

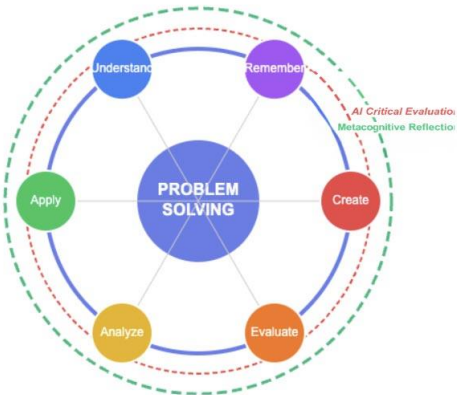
The UnBlooms™ model

A Problem-Centered Approach to Learning Design in the AI Era

Tina Austin

AI Strategist and Lecturer in Computational Biology, Biomedical Research, and AI Ethics

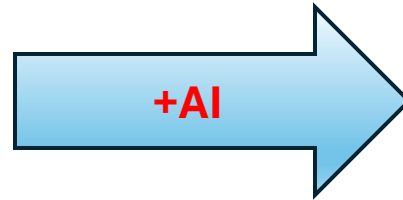
September 16th 2025 AIEOU Conference University of Oxford UK



My personal teaching story:

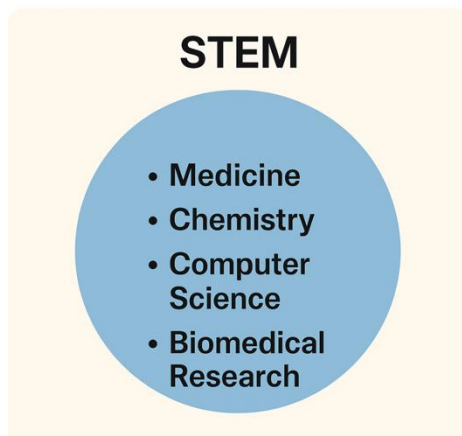
Teaching Pre- AI:

- Biomedical research
- Ethics of Reproductive Tech
- Regenerative Medicine
- Statistics
- Biochemistry



Teaching Post- AI:

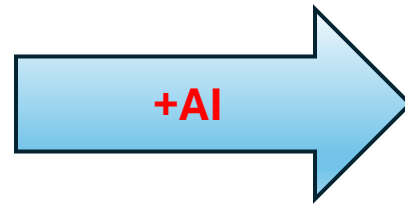
- **AI** and Medicine
- **AI** Ethics in medicine
- **Computational** Biology
- **AI** and Gender Bias
- Communications **and AI**
- Generative **AI for critical thinking**
- Problem solving **with AI**
- **AI for Faculty** Professional Development



Teaching across disciplines revealed one truth:

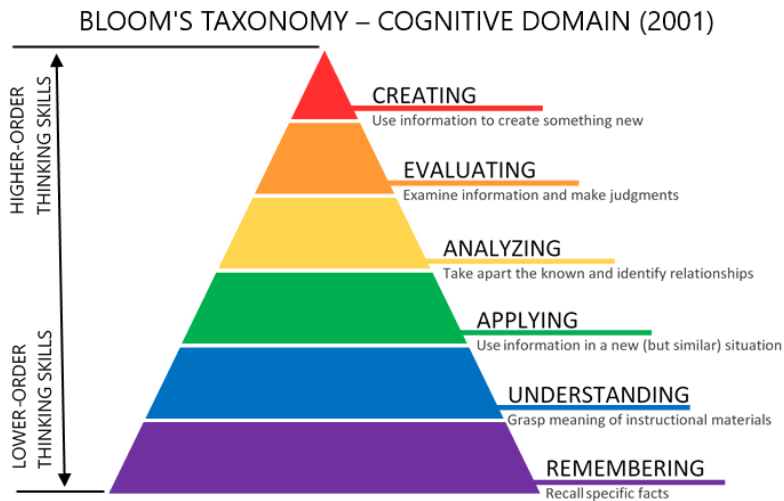
Teaching Pre- AI:

Old pedagogy



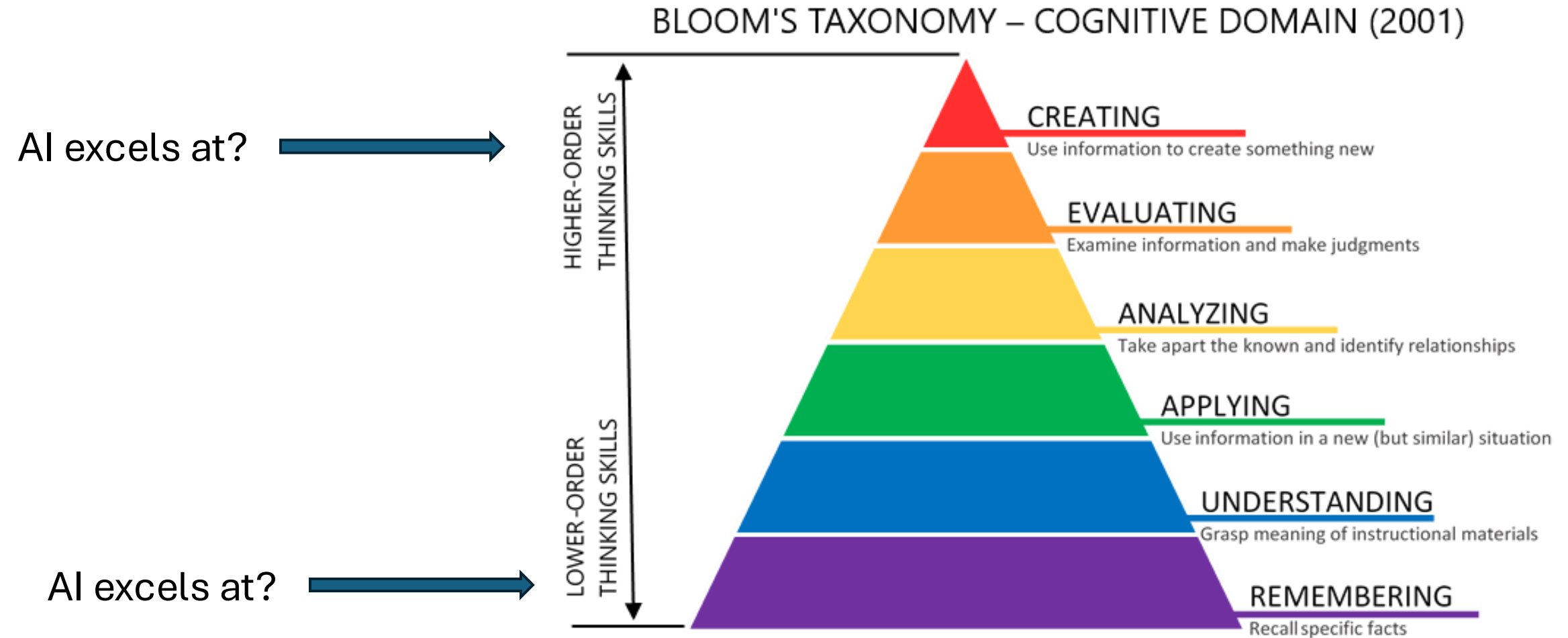
Teaching Post- AI:

New pedagogy

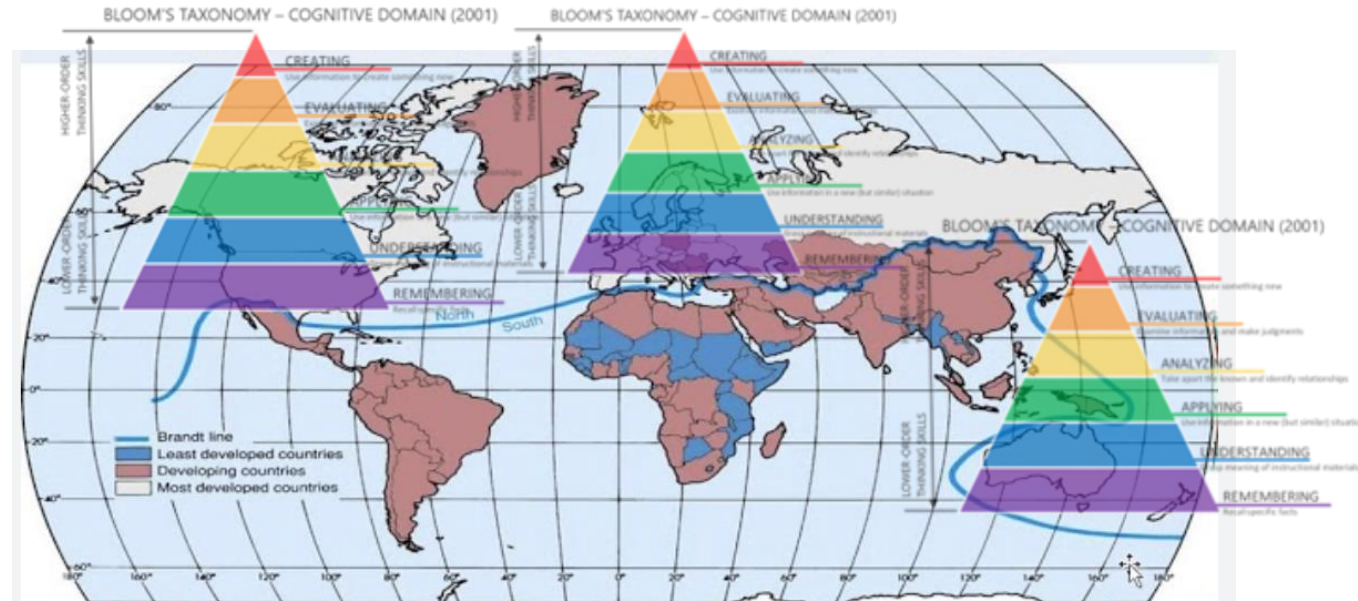


Old pedagogies don't fit new realities.

