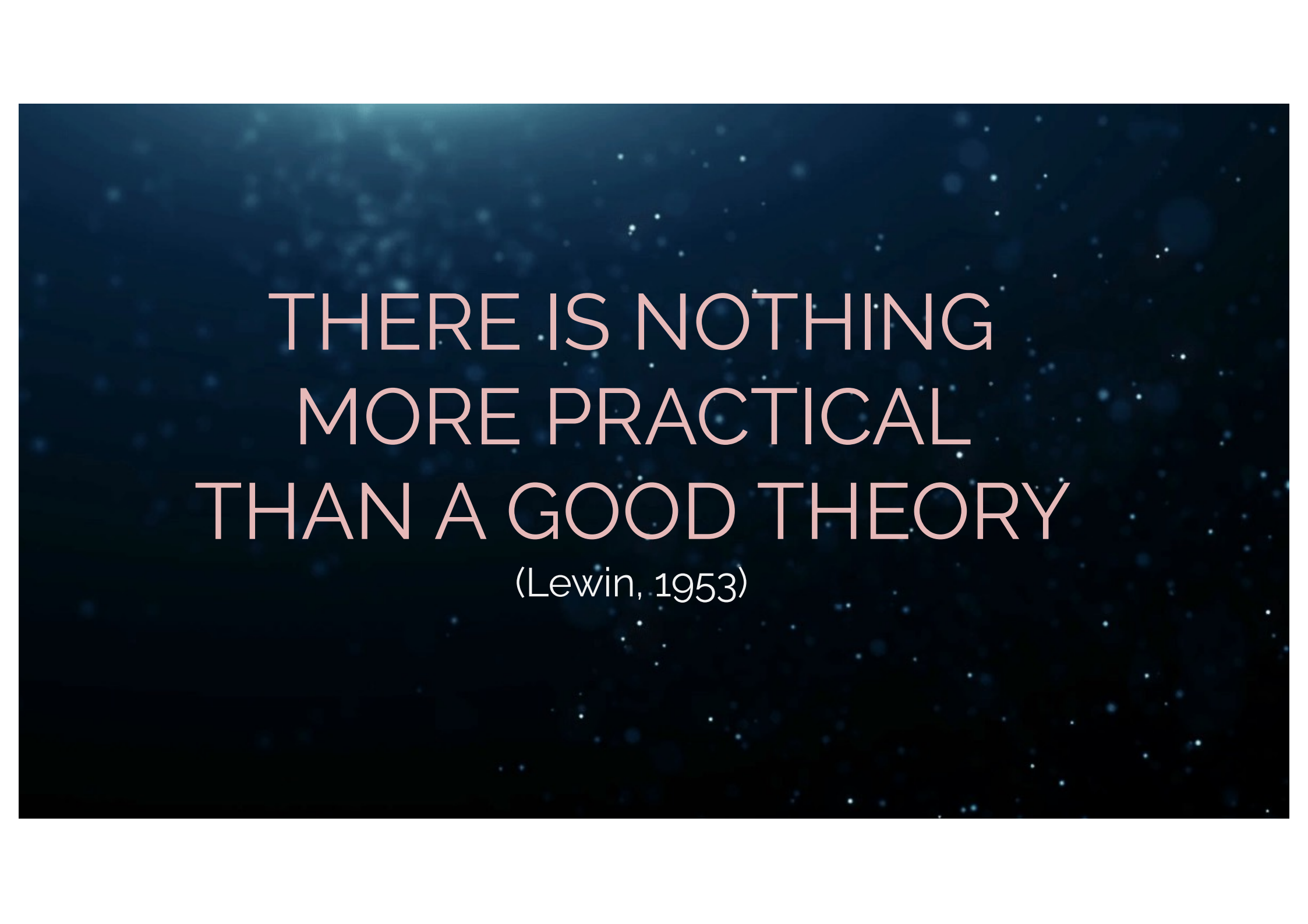


Pedagogical Design For AI-Supported Learning





THERE IS NOTHING
MORE PRACTICAL
THAN A GOOD THEORY

(Lewin, 1953)

**Hybridity
Heutagogy
& Humanisation
in language education**

A microscopic image of a neural network, showing various types of neurons with their cell bodies and branching processes. Several points of connection (synapses) are highlighted with bright blue light, suggesting active signaling or specific points of interest in the network. The background is dark, making the neurons and their connections stand out.

What is knowledge?



**Knowledge is
Distributed**



Introducing Rewind Pendant

HUMANE PIN



**Knowledge is
Outsourced**

bethany
is calling.



Ambient Computing:

The Future Where Technology
Disappears Into the Environment

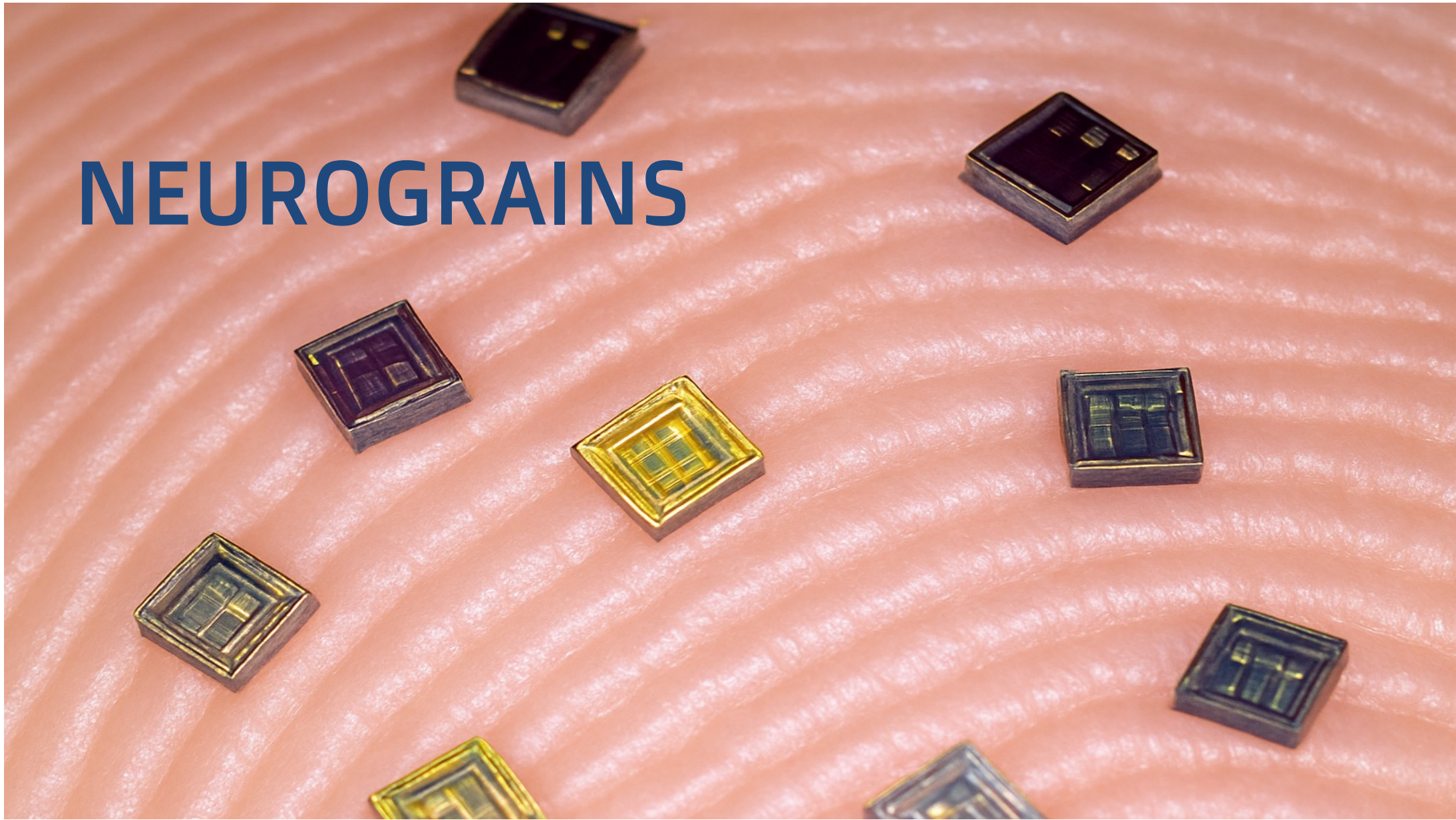




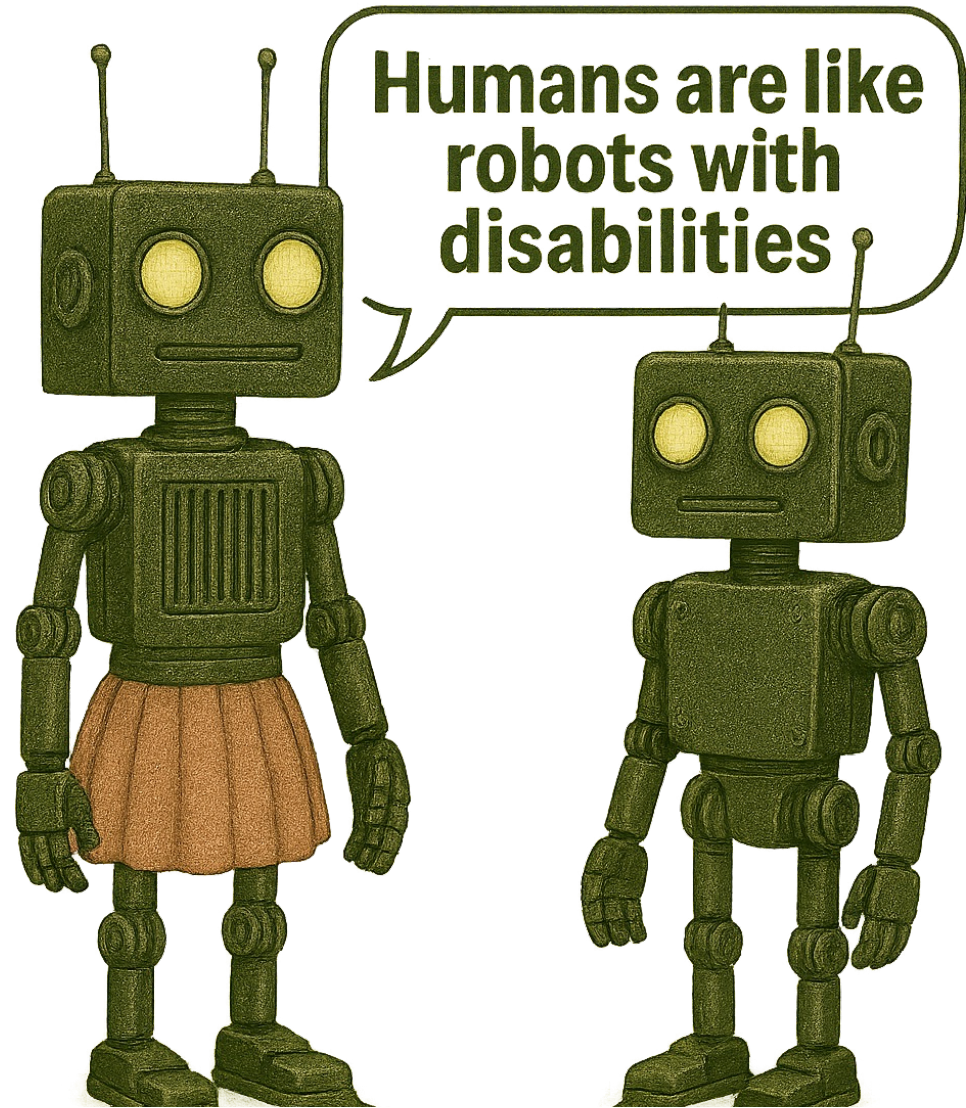
Our Mission

Create a generalized brain interface to restore autonomy to those with unmet medical needs today and unlock human potential tomorrow.

NEUROGRAINS



The Future is HYBRID





