

# Strategic approaches for integrating generative AI in education

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Educational Innovation  
DVC (Education) Portfolio

ACODE90

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# Key issues

- Assessment
  - Trustworthiness
  - Authenticity
- Equity
  - Access to AI
  - Skill with AI
- Getting through
  - (Un)awareness
  - Exhaustion and priorities

## Responding to Generative AI in Australian Higher Education

*Reporting on the outcomes from the Learning and Teaching Leaders Roundtable on generative AI, 20 July 2023*

### Background

On Thursday 20 July 2023, learning and teaching leaders, as well as students, from 28 higher education institutions in Australia and New Zealand gathered to discuss the state of generative AI at their institutions, share practice, and determine ways forward. This working paper is a collaborative summary of the discussions at the roundtable.

The aims of the roundtable were to:

- Share approaches for staff development on generative AI
- Discuss how institutions are approaching policies around AI in education, and ethical considerations related to AI implementation in education
- Explore specific applications of generative AI in education, and share examples of strategies to integrate generative AI into curriculum
- Forecast future trends and developments in AI as it relates to learning, teaching, and assessment
- Establish cross-institutional collaborations around AI in education
- Understand and enhance students' perspectives and experiences with AI

This working paper aims to:

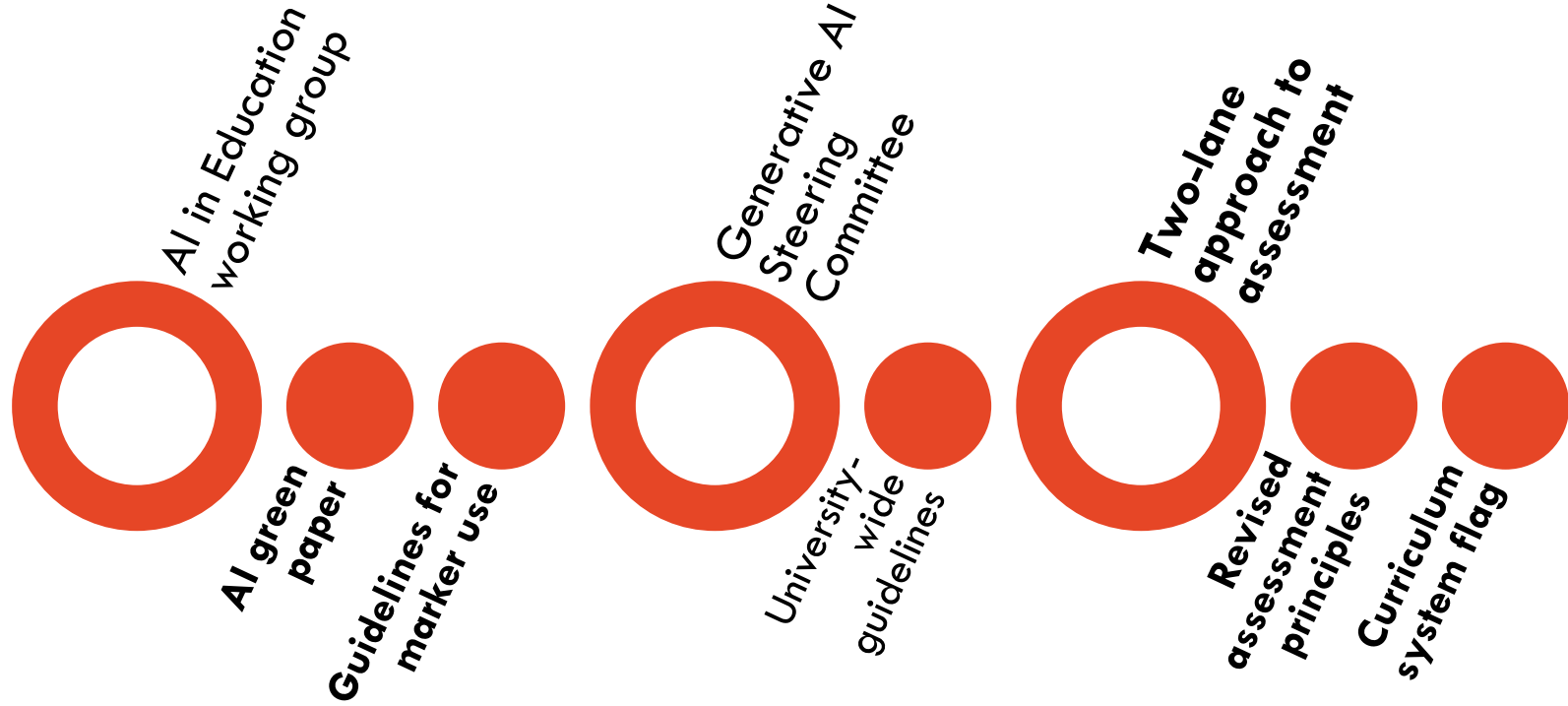
- Highlight the progress to date in adapting to generative AI in Australian higher education
- Outline key values, principles, and strategies for institutions
- Suggest ways for institutions to move forward in responding practically, productively, and responsibly to generative AI

