The creative use of pedagogically driven GenAI tools to support TLA
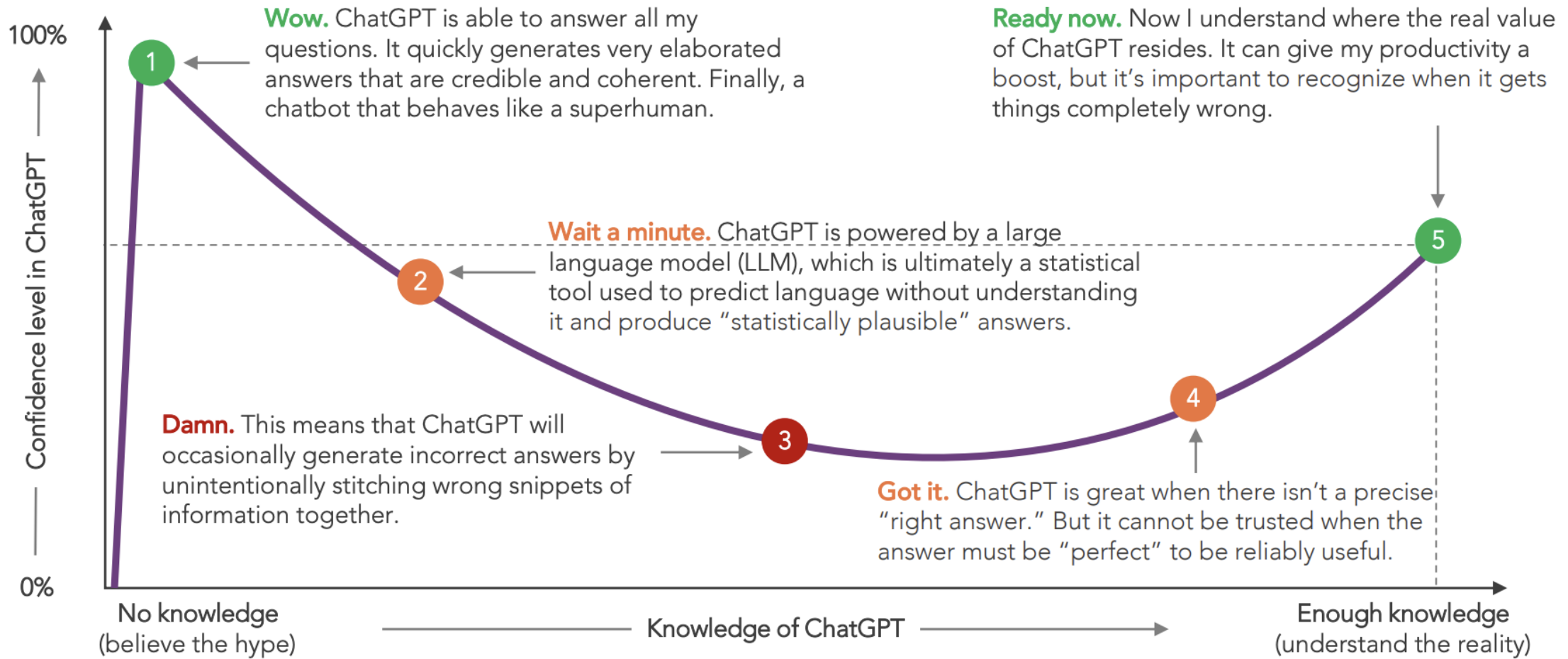
Dr Tadhg Blommerde

20.11.2024

ChatGPT—The Dunning–Krüger effect

Confidence level in ChatGPT (vertical axis: 0% to 100%)

Knowledge of ChatGPT (horizontal axis: No knowledge (believe the hype) → Enough knowledge (understand the reality))

1 — **Wow.** ChatGPT is able to answer all my questions. It quickly generates very elaborated answers that are credible and coherent. Finally, a chatbot that behaves like a superhuman.

2 — **Wait a minute.** ChatGPT is powered by a large language model (LLM), which is ultimately a statistical tool used to predict language without understanding it and produce "statistically plausible" answers.

3 — **Damn.** This means that ChatGPT will occasionally generate incorrect answers by unintentionally stitching wrong snippets of information together.