What is learning?

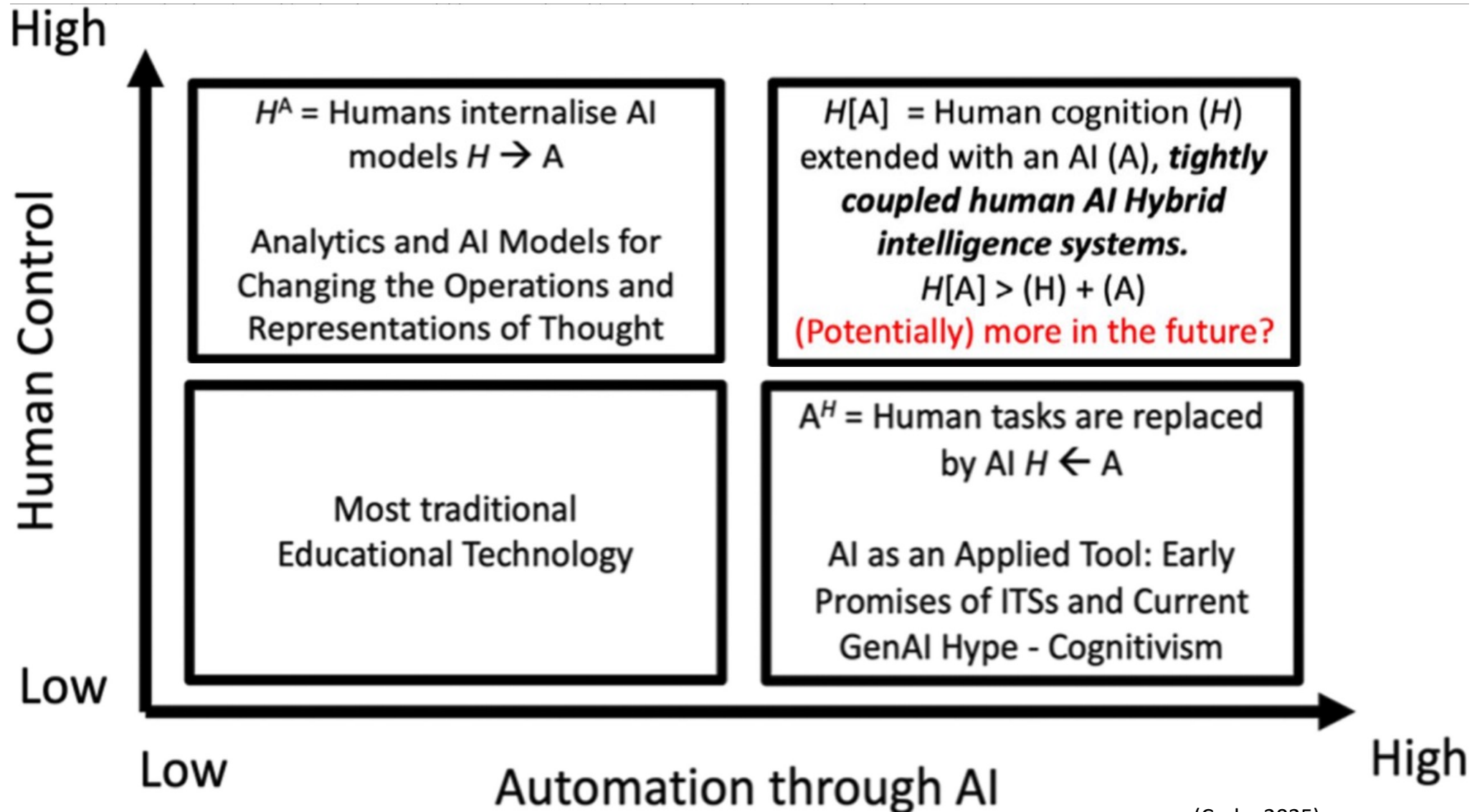
“

product-oriented
performance

versus

process-oriented task
development

”



(Code, 2025)

Theoretical Foundations

Distributed Cognition

Thinking spans individuals, artefacts, and environments. AI systems become integral components of the cognitive system.

