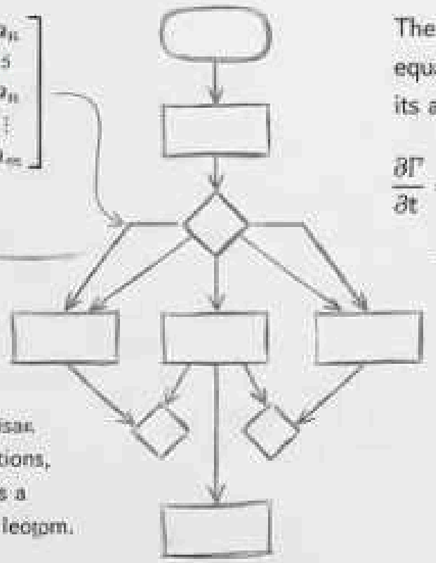
What I Learned About Learning

An architectural blueprint for the Anderson Academy (PHIL 100 B).

$$M = \begin{bmatrix} a_1 & a_2 & a_3 & \cdots & a_n \\ 1 & 2 & 3 & \cdots & 5 \\ a_1 & a_2 & a_3 & \cdots & a_n \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ a_1 & a_2 & a_3 & \cdots & a_m \end{bmatrix}$$

$$A = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$



Philosophical maxims:

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The enstore of corcratual equation of the delignation of its arnostics matries.

$$\frac{\partial \Gamma}{\partial t} = \frac{(n - h\sqrt{n})}{\partial t} = \frac{(n-1)(x-n)}{\partial z}$$

$$\rightarrow = \left(-\frac{\partial x}{\quad} - 2\right)$$

$$= \frac{2(n - \sqrt{2^2 2^2})}{2}\left(a^2 - k\right)$$

$$= 2\left[a^2 + (1 - a a^2)\right]^2$$

$$= \frac{\pm(x - n^2)}{dx}$$

$$= -2n\,(1-1)$$

$$b = \frac{\partial}{\partial}\,(a + v, x + z^0).$$

$$A = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & -1 \\ 1 & 1 & 4, & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Philosophical maxims.

Wine of mediection rotatily.

$$E = \frac{\partial f(y_i - (a_i - b)}{\partial s^2}$$

$$= \frac{(a+b)(a_y - (a-z)}{n - ct}$$

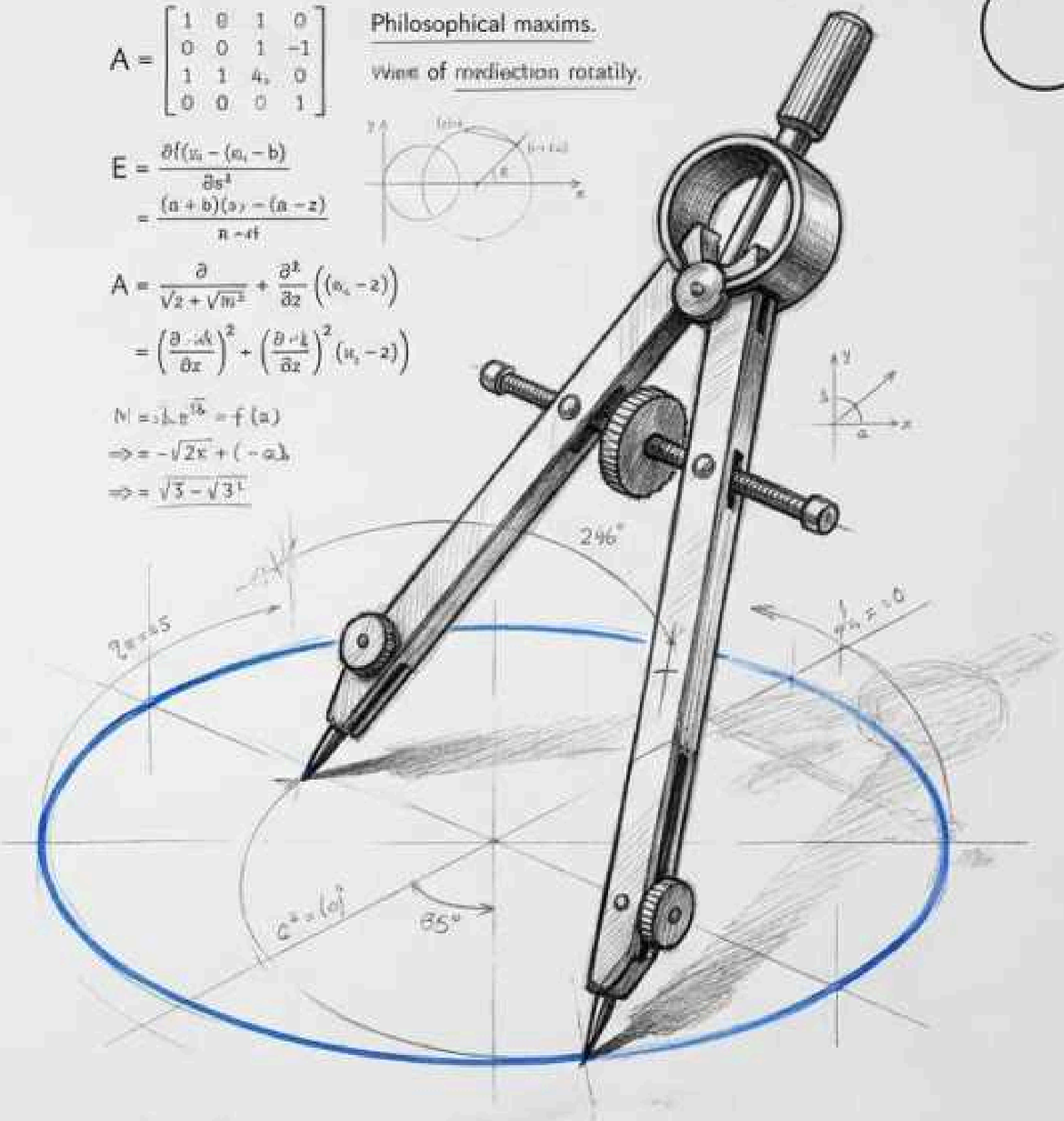
$$A = \frac{\partial}{\sqrt{2} + \sqrt{n^2}} + \frac{\partial^2}{\partial z}\left((a_i - z)\right)$$