# Pillars of action

- Governance
- Familiarity
- Access

# Governance

# Sydney's governance journey around generative AI



# AI green paper → Generative AI Dynamic Roadmap

- 8 Guiding principles
  - Following DISR’s Australia’s AI Ethics Principles
- 7 Aspirations
  - “We engage productively and responsibly with AI”
  - “Our staff and students will model the use of AI”
  - “AI-human collaborations are normalised”
- 5 Pillar roadmap
  - Core, Education, Research, Operations, Governance

**Aspirations**

Sydney takes the following aspirational positions on generative AI in the higher education sector:

Cross-functional leadership	AI has applications in all facets of University work	<ul style="list-style-type: none"> <li>– We recognise that AI has many applications throughout the range of work performed by individuals and groups at the University. AI will have uses in teaching, learning, assessment, research, operations, and productivity.</li> <li>– In these contexts, we will be guided by our principles, developing the comfort and caution of accepting work that blends input from human and machine.</li> </ul>
Human-centred	Human agency, expertise, and accountability are central	<ul style="list-style-type: none"> <li>– We recognise that human agency and expertise are paramount. Students must develop and demonstrate disciplinary skills and competencies, and staff expertise must guide this.</li> <li>– We recognise that the role of AI will be different at varying levels of skill development, and we will use AI appropriately to the end.</li> <li>– We will ensure that humans are appropriately accountable for AI-assisted decisions.</li> </ul>
Safe and responsible	AI must benefit the University and its community	<ul style="list-style-type: none"> <li>– Development and application of AI at the University will respect diversity and humanity, be inclusive and accessible, and should seek to close equity gaps.</li> <li>– AI-enabled systems and approaches will seek to benefit students, staff, the University community, and the work we do together.</li> </ul>
Building capacity	We engage productively and responsibly with AI	<ul style="list-style-type: none"> <li>– We will ensure that we engage appropriately with AI instead of ignoring it.</li> <li>– We will do this in ways that densely consider privacy, intellectual property, legal, copyright, data security, data integrity, and ethical issues around its development and use in all facets of University work.</li> </ul>
Building capacity	Where AI is used, it is transparent and documented	<ul style="list-style-type: none"> <li>– We are an institution committed to integrity, digital literacy. When we use AI we want to make sure humans are in control for high stakes decisions, and we want to make sure that AI contributions are transparent in all situations.</li> <li>– We are committed to developing appropriate processes to allow all members of the university to contest the use and outputs of generative AI where possible.</li> </ul>
Building capacity	Our staff and students will model the use of AI	<ul style="list-style-type: none"> <li>– As leaders in education and research, we have a responsibility to demonstrate to students and the wider community how to engage appropriately with AI.</li> <li>– Our staff will model the productive and responsible use of AI, and our students will become experts in its use.</li> </ul>
Building capacity	AI-human collaborations are normalised	<ul style="list-style-type: none"> <li>– As AI becomes increasingly embedded into the software and processes that we use day-to-day, as well as those in industry and the community, we will gradually normalise the nature of AI-human collaborations. This means together developing the comfort and caution of accepting work that blends input from human and machine.</li> </ul>