Extended Mind Theory

Tools become part of cognitive architecture when they reliably support human capacities, reorganizing activity structure.

Hybrid Intelligence

Systems where humans and AI collaborate to achieve results neither could accomplish alone through complementary strengths.

Epistemic Agency

Learners' capacity to take responsibility for advancing knowledge, evaluating information, and shaping inquiry direction.

Designing Materials For:

Shared Scenario

- Young adult learners
- B1–B2 proficiency
- Preparing for university study
- Regular access to generative AI tools

Task Objective:

Learners prepare and deliver a persuasive presentation on a contemporary social issue.

ACTIVITY 1

Human-AI Orchestration

Where should the work happen?



Work in small groups

Use Card 1 to guide your decisions.

SHARED SCENARIO

Young adult B1-B2 learners preparing for university study have regular access to generative AI tools. They must prepare and deliver a persuasive presentation on a contemporary social issue.

TASK STAGES

Place each stage on the continuum below.

 1. Choose a topic	 5. Structure the argument	 9. Receive feedback
 2. Generate initial ideas	 6. Anticipate counterarguments	 10. Revise the presentation
 3. Research supporting information	 7. Draft presentation notes	 11. Deliver the presentation
 4. Identify useful vocabulary and phrases	 8. Rehearse pronunciation and fluency	 12. Reflect on strengths and weaknesses afterwards

Decide where each stage belongs:

- AI should **not** be used simply because it can perform the task.
- Human **effort** should not be retained simply because it is traditionally done by learners.
- Justify every decision in terms of what the learner needs to **think, practise, notice, decide, or learn**.



Where Should the Work Happen?

Mapping Task Stages to Learning Support Models

1. Choosing a topic

Learner-led decision-making for topic selection.

2. Generating initial ideas

A hybrid approach combining learner input with AI assistance.

3. Researching supporting information

AI-supported research to gather relevant data.

4. Identifying useful vocabulary and phrases

AI assistance for language acquisition
And refinement.

5. Structuring arguments

Hybrid model for organizing thoughts and evidence.

6. Anticipating counterarguments

Engaging in critical thinking with mixed learner and AI support.

7. Drafting presentation notes

AI-supported creation of presentation outlines and content.

8. Rehearsing pronunciation and fluency

AI tools for practicing speech and articulation.

9. Receiving feedback

Learner-led evaluation and peer review.

10. Revising the presentation

Iterative improvement through a hybrid approach.

11. Delivering the presentation

Learner-led performance and communication.

12. Reflecting on strengths and weaknesses afterwards

Learner-led self-assessment and analysis.

If AI is used, how can materials also help learners become more capable, independent, and critical users of AI?
How do learners evaluate AI outputs? Where should struggle, interpretation, or interaction remain learner-driven?

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HEUTAGOGY LEARN

EDUCATIONAL PARADIGM

SELF-DETERMINED LEARNING

Heutagogy shifts full agency to the learner, moving beyond instruction toward autonomous self-determined capability, continuous discovery, and double-loop reflection.

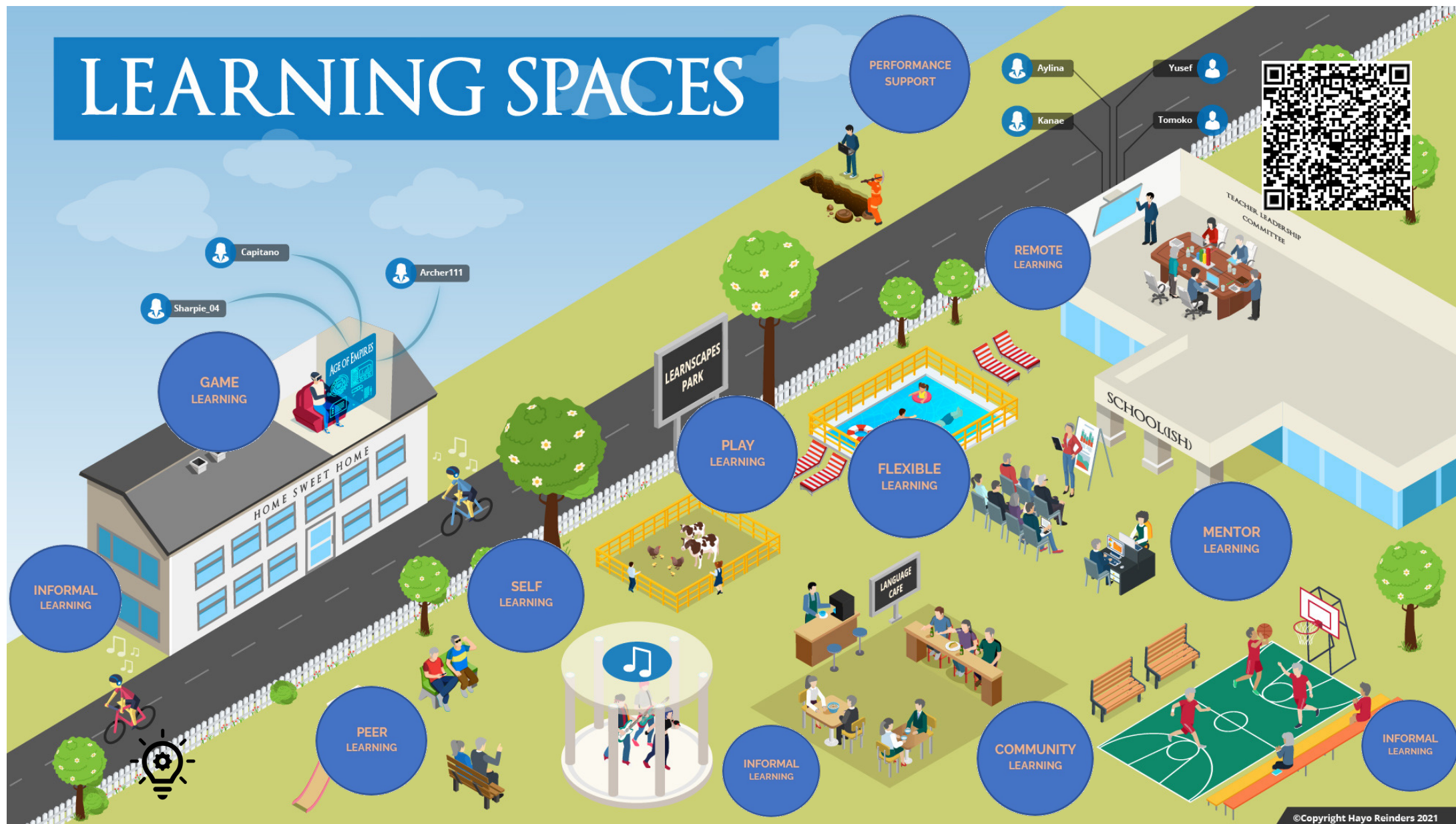
- LEARNER-DEFINED CURRICULA
- DOUBLE-LOOP META-COGNITION
- NON-LINEAR KNOWLEDGE PATHS
- CAPACITY & CAPABILITY FOCUS