$$= \left(\frac{\partial \ldots k}{\partial x}\right)^2 + \left(\frac{\partial \ldots k}{\partial z}\right)^2 (a_i - z)\Big)$$

$$N = \ldots \overline{\ldots} = f(a)$$

$$\Rightarrow = -\sqrt{2x} + (-a)$$

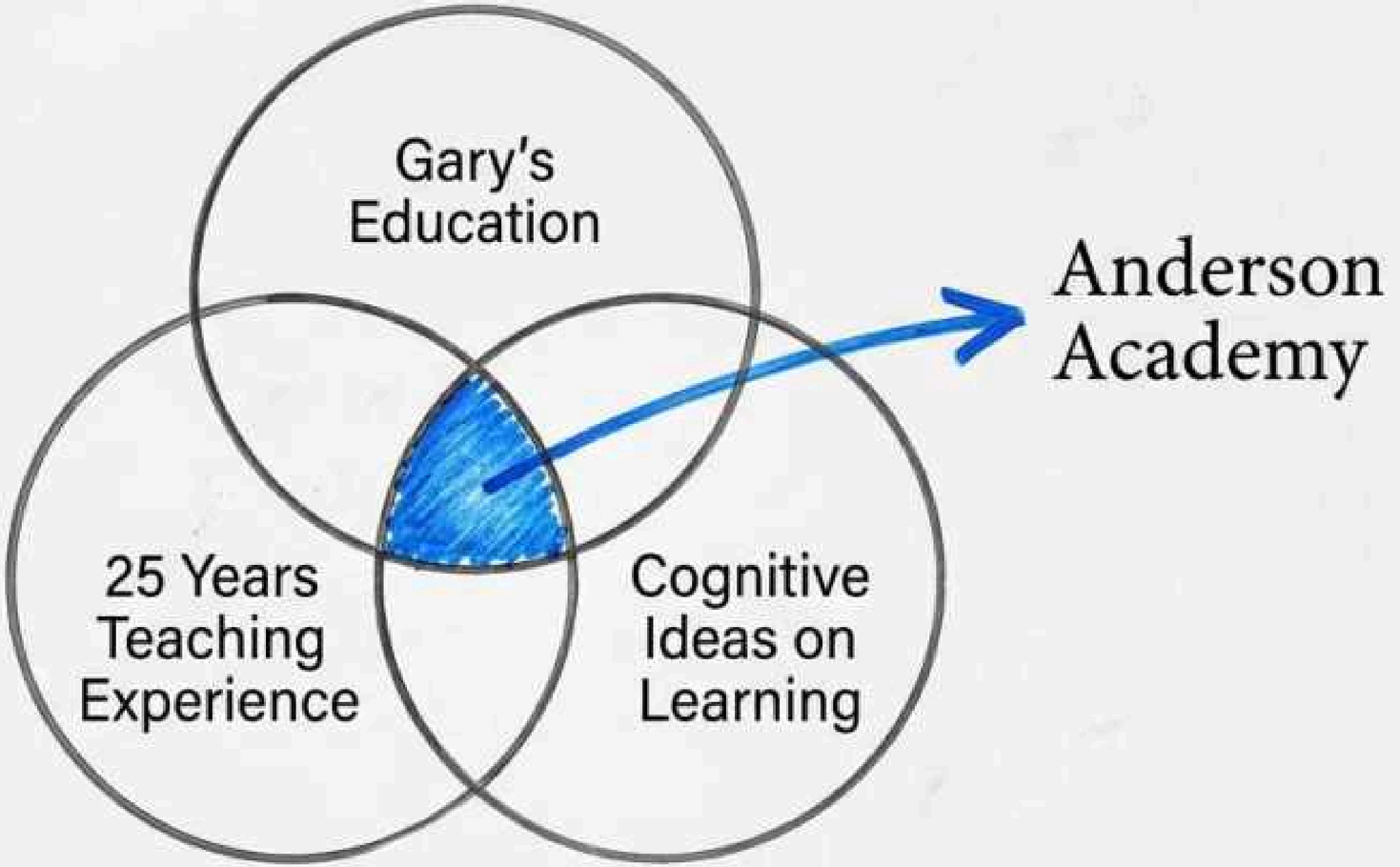
$$\Rightarrow = \sqrt{3 - \sqrt{3^1}}$$



Gary Anderson | garyanderson@mail.grokbot.com | X: @garyanderson

The foundation of the Anderson Academy course design

¶ 2.1



These three pillars combine to explain exactly why the Academy is built the way it is.