Rethinking Bloom's Taxonomy in the Age of AI



Other weakness: Equity Issues in the age of AI



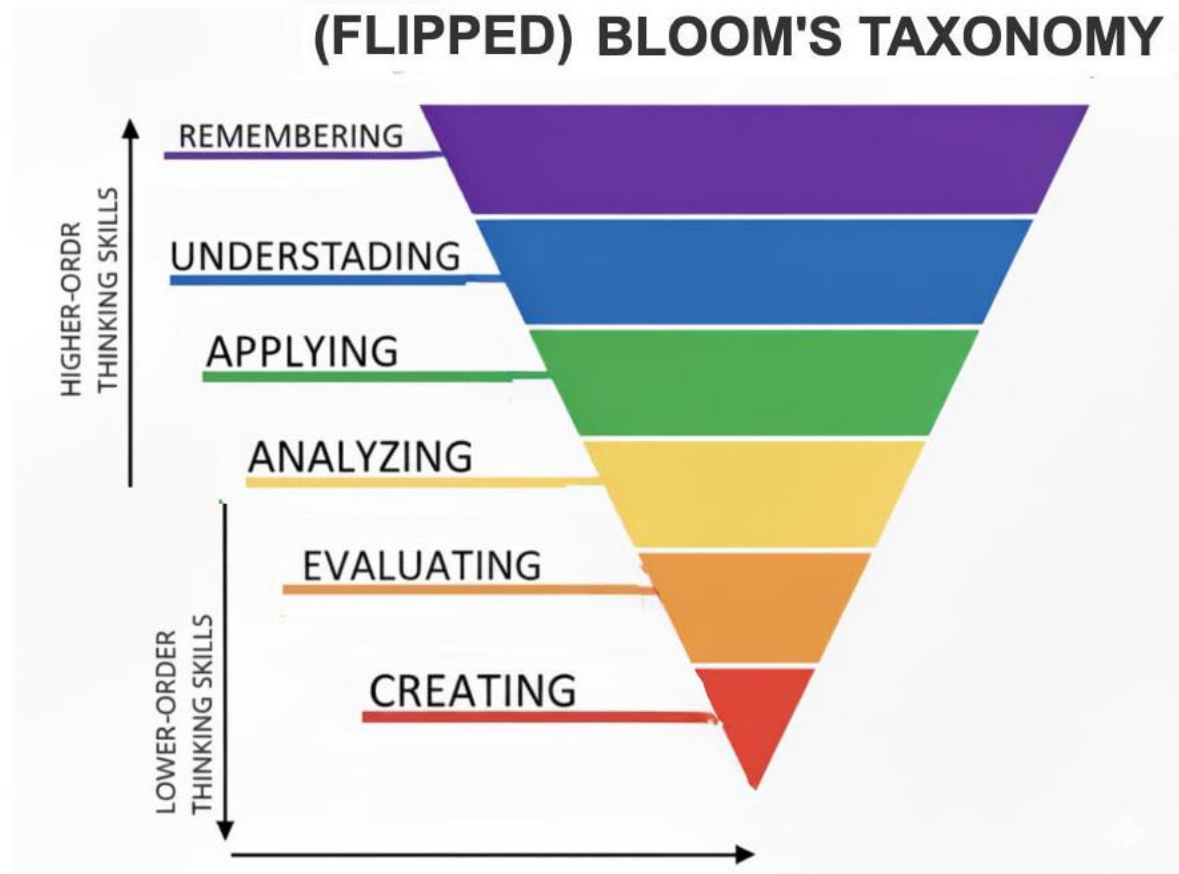
- **Built for resource-rich classrooms** — assumes uniform access to tools, teachers, and infrastructure.
- **Ignores global disparities** — linear hierarchy doesn't reflect uneven access to technology and AI.
- **Outdated for the AI era** — a 20th-century Western model can't guide equitable learning worldwide

Does reversing Bloom's taxonomy always work?

Fixed Hierarchy → “One Path Fits All”

Overvalues “Remember” as the Peak

Ignores Non-Linear, Iterative Learning



Traditional learning models don't fit

Traditional Bloom's

Remember →
Understand →
Apply →
Analyze →
Evaluate →
Create

Problem:

Students can
now create first
with AI

Inverted Bloom's

Create →
Evaluate →
Analyze →
Apply →
Understand
→ Remember

Problem:

Doesn't work
for STEM
experiments

Introducing the UnBlooms™ Framework

*A problem-centered, equity-driven learning model
built from my classroom realities since 2022.*

I built this model based on community feedback

AI initiatives group I put together in 2023

AI workgroups and educator surveys (600+)

Faculty workshops I delivered since 2023

Learning models updated

Traditional Bloom's

Remember →
Understand →
Apply →
Analyze →
Evaluate →
Create

Problem:

Students can
now create first
with AI

Inverted Bloom's

Create →
Evaluate →
Analyze →
Apply →
Understand
→ Remember

Problem:

Doesn't work
for STEM
experiments

Unbloom Solution

Start where
the problem
demands

Advantage:

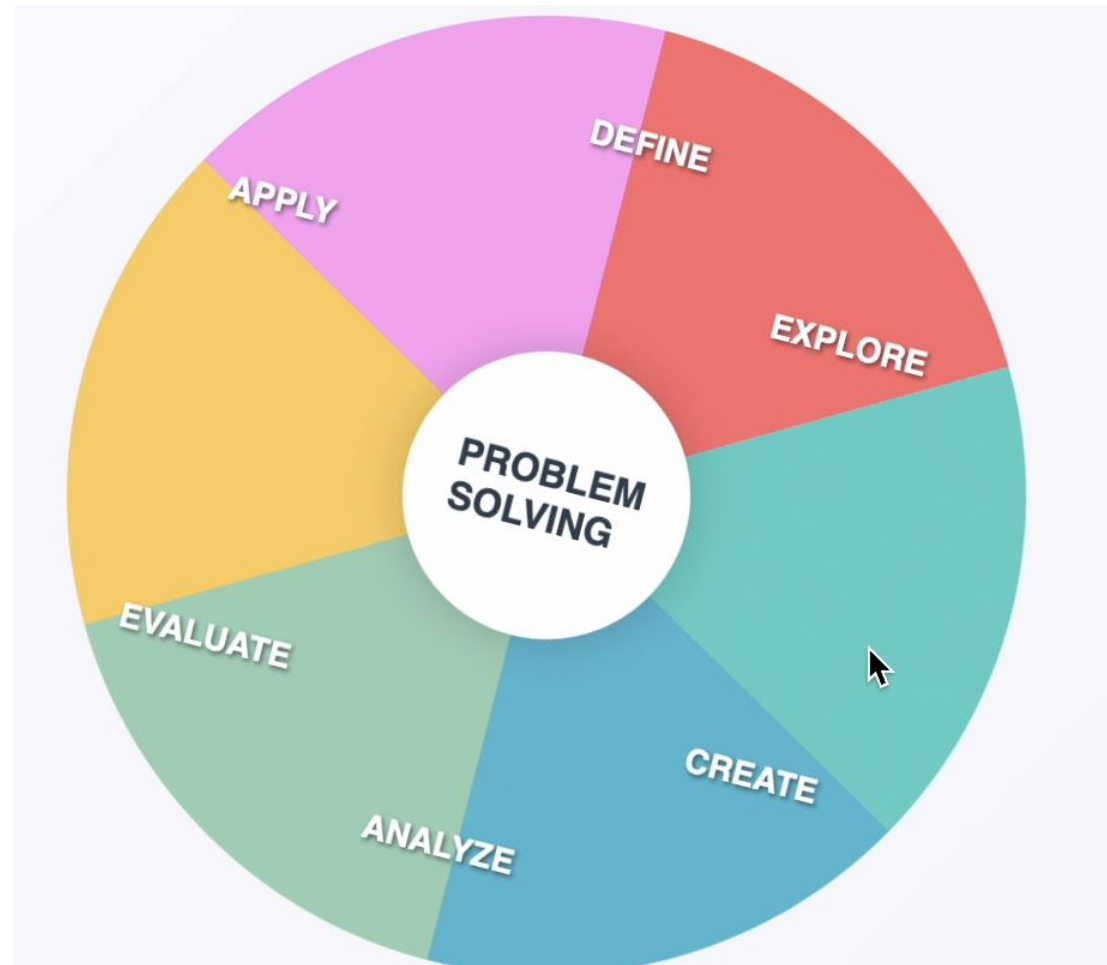
Flexible,
problem-
centered
approach

Key Features of my UnBlooms™ framework

Adaptive sequencing: The cognitive processes rearrange based on specific learning goal, not a hierarchy

AI integration points: Identifies where AI can scaffold learning vs. where human thinking is essential

Disciplinary awareness: Recognizes that "creating" means different things in biology vs. literature vs. coding
Allows faculty to better rethink assessment



The UnBlooms™ framework

The Underlying Philosophy:

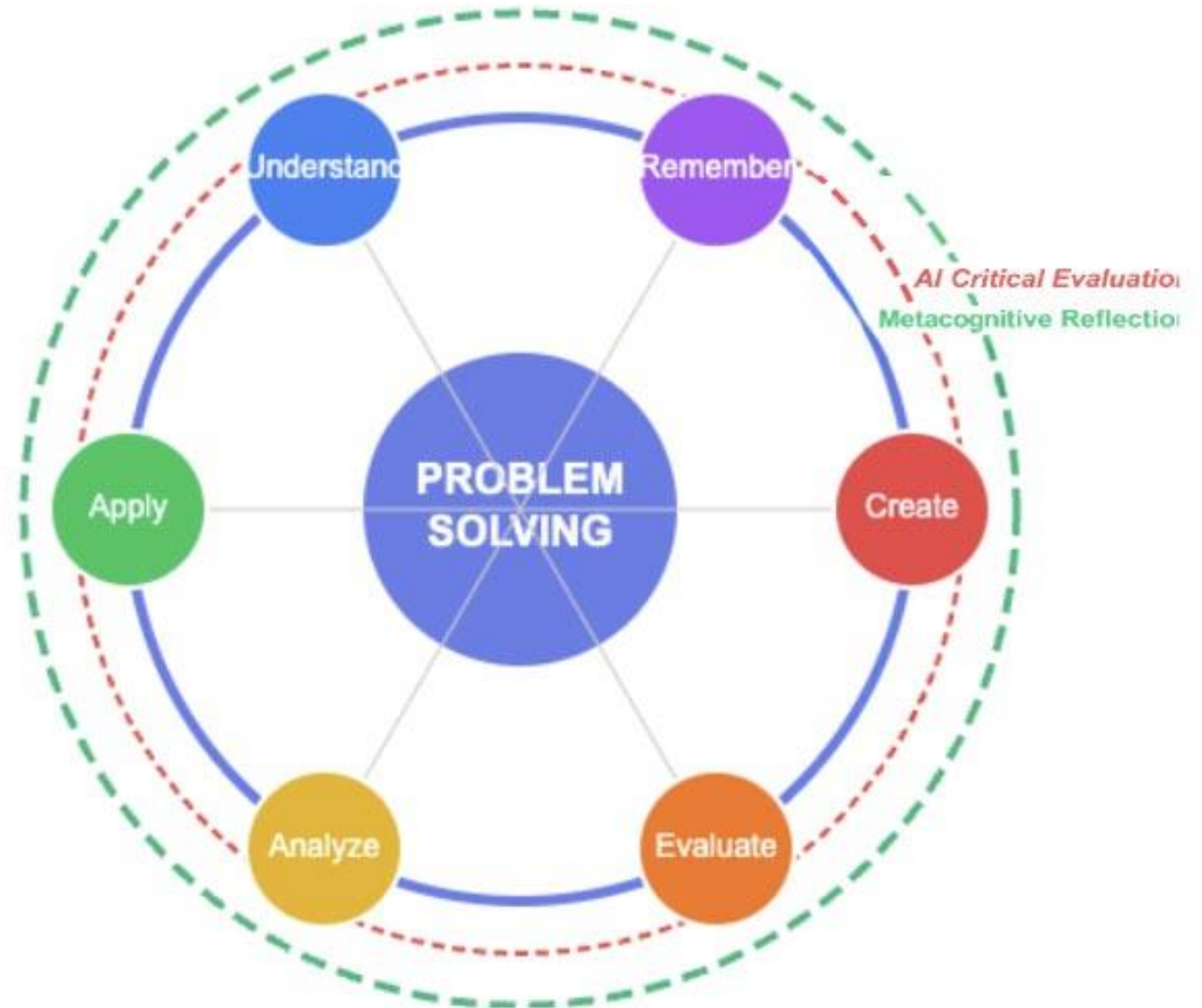
Non-hierarchical: Learners can move fluidly between “level

Non-linear: Reflection and creation happen at any point.

Non-Western: Recognizes diverse epistemologies and cont

Ethical: Centers decision-making, not blind adoption, of AI.

© 2025 Tina Austin. All rights reserved.