70%-80%

**OF ADULT LEARNING
TAKES PLACE OUTSIDE OF FORMAL
EDUCATION (CROSS, 2001)**

LEARNING SPACES



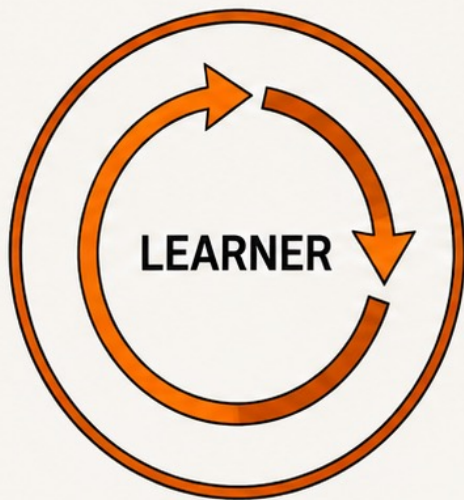


**LIFELONG
+
LIFEWIDE**

THE NEED FOR A NEW MODEL

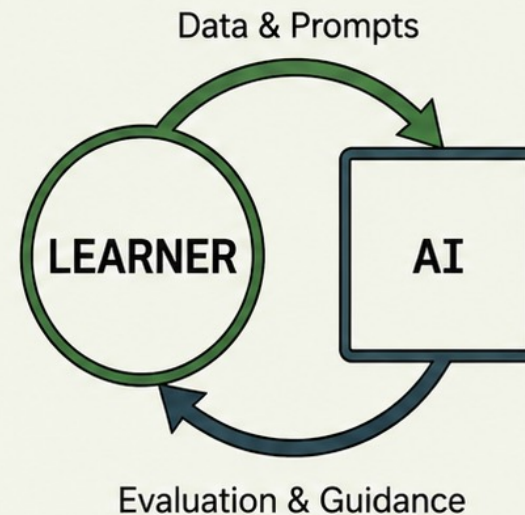
Self-Regulated Learning (SRL) vs. Hybrid-Regulated Learning (HRL)

SRL (Traditional)



- **Locus of Control:**
Internal / Learner-Centered
- **Role of Tech:**
Passive Aid
(Storage, Display)
- **Regulation:**
Learner plans, monitors, evaluates alone

HRL (Hybrid)



- **Locus of Control:**
Distributed / Partnership-Centered
- **Role of Tech:**
Active Agent (Tutor, Evaluator, Simulator)
- **Regulation:**
Co-regulation. Algorithms influence attention and interpret success.

The Self-Regulation Cycle

Use this model to consider where technology might play a role.



Work in small groups

Use Card 4 to guide your thinking.