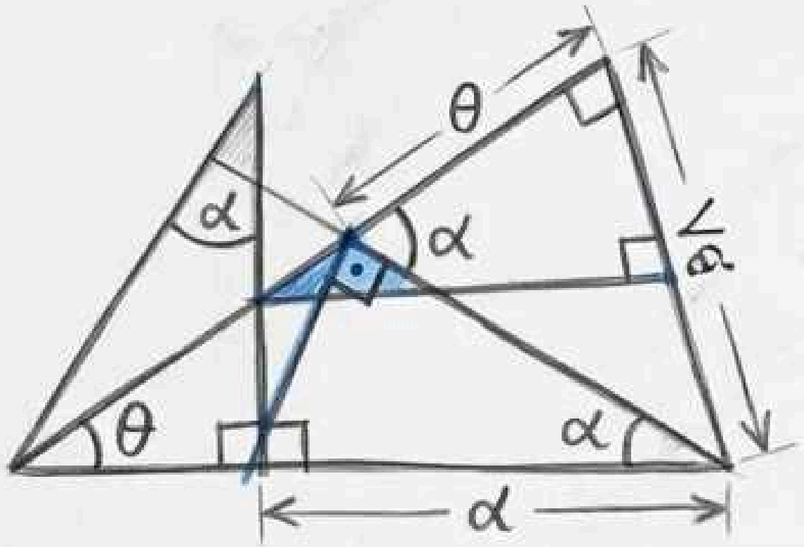


Gemini Notebook

The disciplines of precise reasoning

¶ 2.2

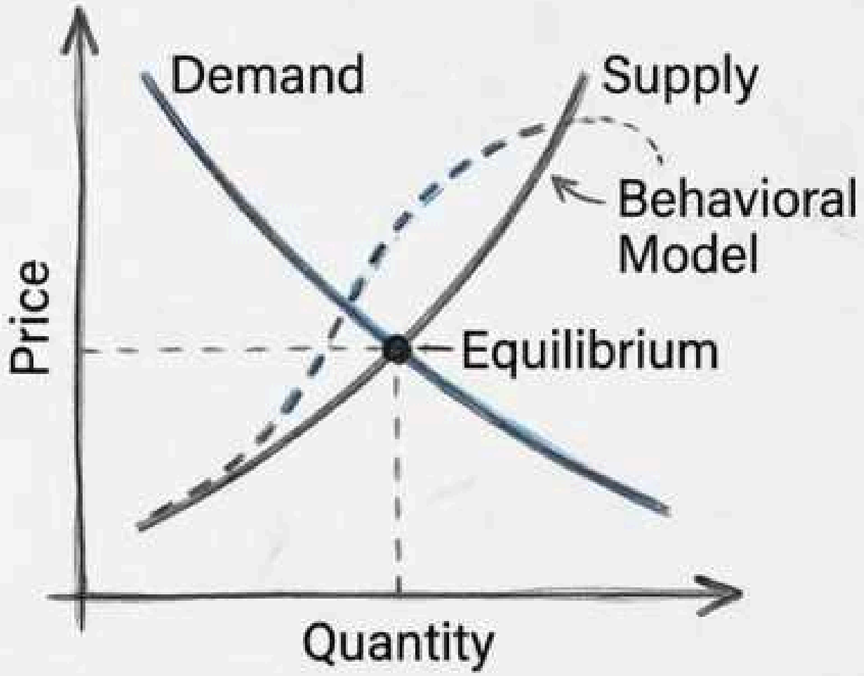
Mathematics



Q.E.D.

Teaches the architecture of a definitive proof.

Economics



Teaches the reality of trade-offs, incentives, and human behavior.

Neither is a soft subject; both permanently mark the approach to teaching.

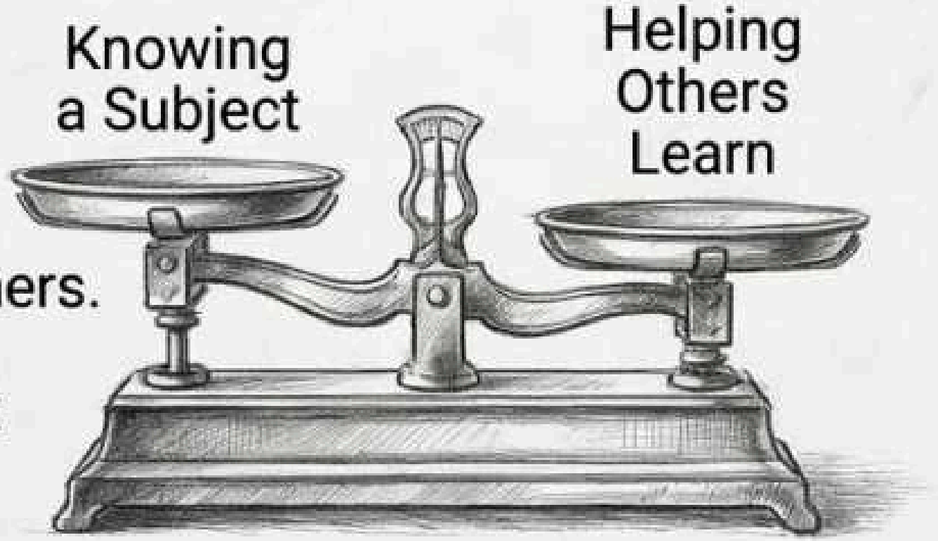
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Expertise does not automatically imply teaching ability

¶ 2.3

$$E \neq T$$

(Subject Expertise does not imply Teaching Ability)

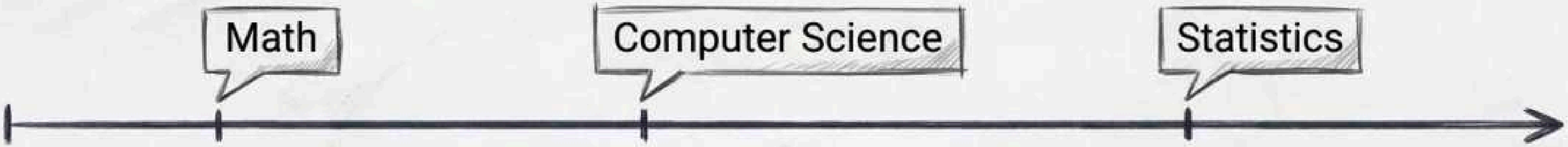


Many experts are poor teachers. Earning a master's degree in teaching was a commitment to treating instruction as a separate, vital craft.

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Twenty-five years of classroom experiments

¶ 2.4



	Pedagogical Input	Student Output
1	Clear Explanation	Flat Delivery
2	Authentic Understanding	**Mere Compliance**

