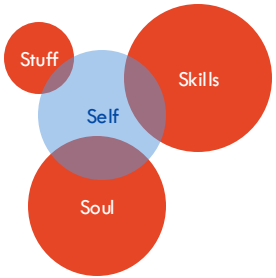
- Undergraduate German
  - LO: Demonstrate skills and confidence in conversational German
- AI as a practice partner
  - Claude prompted to role play as (i) a college student looking for an apartment in Boston and (ii) a potential employer
  - Reflect on use of AI – what went well; what surprised; what do differently

Source: https://learning.northeastern.edu/ai-gallery-post-language-learning-practice-with-genai-simulations/

Assume and integrate: Design computing example

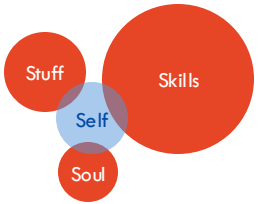
- Information visualisation unit
  - LO1: design compelling visual narratives using data, including the ability to develop and justify data mappings appropriate for the context.
- Final group project: data journalism interactive webpage
  - Any AI is allowed
  - Some AI tools are demonstrated
  - All AI use to be documented
  - Focus on the storytelling, analytics, and visual design
- AI increases authenticity in data source, visualisation, storytelling elements

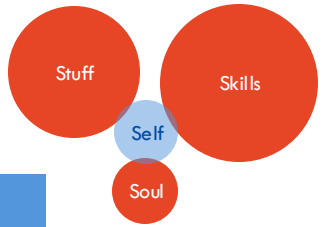
But is there misalignment?



Employers

Recruitment

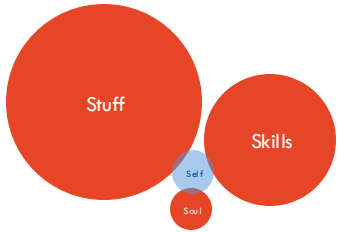




Graduate outcomes

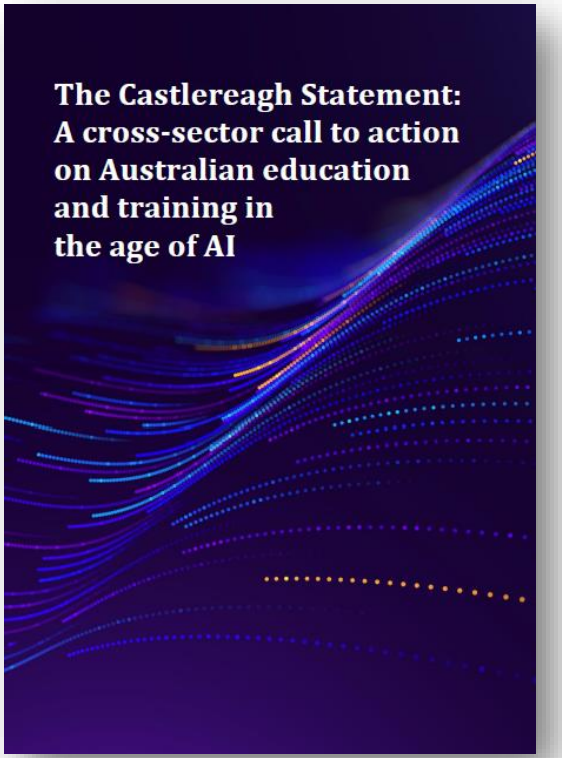
Universities

Assessment



The Castlereagh Statement

castlereagh.ai



- Many reports & research but patchwork action
- Pace of AI is mismatched with processes in our education & training systems
- Employer and society needs are shifting

- A **unified national, cross-sector** green paper, setting direction and inviting everyone to build the path together

Six principles

castlereagh.ai

1. **Redefining the educated, future-ready person.** Human qualities, discernment, and learning how to learn.
2. **Institutional and individual humility.** Be willing to transform, consolidate, or retire existing structures.
3. **Reconceptualising learning and assessment.** Shift to prioritising deep understanding, visible skill development, and the relational, human nature of learning.

Six principles

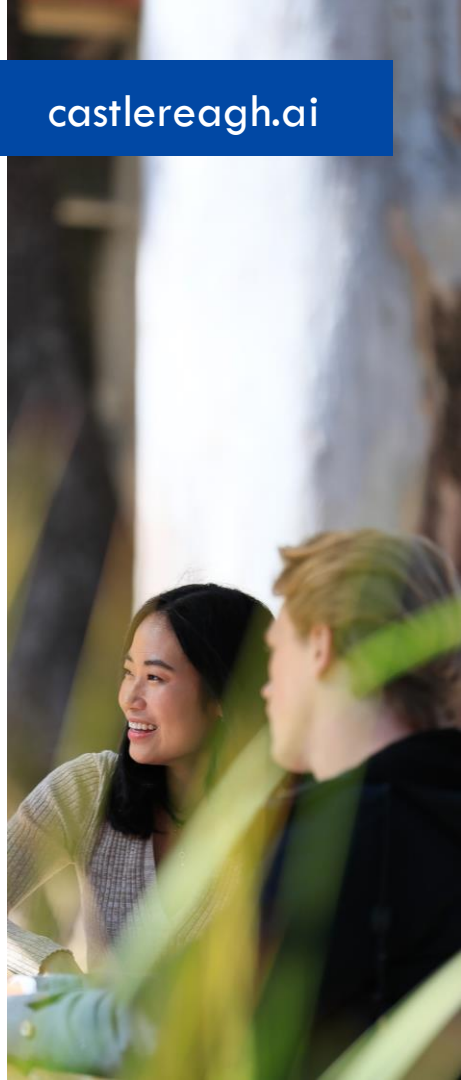
castlereagh.ai

4. **Designing an agile and capability-focused curriculum.** Reduce duplication and overcrowding; prioritise human capability.
5. **Empowering educators.** Time, training, incentives, and recognition for educators to lead change.
6. **Placing technology in service of pedagogy and trust.** AI deployed to serve learners with active co-design.

Three goals

castlereagh.ai

1. A shared definition of **what we value** in human educators and learners, and aligned measurement and incentive systems to support these.
2. Coherent and scaffolded **learning pathways** from early childhood to lifelong learners, aligned with societal and workplace needs.
3. Every person being capable of confidently, critically, and creatively **engaging with AI**.



"**The path forward is not predetermined;** it will be actively shaped by the choices and actions undertaken now by educators, institutional leaders, policymakers, and students themselves.

… perhaps [the] most significant impact of GenAI on higher education may be a fundamental **shift in what society values as 'education'**…

Institutions that successfully navigate this paradigm shift will… [prepare] graduates not just for jobs, but for **lives of meaning, purpose,** and responsible engagement in an AI-augmented world."

Thank you

danny.liu@sydney.edu.au

THE UNIVERSITY OF SYDNEY


THE UNIVERSITY OF
SYDNEY

Two-lane approach at a program level

– Graduate Certificate in Educational Studies