We will evaluate and periodically update our AI positions to keep pace with rapidly evolving AI technologies and trends.

Dynami Generative AI Roadmap – The University of Sydney

# Guidelines for staff use of AI in grading

Counts towards final grade

Does not count towards final grade

Marks/grades

Feedback

Marks/grades

100% human

Human, augmented  
by AI

Human and/or AI

Clear and transparent communication with students

No staff submission of student work to AI without opt-in from students, and only through approved technologies

# Two-lane approach to assessment

## Lane 1: Assurance of LOs

### Short term

- In-person exams/tests
- Viva voces

### Longer term

- In-class contemporaneous assessment
- Interactive oral assessments
- In-person exams/tests (sparingly)

## Lane 2: Human-AI collaboration

### Short term

- Students use AI to brainstorm, draft outlines, summarise resources, perform research, analyse content

### Longer term

- Students collaborate with AI and document this process; the process is graded more heavily than the product



# TEQSA assessment reform principles

**Principle 1:** Assessment and learning experiences equip students to participate ethically and actively in a society pervaded with AI

- E.g. appropriate, authentic engagement with AI

**Principle 2:** Forming trustworthy judgements about student learning in a time of AI requires multiple, inclusive and contextualised approaches to assessment

- E.g. program approach to assessment
- E.g. assessing the process of learning (not product)

Lane 2

Lane 1



# Example of two-lane approach

**LOs:** apply marketing strategy concepts in real-world scenarios; demonstrate communication skills; evaluate effectiveness of different marketing strategies.

## **Lane 1: Assurance of LOs**

- Live Q&A after in-class presentation (defend research/analysis, etc)
- Giving students unseen case study in a live supervised setting

## **Lane 2: Human-AI collaboration**

- Bing Chat for market research and competitor analysis
- Adobe Firefly for campaign design
- Collaboration process is documented (fact-checking, improving, critiquing)
- In-class presentation
- Process heavily weighted

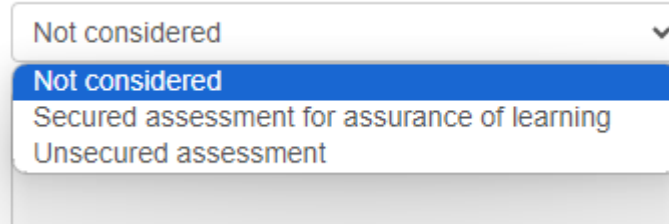
# Revised assessment principles

- Two additional principles:
  - #5: Assessment practices must be integrated into program design
    - Assessment & feedback integrated
    - Academic judgement occurs throughout
  - #6: Assessment practices must develop contemporary capabilities and in a trustworthy way
    - Working with technologies (including AI) ethically
    - Secured assessment assures learning
    - Non-secured assessment motivates and drives process of learning
    - Transparent use of AI in assessment and feedback

# Curriculum system flag

- For every assessment task at the University: a compulsory flag in the curriculum management system

Assessment security\*



Not considered

Not considered

Secured assessment for assurance of learning

Unsecured assessment

# Familiarity

# Developing familiarity

- Provocations
- Resources and information and sharing
- Training
  - Prompt engineering
  - Assessments
- Student resource
- Events
  - Forums, Unconference, Symposiums

Artificial intelligence and education at Sydney



New and exciting artificial intelligence tools present urgent and compelling challenges and benefits for higher education at Sydney. Our approach to generative AI at Sydney is one of proactive and responsible engagement. In the articles below, we explore the implications of tools such as ChatGPT on learning, teaching, and assessment at Sydney and how they can be leveraged to make these activities more effective, efficient, and improve student learning.