4 — **Got it.** ChatGPT is great when there isn't a precise "right answer." But it cannot be trusted when the answer must be "perfect" to be reliably useful.

5 — **Ready now.** Now I understand where the real value of ChatGPT resides. It can give my productivity a boost, but it's important to recognize when it gets things completely wrong.

Source: HFS Research

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Sample of GenAI Chatbot Tools

Bing Chat/Copilot - https://www.bing.com/chat

ChatGPT - https://chatgpt.com/

Perplexity (cites sources [supposedly]) - https://www.perplexity.ai/

Google Gemini (formerly Bard) - https://gemini.google.com/app

Pi (emotionally intelligent [supposedly]) - https://pi.ai/talk

Claude - https://claude.ai/

Copy.ai - https://www.copy.ai/

Jasper AI - https://www.jasper.ai/

MaxAI - https://www.maxai.me/

Rytr (sounds human [supposedly]) - https://rytr.me/

TinyWow - https://tinywow.com/tools/write

Wordtune - https://www.wordtune.com/

Writesonic - https://writesonic.com/

Nothing but the best… for the best

https://claude.ai/

	Claude 3.5 Sonnet	Claude 3 Opus	GPT-4o	Gemini 1.5 Pro	Llama-400b (early snapshot)
Graduate level reasoning *GPQA, Diamond*	59.4%* 0-shot CoT	50.4% 0-shot CoT	53.6% 0-shot CoT	—	—
Undergraduate level knowledge *MMLU*	88.7%** 5-shot	86.8% 5-shot	—	85.9% 5-shot	86.1% 5-shot
	88.3% 0-shot CoT	85.7% 0-shot CoT	88.7% 0-shot CoT	—	—
Code *HumanEval*	92.0% 0-shot	84.9% 0-shot	90.2% 0-shot	84.1% 0-shot	84.1% 0-shot
Multilingual math *MGSM*	91.6% 0-shot CoT	90.7% 0-shot CoT	90.5% 0-shot CoT	87.5% 8-shot	—
Reasoning over text *DROP, F1 score*	87.1 3-shot	83.1 3-shot	83.4 3-shot	74.9 Variable shots	83.5 3-shot Pre-trained model
Mixed evaluations *BIG-Bench-Hard*	93.1% 3-shot CoT	86.8% 3-shot CoT	—	89.2% 3-shot CoT	85.3% 3-shot CoT Pre-trained model
Math problem-solving *MATH*	71.1% 0-shot CoT	60.1% 0-shot CoT	76.6% 0-shot CoT	67.7% 4-shot	57.8% 4-shot CoT
Grade school math *GSM8K*	96.4% 0-shot CoT	95.0% 0-shot CoT	—	90.8% 11-shot	94.1% 8-shot CoT

* Claude 3.5 Sonnet scores 67.2% on 5-shot CoT GPQA with maj@32
** Claude 3.5 Sonnet scores 90.4% on MMLU with 5-shot CoT prompting

Image source: Anthropic

Using limited free plan **Upgrade**

✳ Good evening, Tadhg

How can Claude help you today?