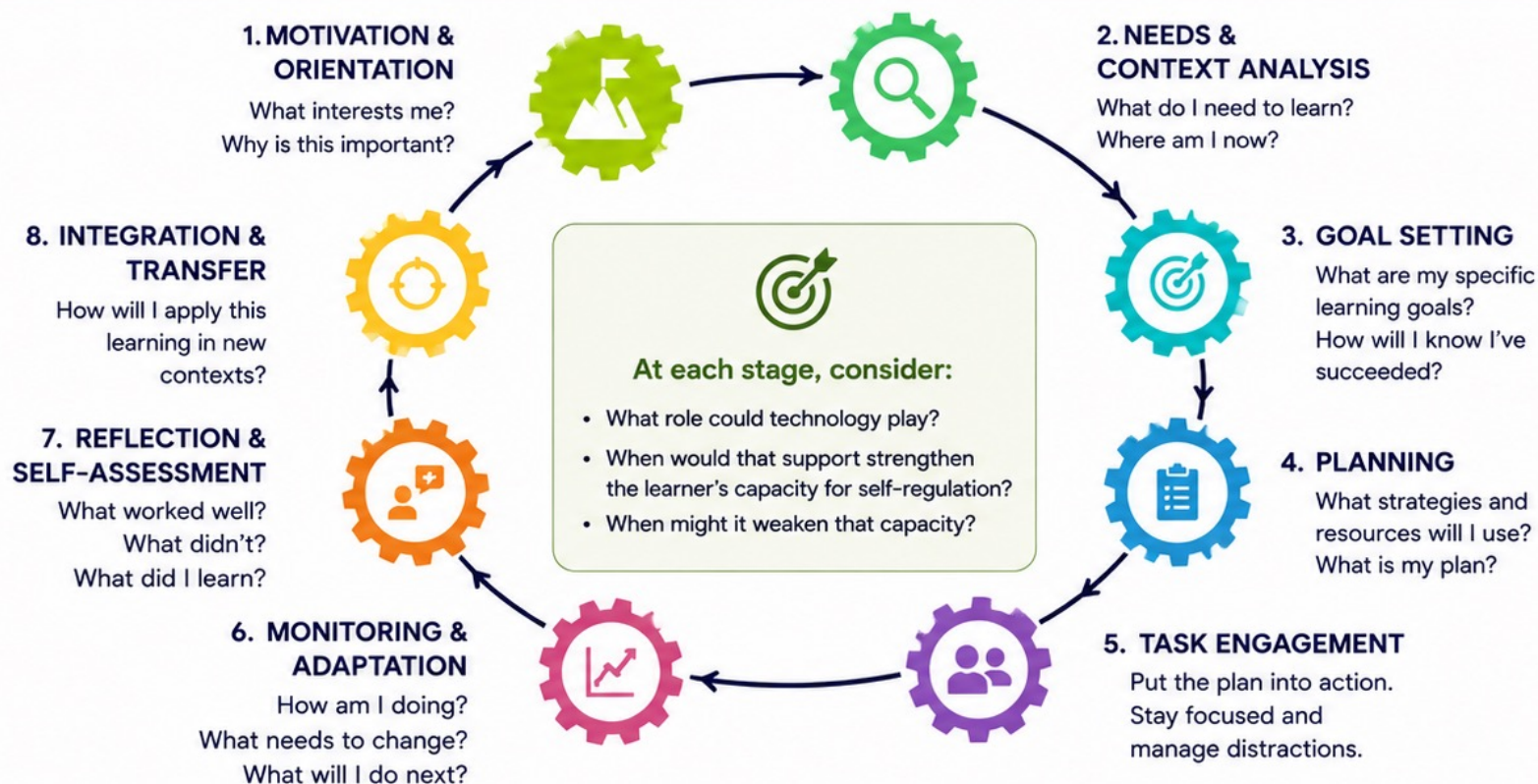
The Self-Regulation Cycle

Use this model to consider where technology might play a role.



Work in small groups

Use Card 4 to guide your thinking.



WRITING SCENARIO

A B2 learner needs to write a 1,000-word argumentative essay for a university preparation course. The learner has regular access to generative AI tools.



YOUR TASK

Using Card 4, discuss how technology could support the learner at each stage of the cycle. Be ready to share examples of support that build (or risk weakening) self-regulatory capacity.

Visibility: Making Hybrid Learning Observable

Assessment must shift from the final product to the artifacts of the process.



Work in small groups

Use Card 7 to guide your design.



THE PROBLEM

Your B2 learner submits an excellent 1,000-word argumentative essay.
The learner was permitted to use generative AI throughout the task.

You can see the final essay.

But what can you actually tell about the learner's learning?

Consider what you **CANNOT** infer from the final product:



Where did the ideas originate?
What alternatives were considered and why were they rejected?



What language problems did the learner identify themselves?
What strategies did they try before asking AI?



What feedback influenced the learner's thinking?
How did their argument develop over time?



What did the learner learn from the process?
Could they reproduce or transfer this performance without AI?



YOUR CHALLENGE

Redesign the writing task to make the learner's thinking visible without banning AI.

Design for insight, not surveillance.

ADD THREE FORMS OF EVIDENCE TO THE WRITING TASK.

For each one, decide:

1 What would you collect or observe?

How will the learner show or record something about their thinking or process?



2 What would it tell you about the learner?

What decisions, strategies, understanding, or learning would this evidence reveal?



3 How will you keep this useful and respectful?

How can you make this meaningful for learning without creating excessive workload or monitoring every move?