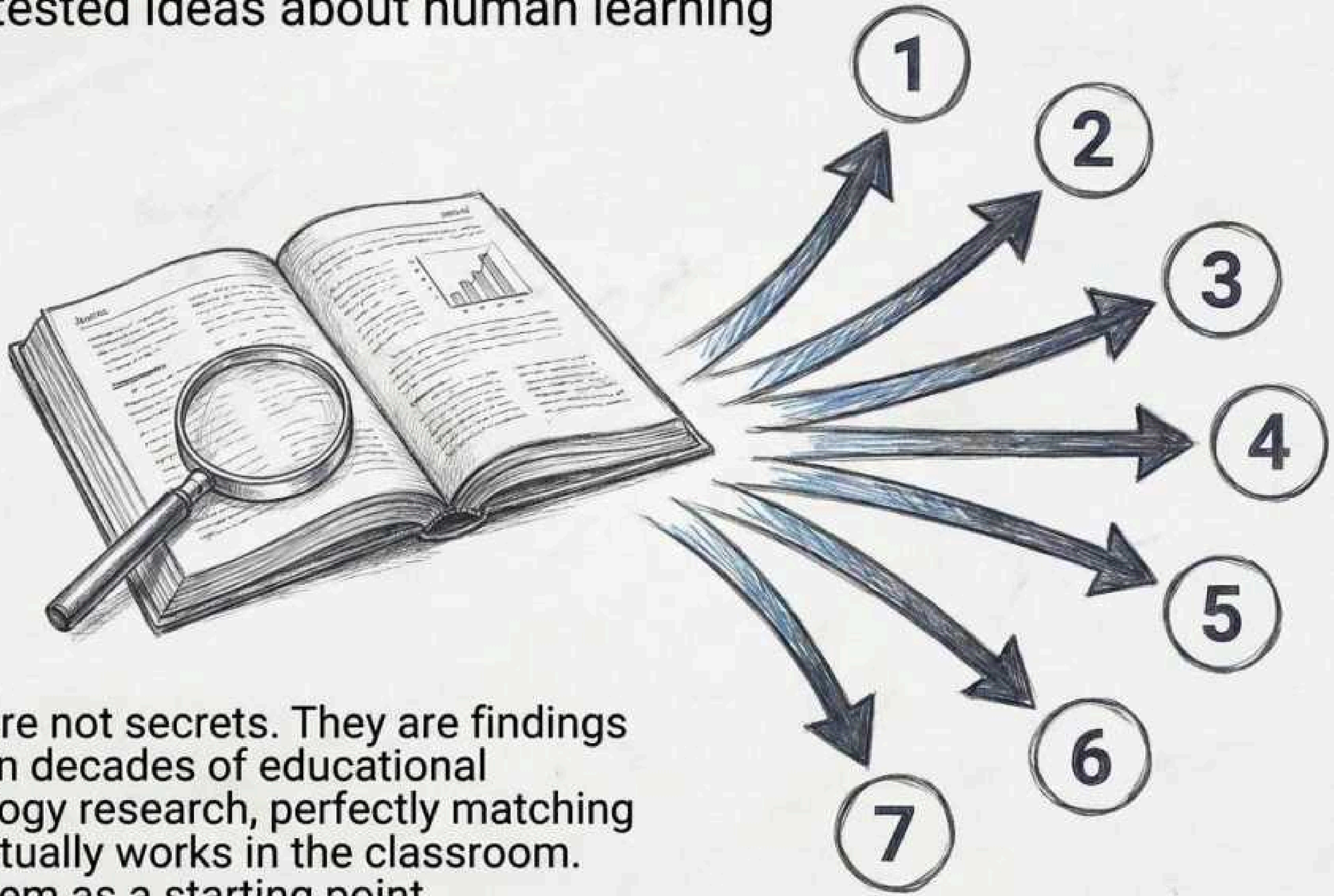
A quarter-century in the classroom reveals exactly which assignments produce understanding and which fall flat.



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Seven tested ideas about human learning

¶ 2.5



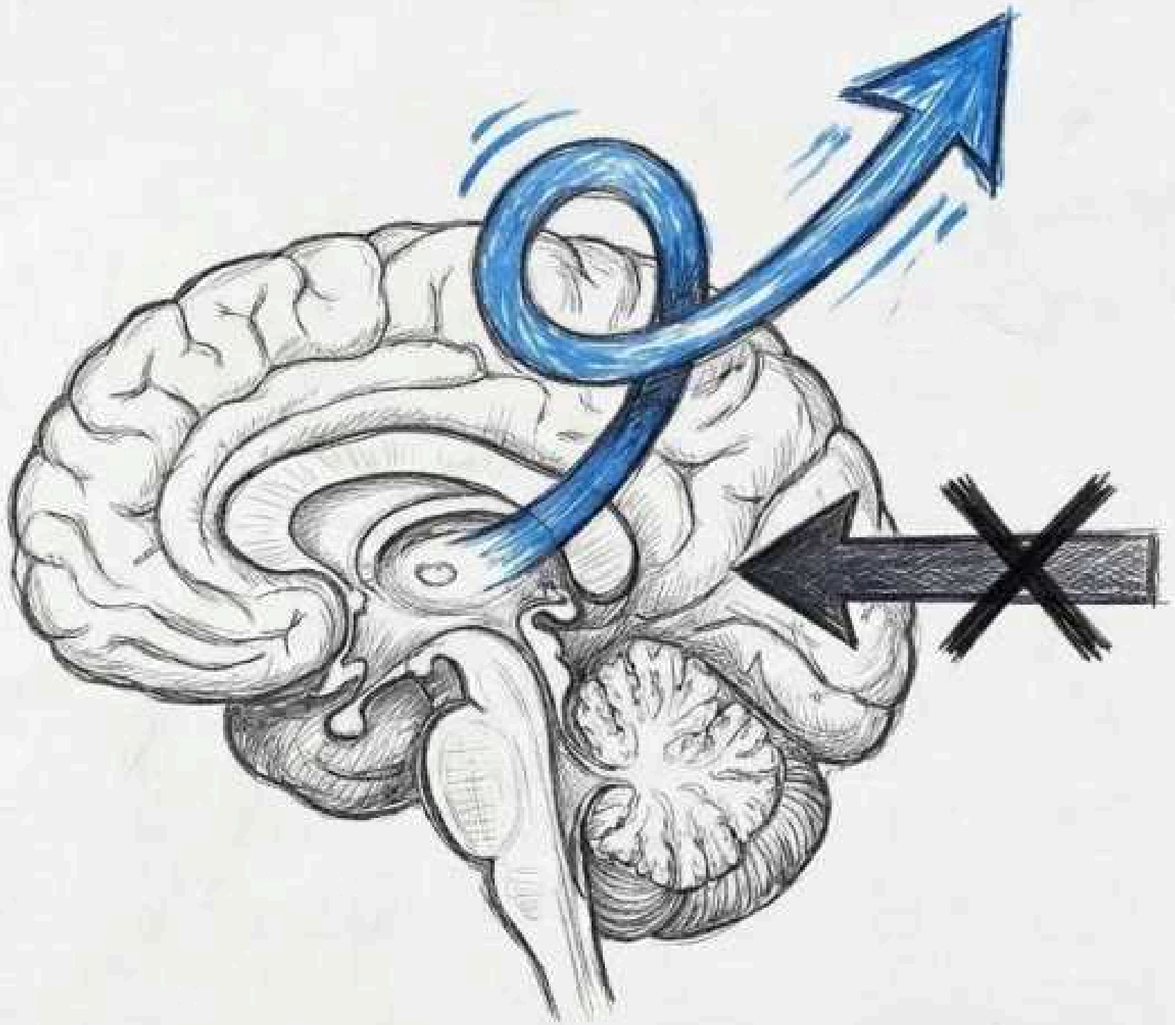
These are not secrets. They are findings rooted in decades of educational psychology research, perfectly matching what actually works in the classroom. Treat them as a starting point.