Claude 3.5 Sonnet

Get started with an example below · 📎 **Add content**

Extract insights from report

Generate excel formulas

Provide stakeholder perspective
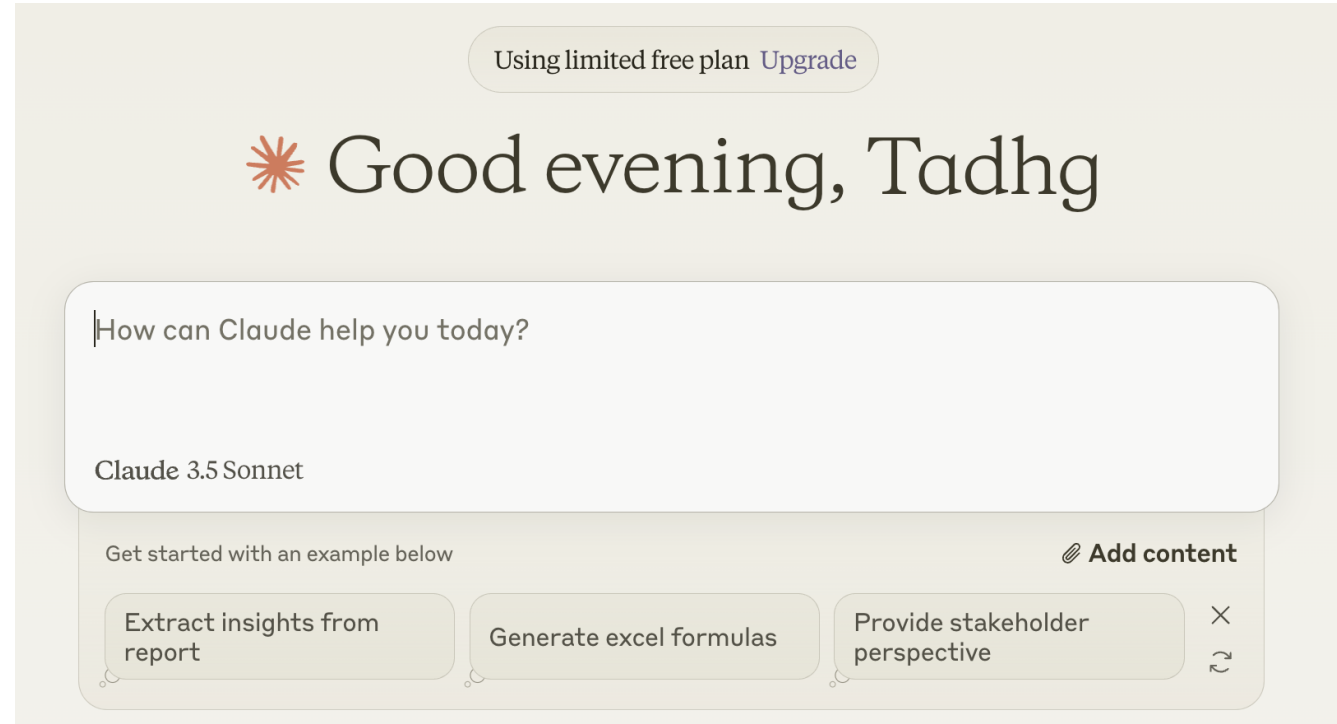
Sends verification email before you can use

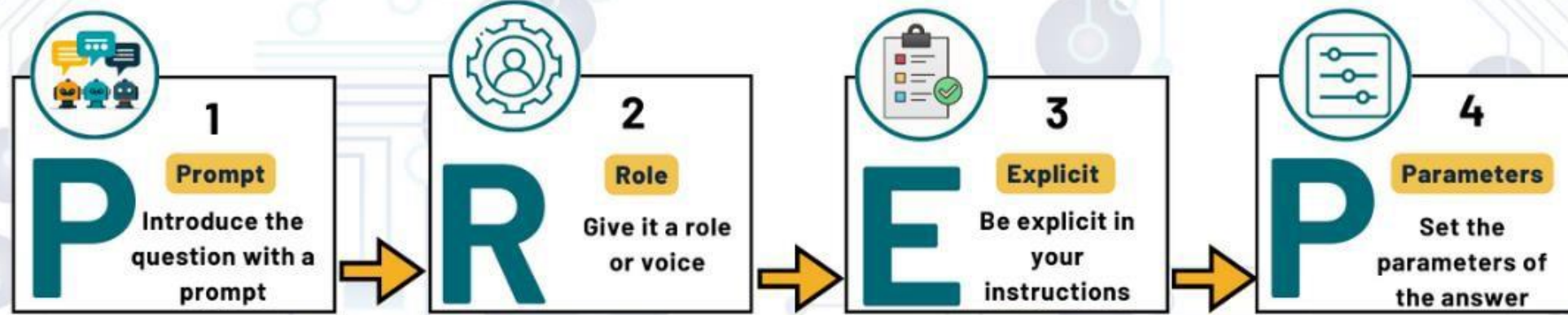# Prompt Engineering
(many similar frameworks)

- **CARE** (context, ask, rules, and examples)

- **P (Persona):** Defines the AI's role or identity
- **R (Request):** Clearly states the desired output or information
- **O (Output Type):** Specifies the format or type of response
- **M (Modifier):** Shapes the response through constraints or specifics
- **P (Provide Example):** Offers an exemplary response to guide AI
- **T (Tone):** Sets the tone, style, or manner of AI's reply

- **R**: Role
- **I**: Instructions
- **S**: Steps
- **E**: End goal
- **N**: Narrowing

PROMPT ENGINEER FRAMEWORK

@AmandaFoxSTEM
@DanFitzTweets
@WeinsteinEdu

THE AI CLASSROOM

First, PREP the Machine.