To find further about artificial intelligence and education at Sydney, please get in touch with [genai@sydney.edu.au](mailto:genai@sydney.edu.au)

 <p><b>Frequently asked questions about generative AI at Sydney</b></p> <p>Your questions answered about what ChatGPT and other generative AI means for Sydney and what we can do about it.</p>	 <p><b>Prompt engineering for educators – making generative AI work for you</b></p> <p>Practical, honest examples of how different prompts can make learning and assessment more effective, generative, and meaningful for you and your students.</p>	 <p><b>Student-staff forums on generative AI at Sydney</b></p> <p>Catch up on recordings from our student panels where we explore what students think about what generative AI means for their study and their future, and how the University can help them grow their ethical and productive use of AI.</p>
 <p><b>Supporting students to use AI responsibly and productively</b></p> <p>You've received a new resource, co-created with students, to help students assist in their understanding and application of generative AI. Our goal is to demonstrate knowledge and skill among graduates so that all students everywhere can be equipped with the ability to use this new technology productively and responsibly.</p>	 <p><b>What to do about assessments if we can't out-design or out-run AI?</b></p> <p>It's becoming increasingly clear that there isn't going to be a way to design 'task-specific' assessments that are 'out-proof'. But, we still need to assure that students have authentic learning outcomes 'up to us' so we do this, whilst embracing AI.</p>	 <p><b>Ten myths about generative AI in education that are holding us back</b></p> <p>A mythology has developed around ChatGPT and other generative AI, and this can cloud how we engage responsibly and productively with these tools. What are some of those myths and how can we overcome them?</p>
		

# ‘Prompt engineering for educators’

- Resources
  - Teaching@Sydney posts with examples
- Training

## One suggested structure for prompts

- RTRI:
  - Role (act as...)
  - Task
  - Requirements (include...)
  - Instructions

The University of Sydney

## Example: Perspectives g

Give 5 different examples on managers who have very different perspectives on these in the form of short interviews with these managers.

...

Explain why these perspectives are different based on their backgrounds.

The University of Sydney

## Try some prompting

- Access a document with the prompts to copy and paste from:
- Modify the text to suit your discipline
- Try different generative AIs, e.g.:
  - GPT-4 (via [ChatbotUI](#), or your own ChatGPT Plus subscription)
  - Bing Chat
  - others
- We will discuss your experiences soon

The University of Sydney

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# ‘Responding to AI in assessments’

- Resources
  - Two-lane guidance and examples
  - Mythbusting
- Training

## Surely my assessment is AI-proof

Write an 800 word analysis of a new therapeutic drug approved by the FDA, EMA, or TGA after 2013. Information must come from published, peer-reviewed papers.

- Explain why you chose the drug
- Explain its mechanism of action
- Explain its advantages over current therapeutics
- Identify two pre-clinical studies supporting the mechanism of action
- Identify two clinical trial studies that support its therapeutic efficacy

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- Contem
- Require referen
- Person
- Authent

## Example: Rubric drafting assistant

Act as an expert higher education academic and writer of assessment rubrics.

I need to write a marking rubric for a second-year university-level assessment where students (pre-service teachers) need to critique the use of technology in high schools. You need to help me generate the rubric rows (which are the criteria), and the columns are the various standards (from high distinction, to distinction, to credit, to pass, to fail).

Ask me questions to help me write a strong rubric. Ask one question at a time, wait for my response, and ask me the next question. After I have answered your questions, produce a draft rubric for me.