Core Principles of UnBlooms™

Learning is **non-linear and recursive**

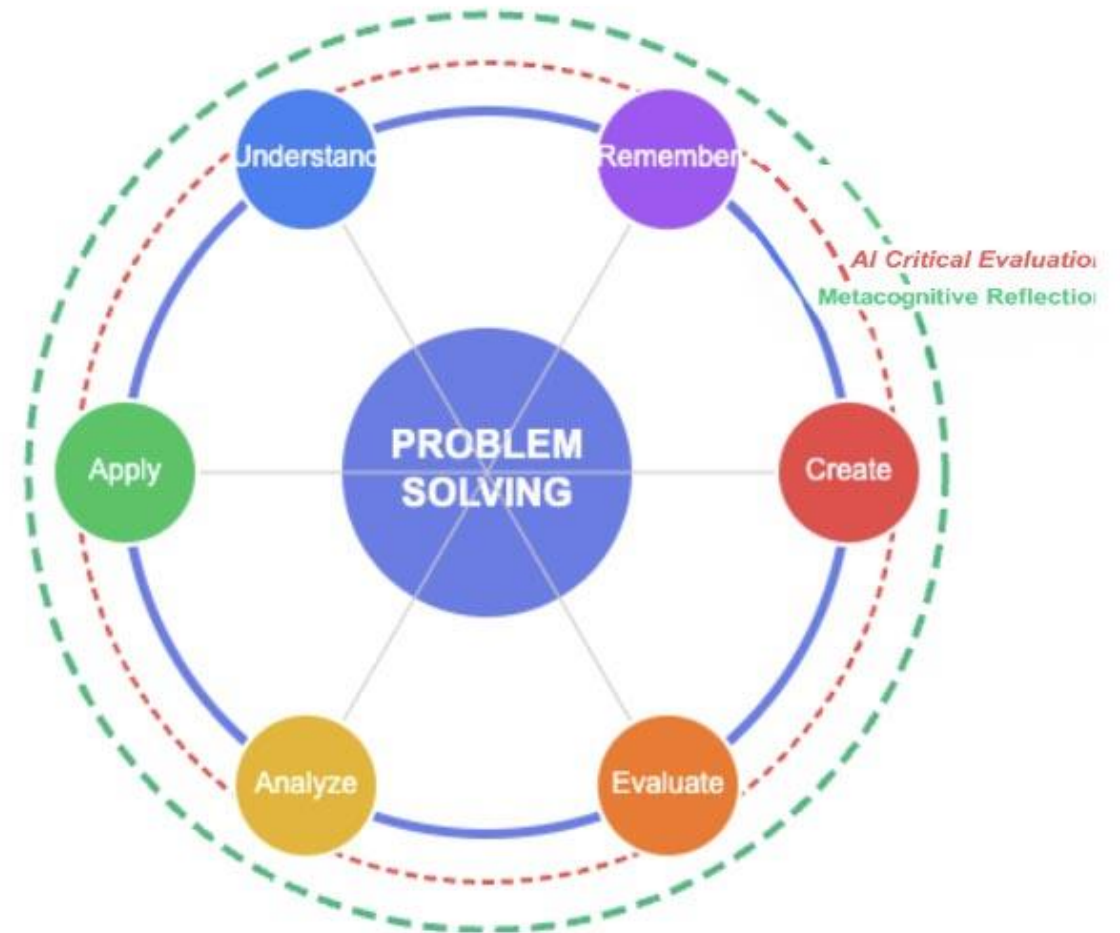
Problem-solving drives engagement

AI serves as a **cognitive amplifier (only if needed)**

Metacognitive reflection encouraged

Context determines entry point

AI is there to be critically evaluated



More equity minded

- When learning is circular, not linear, students anywhere using **UnBlooms™** can start with inquiry, critique, or reflection (not just recall).



How is UnBlooms™ Different from Fink (2003) model?

Fink's Dimension	Underlying Value	UnBlooms™ Parallel / Response	Key Difference
Foundational Knowledge	Understanding as the base for connection	Contextual Understanding — knowledge begins from the learner's <i>problem</i> , not a fixed base. Students access knowledge as needed through iterative inquiry.	UnBlooms™ decentralizes “foundation.” There's no single starting point — learning begins anywhere in the circle, depending on the problem.
Application	Doing and practice	Problem-Solving Core — all cognition radiates from solving real, context-driven problems.	In UnBlooms™ , application isn't a step <i>after</i> understanding — it's the organizing principle.
Integration	Connecting ideas across contexts	Recursive Reflection — learners connect AI outputs, human judgment, and local context in loops of reflection.	UnBlooms treats integration as <i>continuous</i> and <i>metacognitive</i> , not an outcome.
Human Dimension	Understanding self and others	Equity & Positionality — learners evaluate how AI tools and data reflect or distort social, cultural, and epistemic positions.	UnBlooms embeds ethics and critical AI literacy as part of being human in learning — not an add-on.
Caring	Motivation and engagement	Agency & Ownership — students critically decide when to <i>use</i> or <i>reject</i> AI tools. Caring is shown through discernment and responsibility.	Fink centers emotion; UnBlooms reframes care as <i>ethical agency</i> .
Learning How to Learn	Metacognition and lifelong adaptability	AI-Critical Metacognition — reflection on one's own thinking <i>and</i> how AI systems shape that thinking.	Fink's version is self-reflective; UnBlooms adds <i>system-reflective</i> metacognition — how tools themselves influence cognition.

A Taxonomy of Significant Learning. From: Fink, L. D. (2003). *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*. San Francisco, CA: Jossey-Bass. (p. 30).

How AI is a reason to Rethink Everything



WHY CRITIQUING
AI MATTERS



WHAT DO WE WANT
STUDENTS TO LEARN?



WHAT RESOURCES
ARE AVAILABLE?

Putting UnBlooms™ into Practice

- Includes when to **use** AI, and when to **skip** it
- The **UnBlooms™ Metacognitive Decision Tree**
- Save AI tools for where they make the *biggest impact*
- Includes reflection strategies across disciplines



UnBlooms™ Based on my experience with AI in my STEM and humanities classes since 2022



Instead of starting with memorization, one class may start with *interrogation* – a key element of critical thinking in the AI age.



I asked what if we gave students AI-generated content and asked them to *critique* it?



Then I built the Unblooms scale to critically evaluate it

Try my bot

(and send me feedback)



Unbloom-it Help educators Toward Critical Thinking

By tina austin 8

To improve critical thinking by helping educators reverse-engineer complex lesson tasks. This GPT begins by scaffolding human cognitive steps from different order thinking with and without AI tools

What do you want students to understand, do, o...

Are students using AI before they've formed their own...

Could students evaluate or critique an AI response as...

What Bloom's level does this task start at—and where do...