1 — Prompt
Introduce the question with a prompt

2 — Role
Give it a role or voice

3 — Explicit
Be explicit in your instructions

4 — Parameters
Set the parameters of the answer

Then, EDIT the Output.

5 — Evaluate
Evaluate your AI output content for language, facts, and structure

6 — Determine
Determine accuracy and corroborate with source.

7 — Identify
Identify biases and misinformation in output.

8 — Transform
Transform content to reflect adjustments and new findings

Re-PREP & EDIT until satisfied

The #AICLASSROOM

Fitzpatrick *et al.*, 2023. *The AI Classroom: The ultimate guide to Artificial Intelligence in Education*

Even this has been extended

GETTING THE MOST FROM CHATGPT

P — **PROMPT** — Introduce what you want

R — **ROLE** — Give it a role

E — **EXPLICIT** — Be explicit with your instructions

P — **PARAMETERS** — Set the parameters of the answer

A — **ASK** — Ask it to ask you follow up questions

R — **RATE** — Ask it to rate its response

E — **EMOTIONS** — Appeal to its emotions

E — **EVALUATE** — Evaluate the strength of the response

D — **DETERMINE** — Determine accuracy & corroborate

I — **IDENTIFY** — Identify any bias & misconceptions

T — **TRANSFORM** — Update content

TheAIEducator.io

Northumbria University NEWCASTLE

Lesson Planning and Content Creation

- <mark>Generating lesson plans for lectures or seminars</mark>
- Suggesting relevant examples or case studies for complex concepts
- Creating reading lists by recommending academic papers or books

Lesson Planning and Content Creation

Multi-shot

I am a lecturer that would like your help to design a lesson plan for a lecture and seminar that teaches undergraduate students the basics of research philosophy. Ask me as many questions as you need to in order to help me develop these lesson plans, please.