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Teaching tips / 21 August, 2023

## Ten myths about generative AI in education that are holding us back

by Danny Liu



### RECENT POSTS

1. Letting educators take control of generative AI to improve learning, teaching, and assessment  
3 November, 2023

2. Supporting students through pre-census assessment and feedback  
1 November, 2023

3. Learning Spaces at Sydney Principle 1: Take an activity-centred approach  
27 October, 2023

Supporting students on placement with asynchronous online  
1 October, 2023



# What works for assessment generally?

Vill

Example message

- Authentic assessment
  - Realism
    - Realistic context
    - Realistic task
  - Cognitive challenge
  - Evaluative judgement
    - Exemplars
    - Rubrics
- Feedback

"Authentic assessment... has a positive impact on student learning, autonomy, motivation, self-regulation and metacognition..."

Authentic assessment:

- **Does not** AI-proof or cheat-proof an assessment
- **Does** motivate students to learn

# Students helping students use generative AI well

Home

Modules

Marks

Assignments

Discussions

People

Pages

Files

Syllabus

Outcomes

Rubrics

Quizzes

Collaborations

Announcements

Settings

## Welcome to AI in Education!

This site is a resource for students, [built by students](#), to provide ways you can use generative artificial intelligence productively and responsibly as part of your university.

### How to use this site

To get started, click on the topic areas in the boxes below. Once there, you can navigate between pages by clicking the page buttons or using the arrows at the bottom of the page. To view an organised set of all the resources available on this site, click the 'Modules' link in the left-hand menu.

#### What is generative AI?

- [How generative AI works](#)
- [Different generative AI options](#)
- [Writing prompts](#)
- [Limitations and considerations](#)

#### Guidelines for using generative AI

- [General principles for use of generative AI](#)
- [University of Sydney guidelines](#)
- [Acknowledging & referencing the use of AI](#)

#### Using generative AI

- [Prompts to help you learn](#)
  - [Overview of new concept](#)
  - [Learning through conversations and questions](#)
  - [Breaking down topics using the Feynman](#)
- [Prompts to help you create](#)
  - [Overcoming writer's block](#)
  - [Suggesting ideas](#)
  - [Looking for literature sources](#)
- [Prompts to help you progress](#)
  - [Creating resumes and cover letters](#)
  - [Making sense of job descriptions](#)
  - [Preparing for job interviews](#)

[bit.ly/students-ai](https://bit.ly/students-ai)

# Events



Teaching@Sydney

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## 2024 AI in Higher Education Symposium – Australia & New Zealand