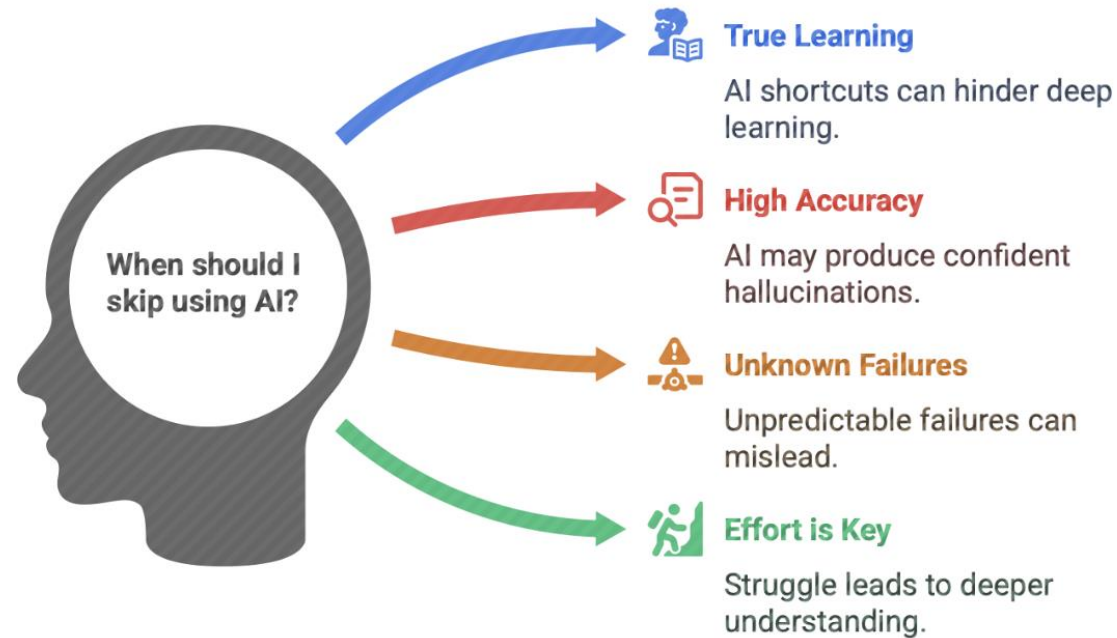


How to use it?

- Upload your lesson plan or question in the bot
- In the instructions : referencing this file for the best use
- If you have any questions/feedback please email me tina@tinaaustin.com

UnBlooms™ Metacognitive Framework:

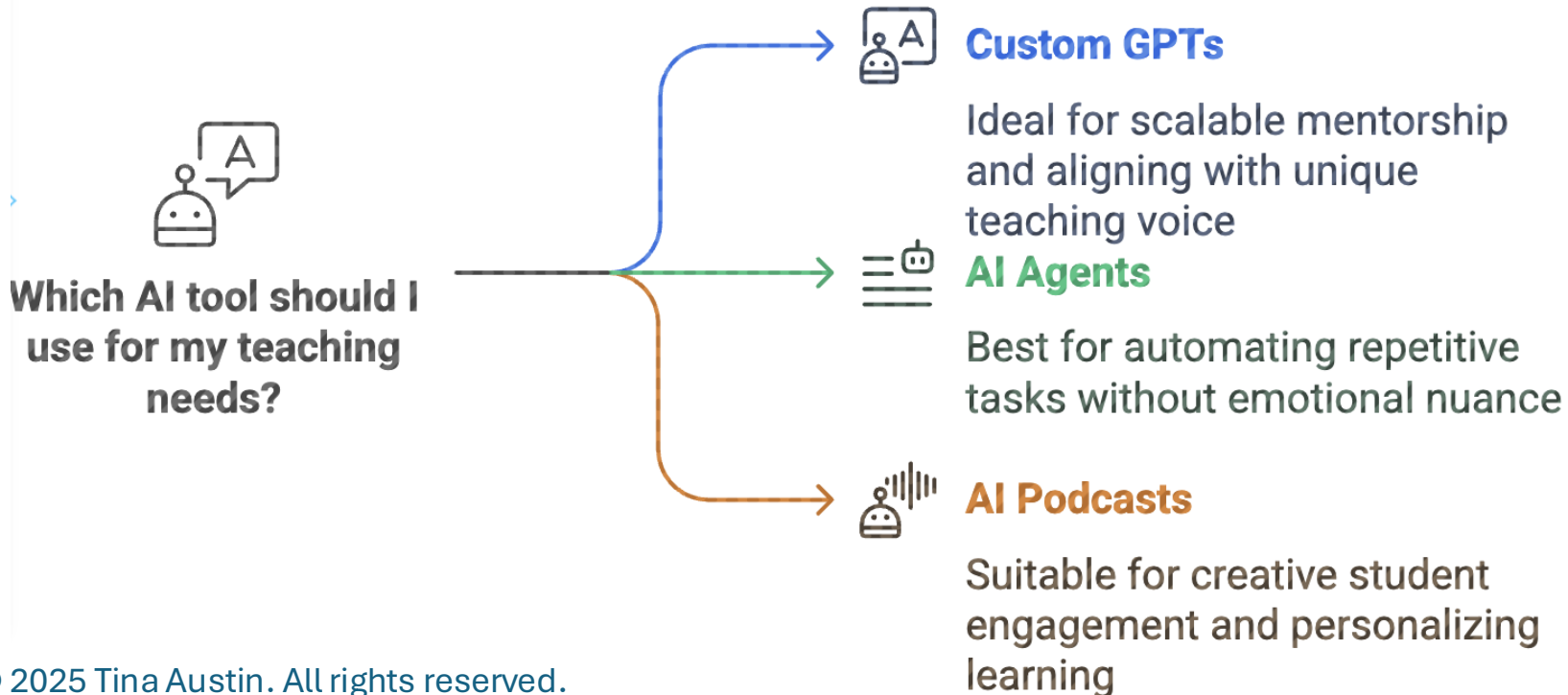
Knowing When *Not* to Use AI



UnBlooms™ Metacognitive Decision Tree

Where to implement what tool and what is the UnBlooms Scale?
(more details in my poster session)