OR

One-Shot

P: I would like your help, please, to design a lesson plan for a lecture and a seminar that teaches undergraduate students the basics of research philosophy. We use the term 'paradigm' in the module.
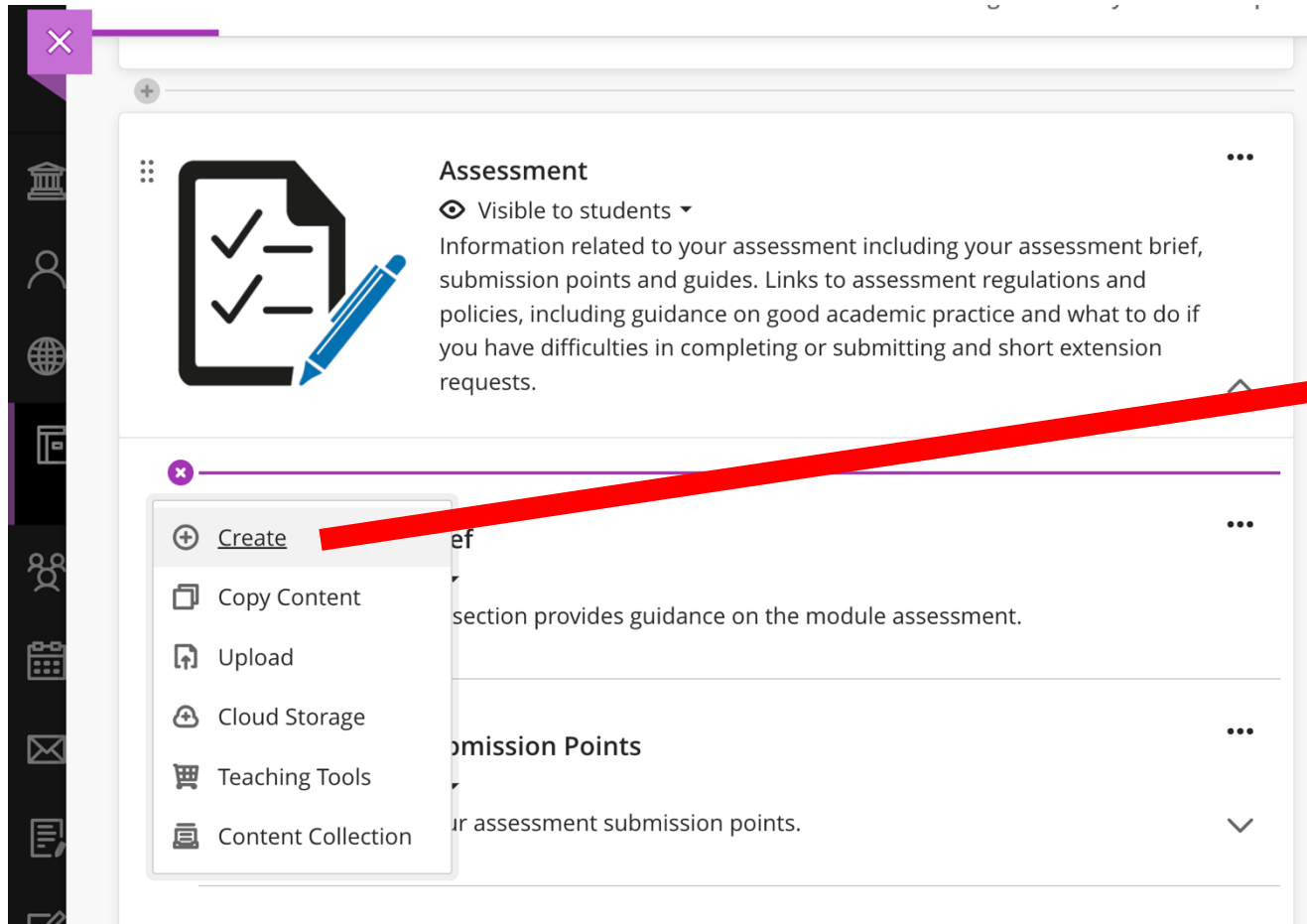
R: I am a senior lecturer and my students are second year undergraduates, studying Business and Entrepreneurship and International Business Management.

E: The first lesson plan should be for a lecture that is 60 minutes in length and the second lesson plan is for a seminar that is 120 minutes in length. The lecture should focus on teaching the key concepts and ideas and the seminar should be based around activities that students can do to test their understanding of lecture content.

P: Write in UK English and use bullet points for the lesson plans.

https://medium.com/illuminations-mirror/do-you-say-please-and-thank-you-to-artificial-intelligence-b7debfd12263
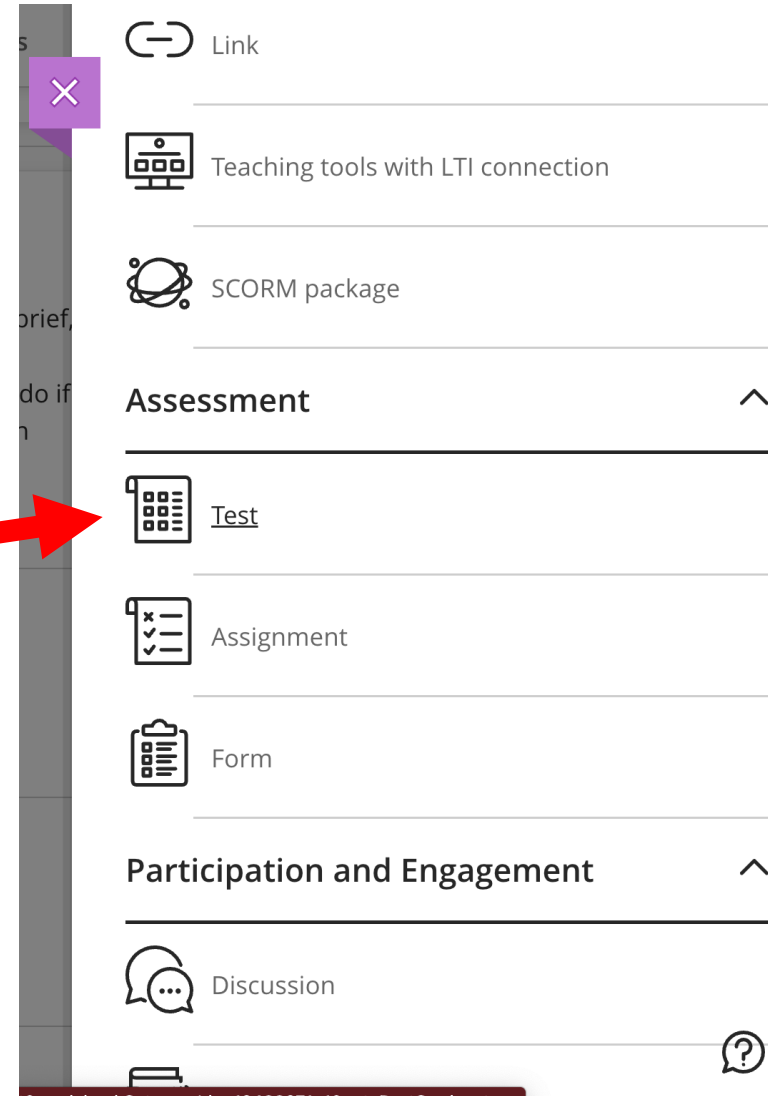
Assessment Support