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Idea 1: Pulling an idea out strengthens it more than pushing it in

¶ 2.6

Struggle = Useful Work



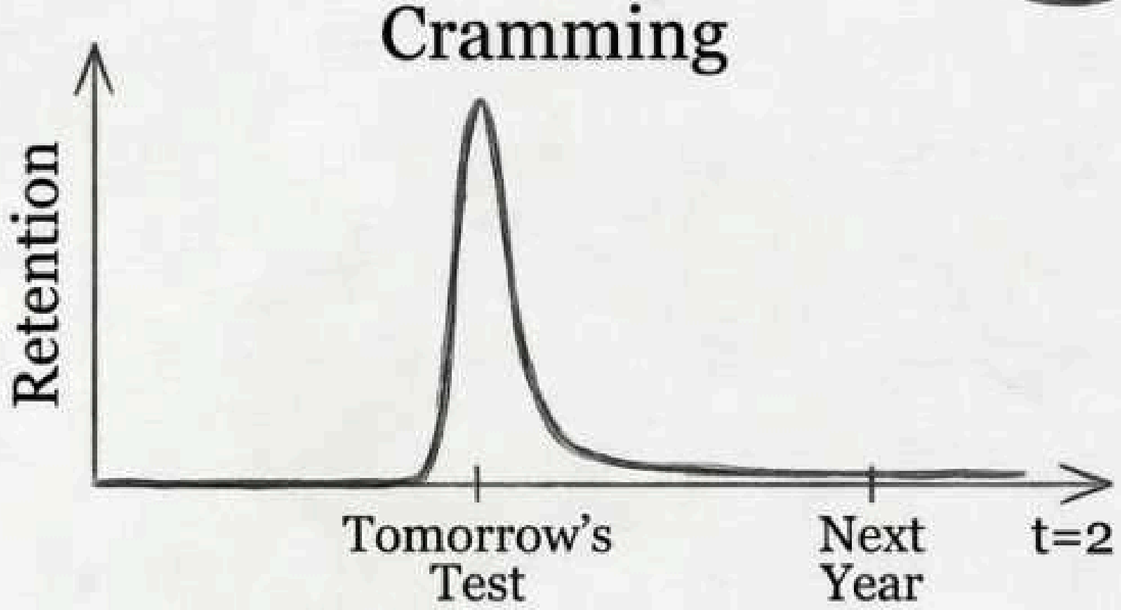
The Testing Effect: A quiz is a learning tool, not just a measuring tool. When you struggle slightly to recall a fact, that specific mental friction is doing the useful work of solidifying the memory.

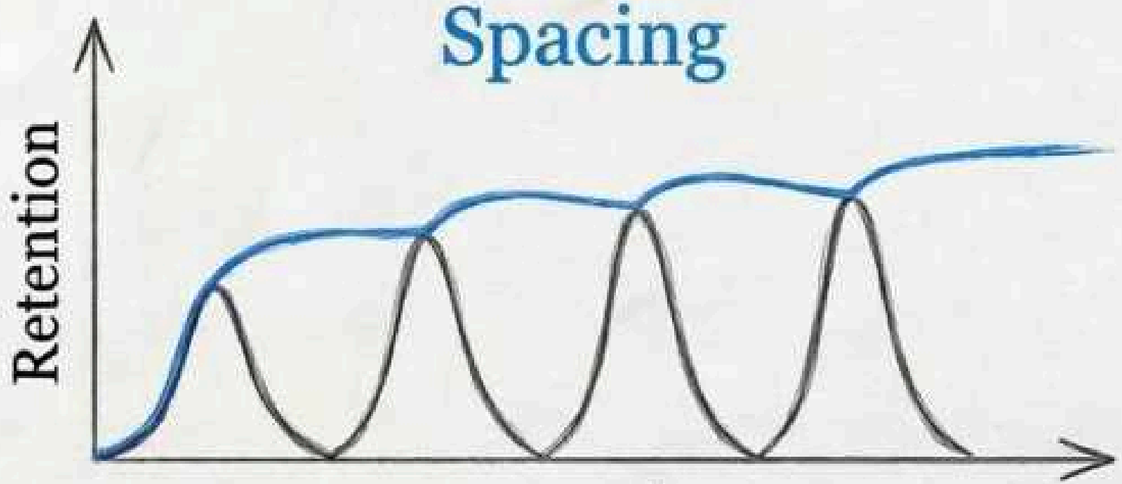
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Idea 2: Long-term memory requires spaced practice