- Saves AI tools for where it can make the biggest impact.



Practical Steps for Building Reflection into AI



**WHERE TO SCAFFOLD
REFLECTION INTO ASSIGNMENTS?**



PROMPT META-COGNITION

In closing:

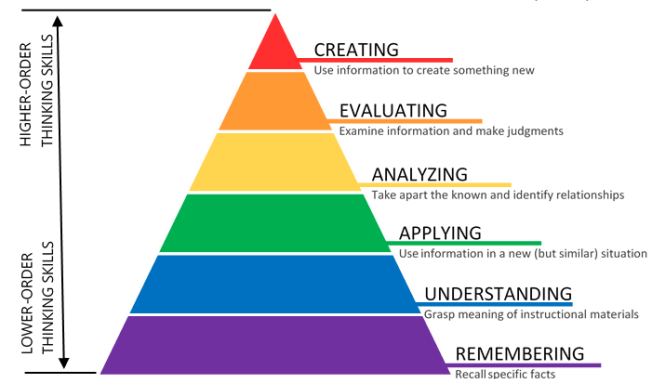
Rethink linearity.

Reclaim human judgment.

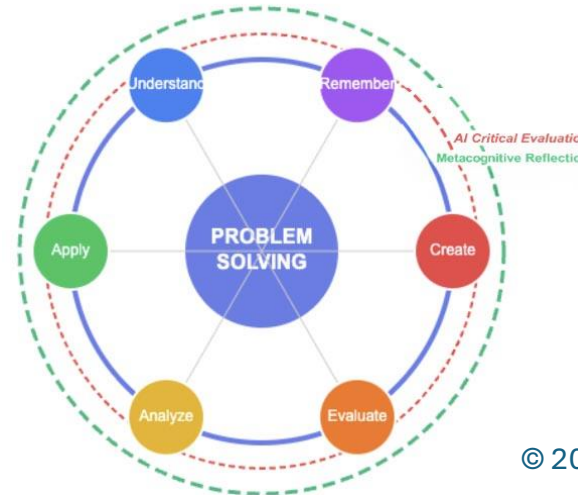
Rebuild equity in an AI world

Teaching Pre- AI:

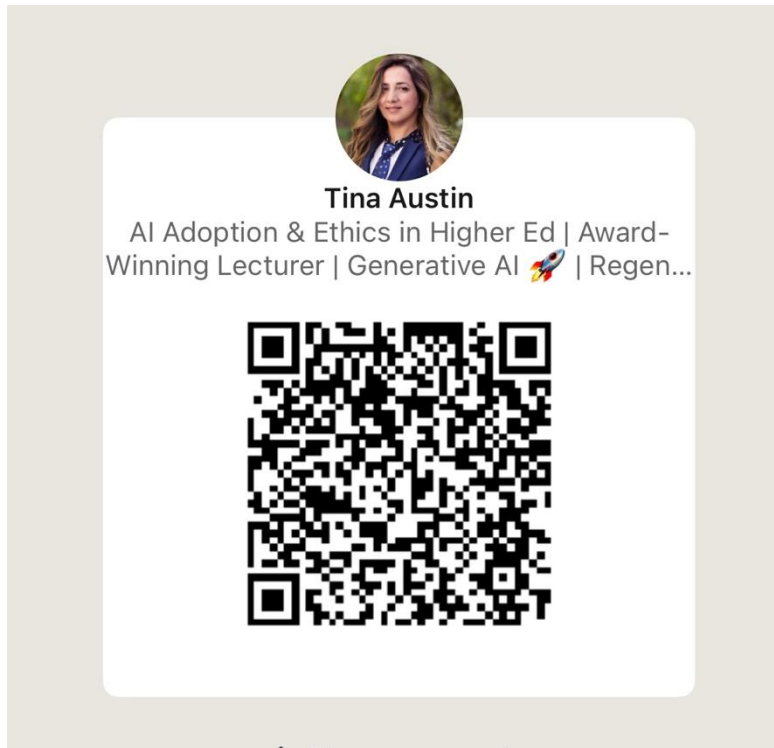
BLOOM'S TAXONOMY – COGNITIVE DOMAIN (2001)



Teaching Post- AI: **Unbloom it!**



Want examples, a workshop, collaboration, or to learn more?
Let's connect.



#unbloomit on linkedin



tina@tinaaustin.com