AI-generated quiz to test understanding

Assessment Support

Do not randomise first page

Formative Tools

☑ Formative assessment
This is not automatically excluded from any marks calculations.

☑ Display formative label to students

Marking & Submissions

Mark category

Quiz ▾

Attempts allowed

Unlimited ▾

Attempts to mark

Last attempt ▾

⊘

Mark using

Cancel   **Save**

2024SEM2_SM9538BNN01 : Business Research and Analysis

New Test 14/09/2024

⊘ Hidden from students ▾

Content and Settings   Submissions (0)   Student Activity   Question Analysis

Abc

Create your assessment

Select the plus icon to get started

✛

☑ Allow students to add content at end of assessment

Students can add text, images and files here.

Assessment Settings   ⚙

📅 **Due date**
Tomorrow
Sun 15 Sep 2024 23:59 (UTC+1)

⭐ **Formative Assessment**
Formative Tools

📄 **Mark category**
Quiz

📋 **Marking**
Points | 100 maximum points
Post marks automatically when assessment is marked. Change mark posting setting.

☑ **Attempts allowed**   ⊘
Unlimited

Assessment Support

Assessment Support

☐ **Question 1**

Which paradigm is based on the belief that reality is subjective and researchers interact with what is being researched?

Ⓐ Idealism	
Ⓑ Positivism	
Ⓒ Interpretivism	Correct answer
Ⓓ Pragmatism	

English, British - English

✦ Generate

Cancel

Add to Assessment

Student Support

- Developing FAQs for module handbooks or virtual learning environments
- Creating study guides or revision materials
- Generating explanations of complex topics in simpler terms
- Crafting email templates for common student queries

Multi-shot

I am a lecturer that would like your help to explain research philosophy to undergraduate students in a clear and simple way. In my module, we use the term 'paradigm' and only consider interpretivism and positivism. Ask me as many questions as you need to in order to help me explain research philosophy or 'paradigms' to students in a clear and simple way that will help them understand this complex concept, please.

OR

One-Shot

P: I would like your help, please, to explain clearly and simply to undergraduate students the basics of research philosophy. We use the term 'paradigm' in the module. I would like you to use this term.

R: I am a senior lecturer and my students are second year undergraduates, studying Business and Entrepreneurship and International Business Management.

E: The simple and clear explanation that you provide should be appropriate for second year undergraduates and only consider positivism and interpretivism. Explain what research paradigms are, why they are important, what positivism and interpretivism are, the types of research that they may be appropriate for, and provide some examples for how students might be able to apply these paradigms to an undergraduate research project or dissertation. Make sure that the explanations and examples are of an appropriate level of complexity for undergraduate students and that they will be able to understand the material.

P: Write in UK English.

Inclusive Teaching

- <mark>Suggesting ways to make materials more accessible</mark>

- Generating ideas for diverse examples in teaching content

- Helping craft inclusive language for course materials

- Proposing strategies for engaging students with different learning styles

Inclusive Teaching

Modify the below prompt to learn how you could improve the accessibility of your teaching materials.