¶ 2.7







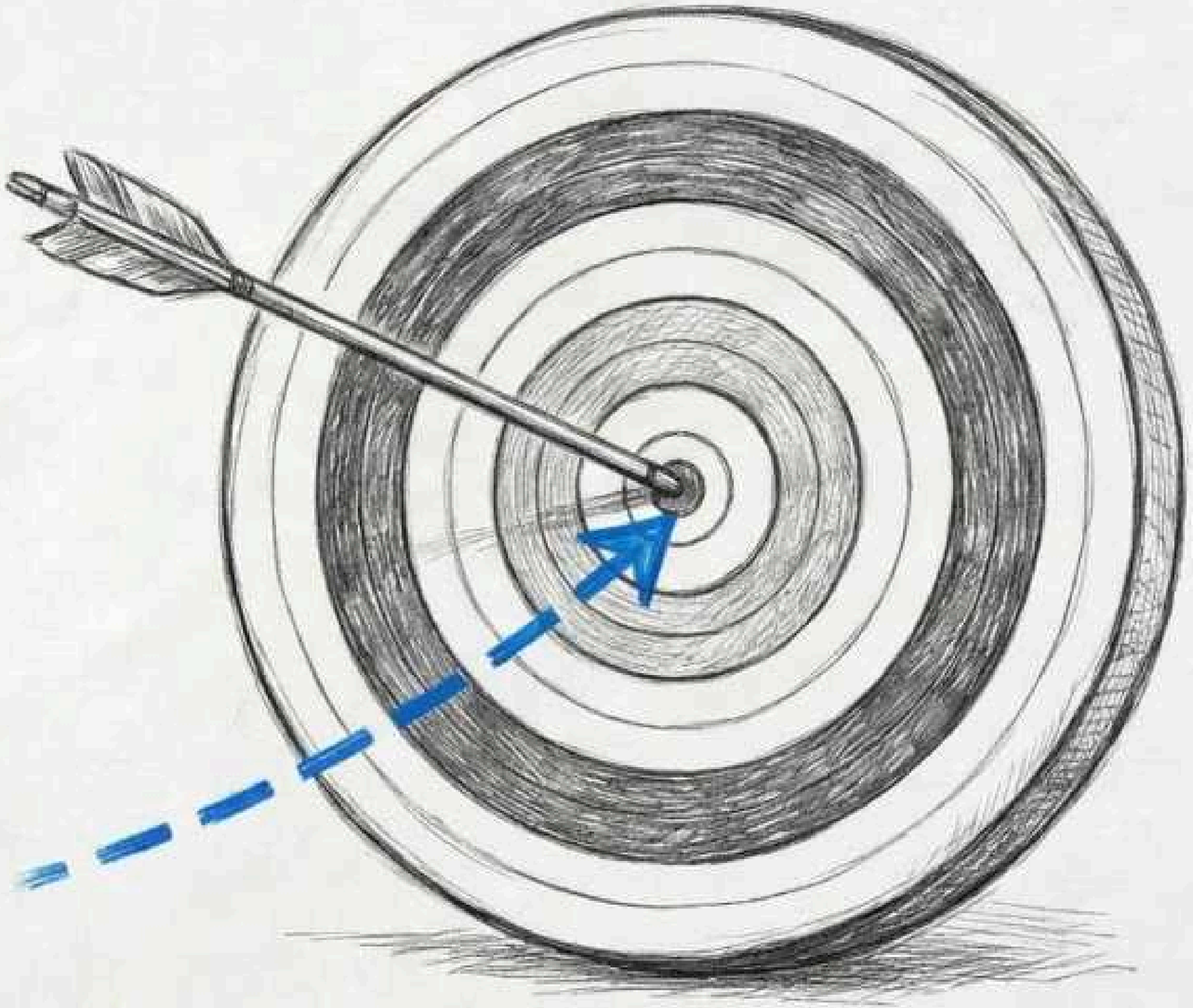
Marathon cramming works for tomorrow and fails for next year. To retain knowledge, spread study sessions over over days or weeks and repeatedly return to the material.

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Idea 3: A bare score tells you very little about how to improve

¶ 2.8

People learn faster when they know exactly what they got right, what they got wrong, and why.



Good feedback doesn't just mark an answer wrong; it provides an explanation and points directly to what needs fixing.

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Idea 4: Passive watching creates an illusion of understanding

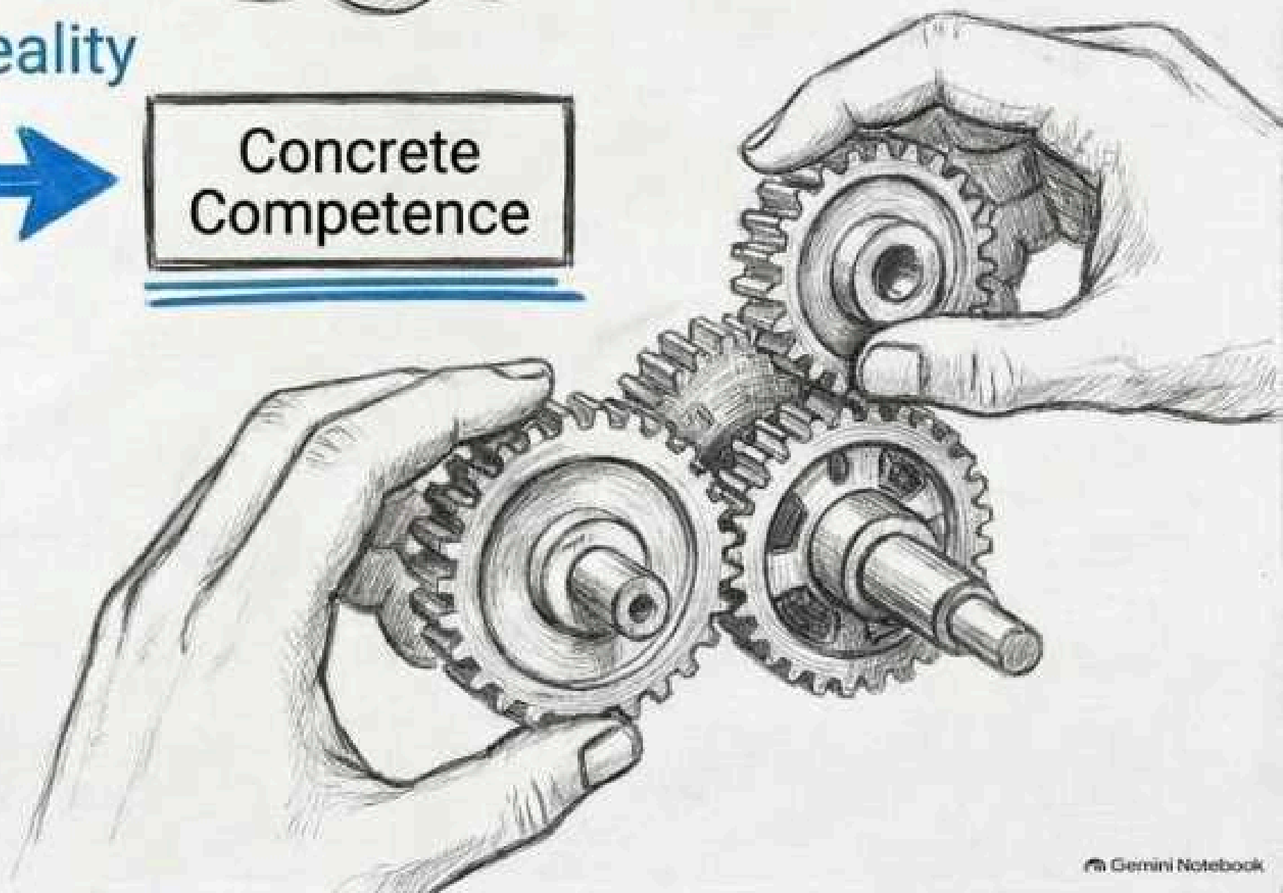
¶ 2.9

The Illusion

Watching & Listening → Evaporating Understanding

The Reality

Explaining & Solving → Concrete Competence



If you cannot say it plainly in your own words, or teach it to someone else, you have not yet understood it.