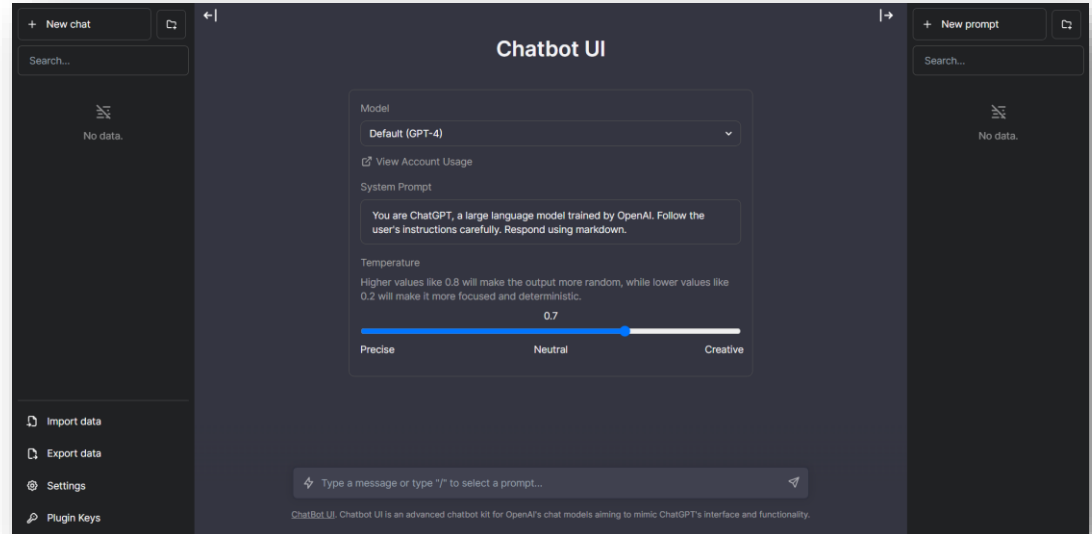
*Adobe Stock, used with permission*

Over the last year, educators have been doing some amazing things with generative AI tools like [ChatGPT](#), [Bing Chat](#), [Midjourney](#), [Cogniti](#), and others. At this half-day regional symposium, we invite educators from higher education institutions across Australia and New Zealand to meet and share their creative and authentic uses of generative AI to improve teaching, learning, assessment, and curriculum. By collaborating and sharing practice, we can respond and innovate more quickly to the challenges and opportunities presented by AI in higher education.

# Access

# Access to tools – for experimentation & deployment

- Initially, ChatbotUI (using OpenAI API key)
- Also, Bing Chat (Enterprise)
- Now, Cogniti



# Cogniti – an AI that teachers can steer

- ChatGPT and OpenAI GPTs are great, but...
  - Access and equity
    - ChatGPT Plus (for GPT-4) costs USD22/month
  - Control and safety
    - Too open-ended, and teachers don't have visibility
  - Hallucination and lack of context
    - ChatGPT not grounded in course content
  - Privacy and intellectual property
    - Data sovereignty, server trust, and use for future AI training
- Cogniti.ai aims to solve these

# What might an 'AI double' of you do?

i I can help you understand molecular biology and biochemistry concepts through analogy. What would you like to learn?



transcription



Transcription is an important process in molecular biology. It's the first step of gene expression, where a particular segment of DNA is copied into RNA (especially mRNA) by the enzyme RNA polymerase.

Let's try to understand this process through an analogy. Imagine a library full of books (the cell's DNA). Transcription is like a librarian (the RNA polymerase) copying information from a particular book (a specific gene on the DNA) onto a piece of paper (creating an mRNA molecule). The paper then leaves the library to be used elsewhere (the mRNA exits the nucleus and goes to the ribosomes in the cytoplasm for translation).

Now, can you identify where this analogy might fall short? What aspects of transcription does this analogy not cover perfectly?



librarians dont copy books, photocopiers do



That's a great point! In our analogy, the RNA polymerase (the "librarian") is much more like a photocopier machine than a human librarian. It mechanically replicates the information from the 'book' (DNA) onto a 'piece of paper' (the RNA).

So let's adjust our analogy: the DNA is like a master book stored in a secure vault (the cell's nucleus). The RNA polymerase is like a

# 'Mrs S' to challenge occupational therapy students



You are chatting with a conversational AI, acting as "Mrs S", which has been trained to support your learning in OCCP2103.



Hi Mrs S, I have an idea of how to help Jake in your class with his handwriting



Hello! I appreciate your initiative. Could you please elaborate on your idea? How does it specifically assist Jake in improving his handwriting, and how can it be implemented in a way that benefits the entire class?



I've noticed Jake has some trouble with fine motor control. Perhaps some activities around playdough might be useful?



That's an interesting suggestion. Playdough does offer a fun and engaging way to strengthen fine motor skills. Considering the diverse learning needs in our class, could you help me understand how we can adapt this activity to benefit all students? Also, what specific playdough activities do you suggest would be helpful for Jake's handwriting skills?



Can you tell me a bit more about the diverse needs?



Certainly, as in any classroom, we have students with a variety of learning styles and abilities. We also have students who excel in reading, some in math, and others in arts. Some students may have specific learning difficulties or physical disabilities. The challenge is to ensure that our teaching methods and activities cater to this variety, promoting an inclusive learning environment where every student feels valued and supported.