WRITING SCENARIO

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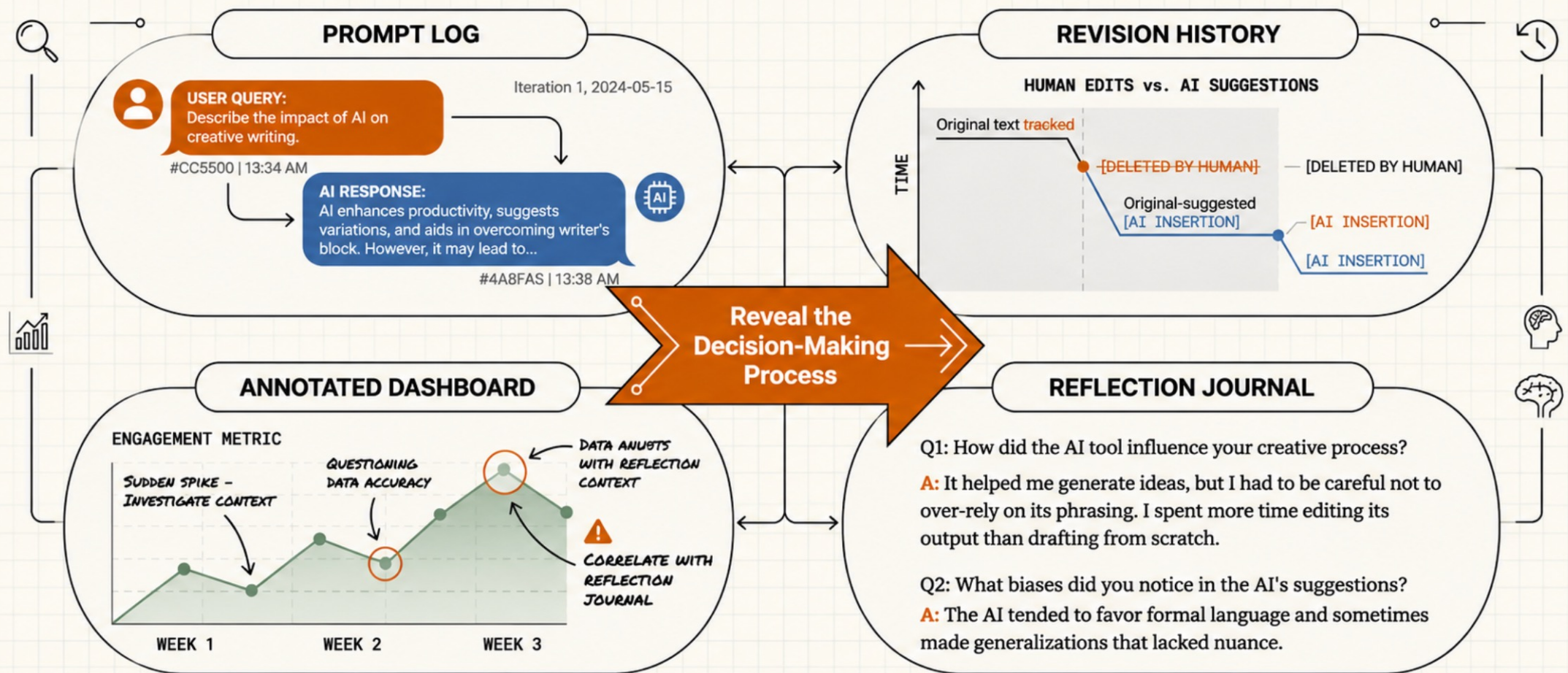


YOUR TASK

Design three sources of evidence that make the learner's thinking visible across the writing process.
Be ready to share and discuss how each one supports learning and fair assessment.

Visibility: Making Hybrid Learning Observable

Assessment must shift from the final product to the artifacts of the process.



**HYB
RID
ITY**



**HEU
TAG
OGY**

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**HUMANI
ZATION**

MM

HUMANIZATION

- **Identity:** Our unique sense of self and personal narrative.
- **Interpretation:** The subjective understanding and meaning-making process.
- **Ambiguity:** The ability to navigate and embrace uncertainty and nuance.
- **Emotion:** The spectrum of feelings and their expression.
- **Interpersonal Communication:** The rich, multi-layered exchange between individuals.



How do we develop learning experiences that foreground learner wellbeing ?



Key Considerations

Humanization: What Should Remain Complex, Interpretive, or Ambiguous?

- **Human-centered design** is about intentionally designing meaningful communicative experiences.
- **The Value of Complexity:** Ambiguity and interpretation foster critical thinking, problem-solving, and deeper engagement, moving beyond simple comprehension.
- **AI vs. Human Nuance:** While AI excels at efficiency, human communication thrives on nuance, context, emotional intelligence, and subjective experiences.
- **Pedagogical Imperative:** Intentionally designing for complexity helps learners develop robust communicative skills that AI cannot replicate, ensuring meaningful learning.

Design Tensions in AI-era ELT

Balancing AI's potential with pedagogical goals



Optimization vs. Exploration

Balancing AI's efficiency for targeted practice with the need for learners to explore language freely.



Instant Clarification vs. Productive Ambiguity

Deciding whether AI should immediately resolve uncertainties or allow for ambiguity that fosters deeper processing.



Individualized Support vs. Collaborative Meaning-Making

Weighing personalized AI feedback against the value of peer interaction and shared understanding.



Polished Output vs. Emergent Communication

Navigating the desire for perfect output versus the authentic, organic nature of human communication.



Prediction vs. Surprise

Determining if AI should predict learner needs or introduce novel language to challenge them.



Fluency vs. Interpretation

Focusing on smooth language use versus the deeper cognitive process of understanding meaning and context.



Efficiency vs. Reflection

Achieving rapid learning gains through AI versus creating space for learners to reflect on their process.

Balancing AI's potential with



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Production and Creation



Fluency and Interaction

Principles for Thoughtful Transformation



Design for Orchestration, Not Replacement

Integrate new tools and processes to enhance existing ones, rather than aiming for a complete overhaul.



Use AI to Expand Possibilities

Leverage AI to open new avenues and enhance decision-making, not just to automate or eliminate human judgment.



Preserve Communicative Complexity, Interpretation, and Negotiation

Maintain the richness of human interaction, including nuanced communication, interpretation, and collaborative problem-solving.