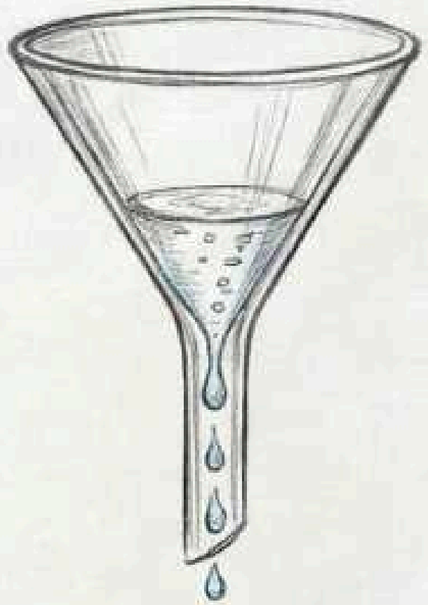
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Idea 5: Cognitive capacity has a strict limit

¶2.10



Unstructured Overload



Paced Segments

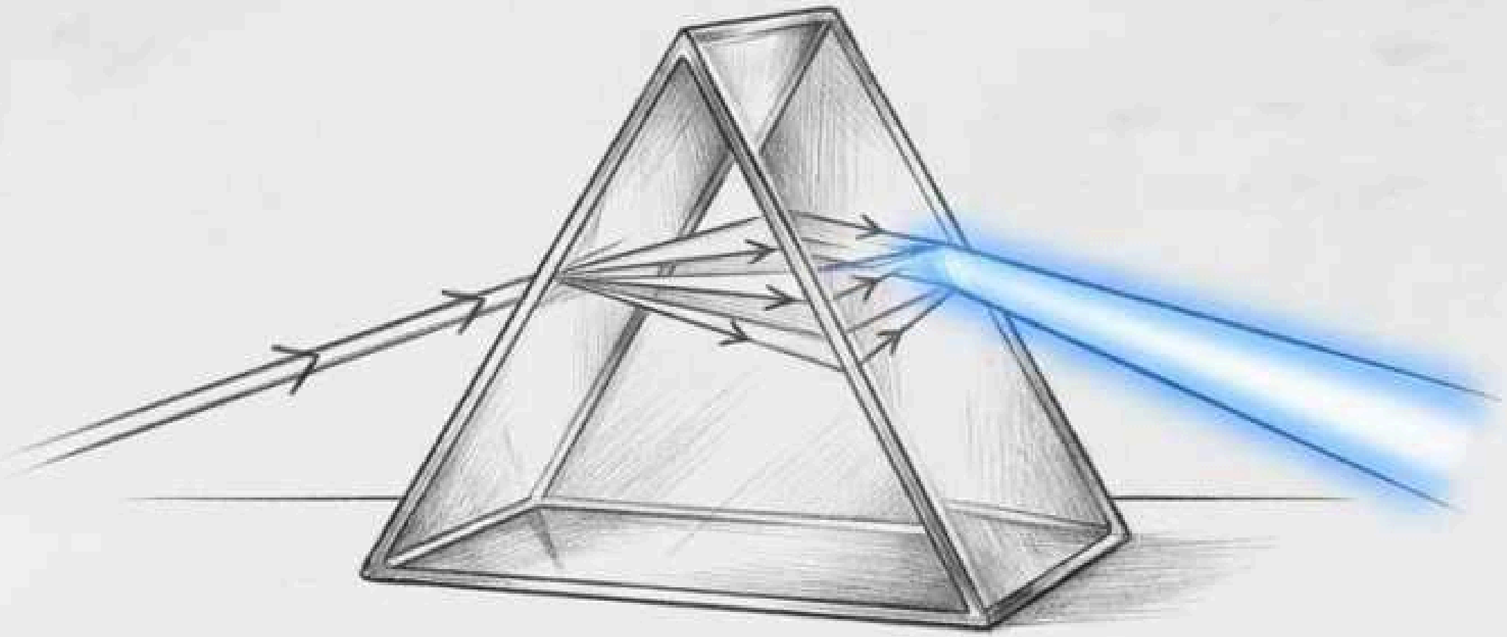
$$\sum (New\ Ideas) > Capacity \rightarrow Overload$$

A person can only hold a few new things in mind at once. Short segments, clear structures, and built-in pauses to think are mathematically more effective than long, piling lectures.

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Idea 6: The mind is not a blank slate

¶ 2.11



Students arrive with pre-existing theories about the world, many of which are wrong. A good teacher does not simply provide the right answer; they draw out those prior beliefs and test them.

- This is why you must state what you think before hearing what the text says.

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Idea 7: The learner does the learning