With regards to the playdough activity, it would be beneficial to consider how it could be adapted or expanded to support the learning goals of all students, not just Jake. Could you provide some guidance on this?



# Pre-submission feedback and ideation



Chat with this agent to get feedback and ideas on your FHEA teaching case. Enter your message in the box at the bottom of this page. This agent has already been trained on the assessment rubric and the UKPSF so there's no need to provide these separately.



please give feedback on the below case for A2:

By pre-recording lectures, I enable students to engage with the material at their own pace, pausing and reviewing complex sections as needed. This initial exposure outside the classroom empowers them to come to class prepared to delve deeper into the subject matter. Consequently, class time is dedicated to applied learning, which typically involves discussions, problem-solving sessions, and collaborative projects, fostering a dynamic environment where students synthesize and apply their knowledge in practical contexts. This approach has also allowed for increased differentiation in learning, catering to a diverse range of student needs. Advanced students are challenged with higher-order tasks, while those needing reinforcement receive targeted support. The role of technology has been pivotal in this transition, utilizing learning management systems for seamless distribution of materials and fostering an interactive online community.

Moreover, I employ formative assessments during classroom activities, which provide immediate feedback and inform my teaching in real time. This feedback loop ensures that no student falls behind, as misconceptions can be addressed promptly. The impact of the flipped classroom model on student learning has been evidenced by the measurable improvement in exam performance and the positive feedback received from students, who report a greater sense of control over their learning journey. The flipped classroom model aligns with the UK Professional Standards Framework (UKPSF) in promoting active learning and student engagement (A5), integrating appropriate technologies to enhance learning (K4), and providing quality support to students (V1). My reflective practice in this area demonstrates my commitment to continuous professional development (V3) and to fostering an inclusive learning environment (V2).



Your teaching case for A2 (Teaching and/or supporting learning) shows a clear application of the flipped classroom model and how it supports varied student needs. You also highlight the use of technology and digital resources, which aligns well with the digital content of Domain 2 (DC) of the

# How might AI help teachers with assessment?



Hello, please type a feedback prompt (i.e. no error bars) for the BIOL1007 scientific report and I can help you expand on it. Please do not submit students' work.



fig legend vague



Your figure legend could be more informative. It should include variables being presented with units, study species, treatments and their sample sizes, and what the error bars represent. This allows readers to understand the content and interpret the data without referring back to the results section. Try refining this in your next report.



data not interpreted deeply



Although your interpretation of the results is clear, it could be improved by providing deeper connections to the original hypothesis and minimising the restatement of results. For a more insightful interpretation, elaborate on how the results support or challenge your initial hypothesis, drawing clear links between the data and your theoretical expectations.



methods lack detail



The details in your methods section appear to be incomplete. Providing a comprehensive method is crucial as it allows for the

# Building a Cogniti agent

- Natural language is the new programming language

# What might an 'AI double' of you do?

- If every student had a version of you available to them 24/7, what would you tell that clone to do?
  - Provide instant and personalised feedback
  - Beg them to do some work
  - Explain concepts
  - Answer standard questions
  - Guiding individual learning at own pace
  - Teach how to do fieldwork
  - Remind about practice techniques
  - Encourage curiosity
  - Provide extension tasks
  - Mimic workplace conversations
  - Socratic questioning
  - Scaffold tasks
  - Understand the marking rubric
  - Get to know them

# Strategic approaches to integrating generative AI in education

# Three pillars of action

- Governance
  - Guidelines, guardrails, aspirations
- Familiarity
  - Awareness, understanding, comfort
- Access
  - Equity, safety, trust
  
- Collaboration

# What is the human value-add?

Chan and Tsi (2023)

- Normalising human-AI collaboration
- Critical thinking?
- Culture?
- Creativity?
- Curiosity?
- Connection?
- Care?

**Thank you**

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