I would like your help to make the attached lecture slides more accessible for students, please. I am a senior lecturer teaching a research methods module at a UK university. My students are second year undergraduates studying Business and Entrepreneurship and International Business Management. The class is about 15% international students, mostly from Asia and Europe. Please read the attached and give me any comments on ways that I could improve the readability or accessibility of these lecture slides. Answer in UK English and use bullet points.

Inclusive Teaching Extra

I wrote the below prompt that transforms any assessment brief into a version that's easier to read and comprehend for students.

The purpose of this prompt is for you to rewrite the attached assignment brief so that it can be read and comprehended by all students, including those with literacy issues or hidden disabilities.

It should be written in the style of a caring lecturer who wants to simplify an assessment brief containing the instructions for an assignment as much as possible to ensure it can be understood by all students.

You should consider the below in your rewrite of the assessment brief, though you are not limited to these. Do all you can to make the rewritten assessment brief as inclusive and accessible as you can.

Use clear, concise language. Avoid unnecessary jargon and idiomatic expressions that can confuse non-native speakers or students with specific learning disabilities.

Clearly state what is expected, how tasks should be completed, and the criteria for assessment. Ambiguity can be particularly challenging for students with autism spectrum disorders or anxiety disorders.

Organise content with headings, subheadings, bullet points, and numbered lists to make the brief easy to navigate.

Use accessible fonts (e.g., Arial, Calibri, Verdana) and appropriate font sizes (at least 12pt) to ensure readability.

Ensure high contrast between text and background. Avoid using colour as the only means of conveying information, which can be problematic for students with colour blindness.

Ensure the content and examples used in the assessment are culturally diverse and inclusive, reflecting a range of experiences and backgrounds.

Use gender-neutral language and avoid assumptions about students' backgrounds, abilities, and experiences.

The rewritten assessment brief should be in UK English and written as clearly and concisely as possible, adhering to all the instructions in this prompt. All text below this point is the assessment brief.

Professional Development

- Suggesting areas for improvement based on teaching evaluations
- Generating ideas for teaching portfolio entries
- Crafting personal statements for teaching award applications
- Proposing learning outcomes for new modules or programmes

Student Engagement

- Creating icebreaker activities for the first day of class
- <mark>Generating discussion prompts for seminars or discussion boards</mark>
- Suggesting interactive elements to incorporate into lectures
- Proposing ideas for group projects or presentations

University Policy

- Confusing

"The University is working towards ensuring that each assignment brief makes it clear if and how AI can be used for each module assessment. Whilst that guidance is being developed, the position is that you should not use AI-generated content in your assignments or other assessed work (unless specifically instructed to do so)."

- Use judgement
- Can't trust AI detectors (especially Turnitin)

"Ghosting exists where: 3.6.1 A student submits as their own, work which has been produced in whole or part by another person or AI system on their behalf, e.g. the use of a 'ghost writing' service, AI system or similar. This is also often referred to as 'contract cheating' and covers the purchase of services from on-line essay writing sites and the use of AI systems to generate essays."

For Suspected Academic Misconduct

- Not based on AI detector score or metadata
- Grey outline (copied from elsewhere)
- Writing plausible for student?
- Direct quotations?
- Meaningful engagement with literature?
- Evidence of critical or analytical thinking?

Informal meeting and ask for draft(s)

Ask how they used GenAI? (see prompt or earlier version of work)

Not satisfied with the explanation? Academic Misconduct process raised by Module Tutor contacting Academic Support Team

https://livenorthumbriaac.sharepoint.com/:w:/r/sites/slas/qsl/_layouts/15/Doc.aspx?sourcedoc=%7B704B8F95-5B35-4451-9F02-1A48118143FB%7D&file=GD.006-v004%20Academic%20Misconduct%20Investigation%20-%20Staff%20Guidance.docx&action=default&mobileredirect=true

Most GenAI submissions can be failed on their merits

Bonus Materials

- https://youtu.be/3rN783oIknM
- https://youtu.be/_SRd91UguoQ

I hope you all enjoyed this session and found it useful

Feel free to contact me any time (tadhg.blommerde@northumbria.ac.uk)

I love talking about how GenAI can be used to make staff more productive and improve student's outcomes and experience