Preserve Learner Agency and Visible Thinking

Ensure individuals have control over their learning and that their thought processes are observable and valued.



Build Reflection and Evaluation into AI-Supported Learning

Integrate opportunities for critical thinking, self-assessment, and evaluation within AI-driven learning environments.



Design Learning Experiences, Not Just Efficient Task Completion

Create holistic and engaging learning journeys that foster deep understanding and growth, rather than focusing solely on optimizing task execution.

Beautiful Final Slide

(www.innovationinteaching.org/ai)



innovationinteaching.org



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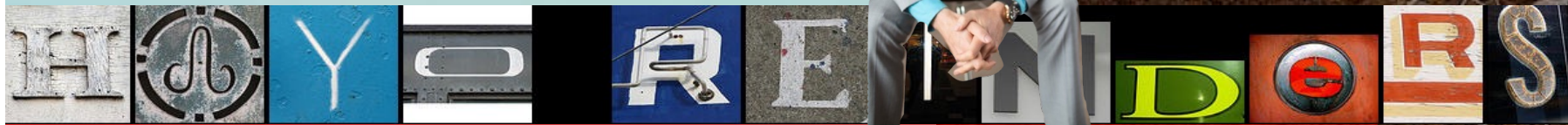
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Why do we need assessment when increasingly we know exactly what everyone is doing at any moment in time?

A Research Agenda for Hybrid Autonomy

Negotiating Control

When do learners accept vs. reject AI advice? (Log analysis).



Long-term Cognition

Does reliance lead to atrophy or scaffolding? (Longitudinal studies).



Affective Impact

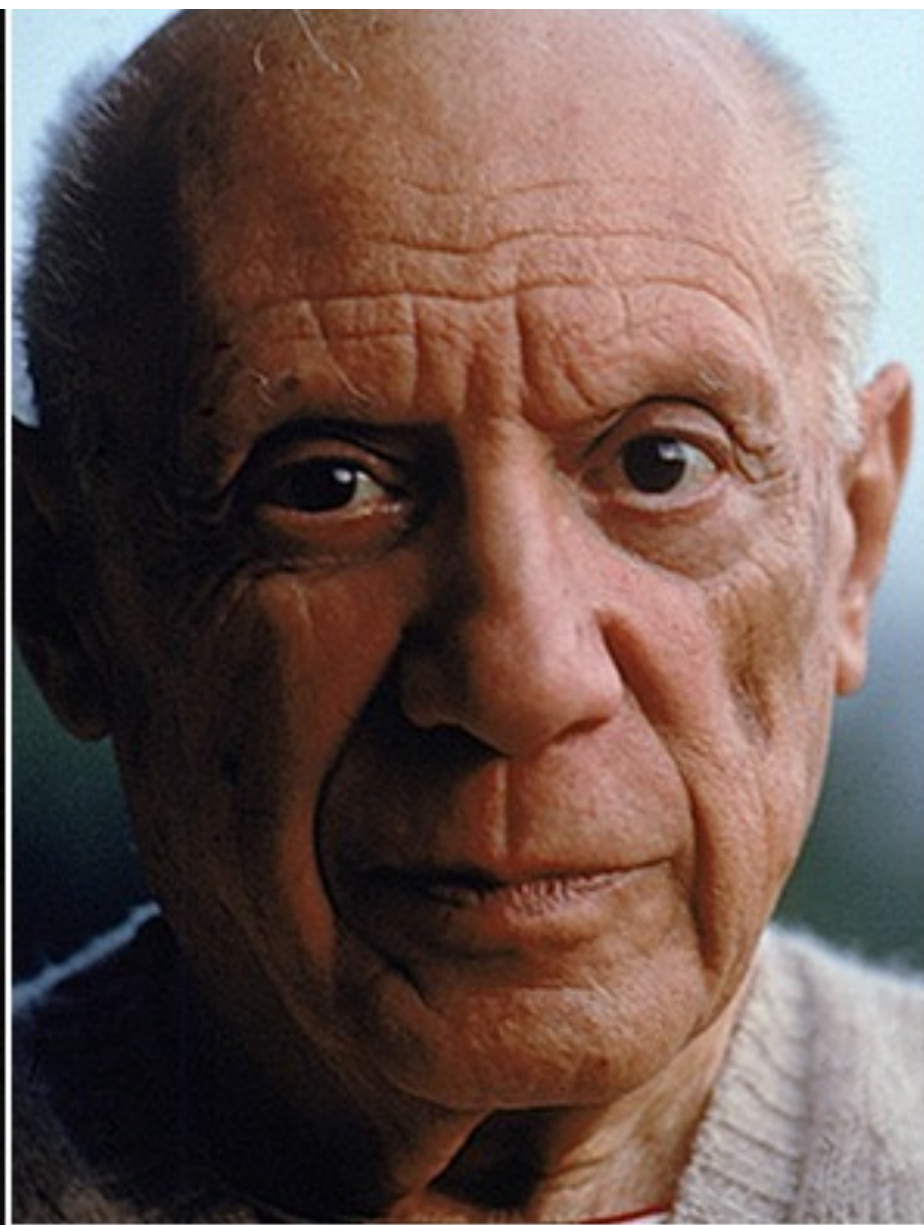
How does partnership change anxiety and confidence?



Measuring HRL

Developing metrics for “shared agency” beyond self-reports.





Computers are useless. They can
only give you answers.

— *Pablo Picasso* —