¶ 2.12

$$\text{Learning} = f(\text{Internal Effort})$$

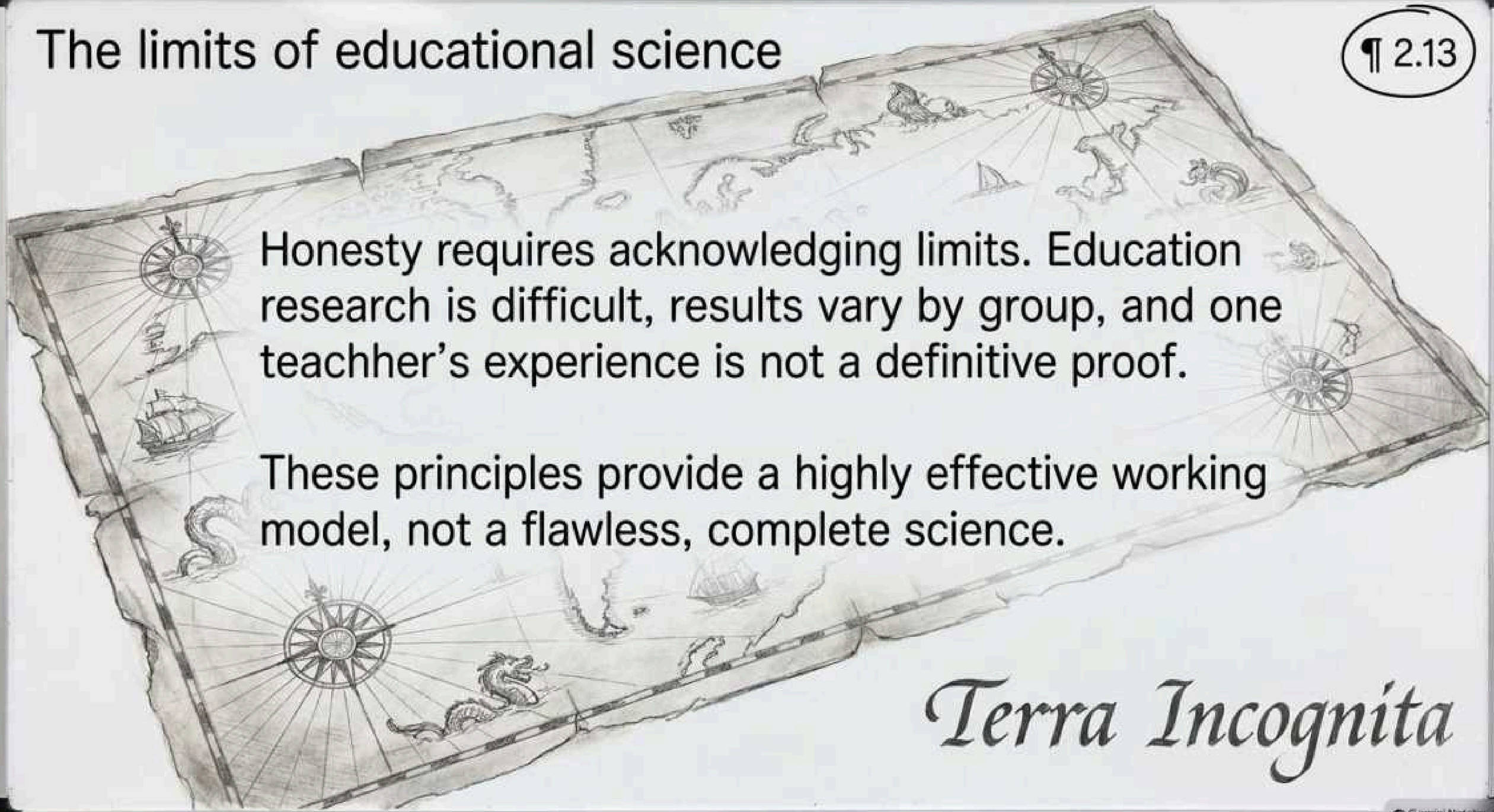


The simplest and most important rule.
A teacher can explain, encourage, and arrange the materials, but understanding is built exclusively inside your own head.
Every other cognitive idea is just a tool to make your internal effort more effective.

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The limits of educational science

¶ 2.13



Honesty requires acknowledging limits. Education research is difficult, results vary by group, and one teachher's experience is not a definitive proof.

These principles provide a highly effective working model, not a flawless, complete science.

Terra Incognita

The architecture of the Academy

¶ 2.14

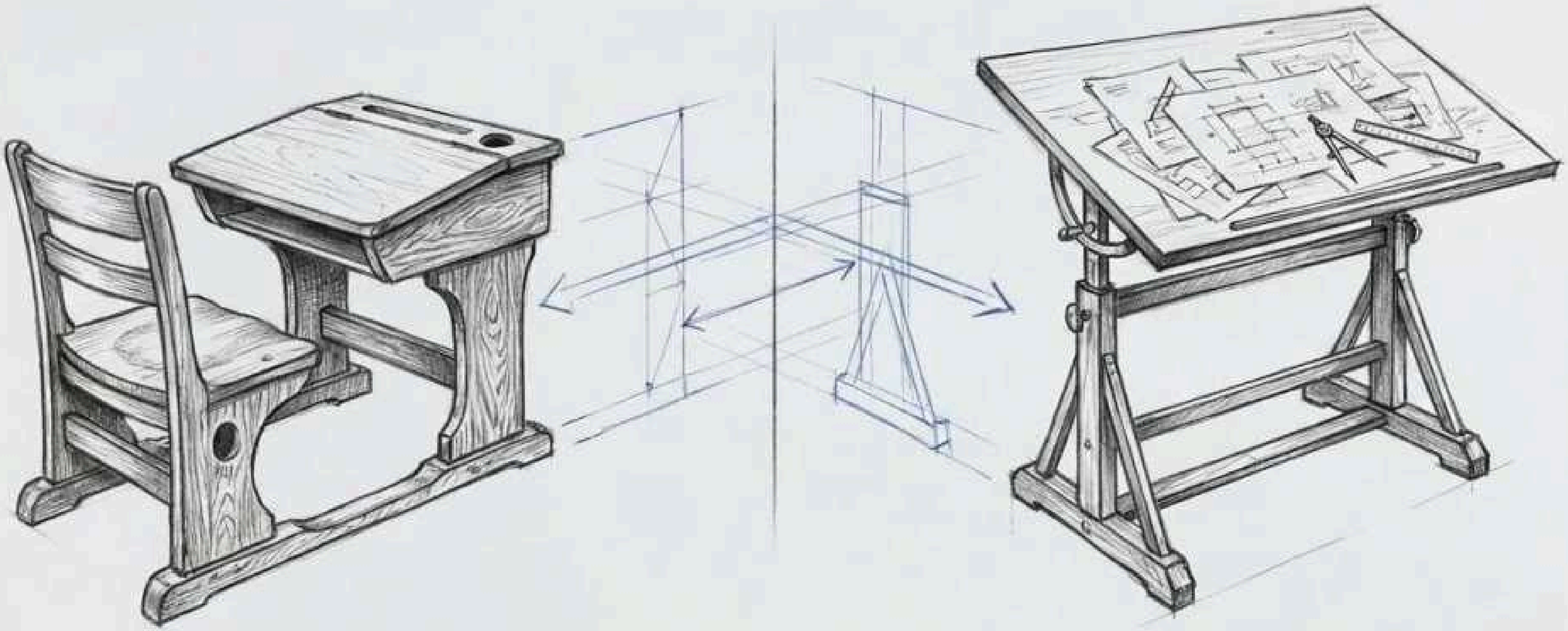
Course Feature		Cognitive Engineering
Short Lectures	⟷	Respects Limits of Attention
Numbered Paragraphs	⟷	Enables Easy Retrieval
Quizzes	⟷	Retrieval Practice + Instant Feedback
Final Exam & Tripos	⟷	Forces Spaced Practice
Final Lecture Questions	⟷	Demands Active Ownership

Every feature of the Academy is an engineered response to how the human brain actually learns.

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Seen from both sides of the desk

¶ 2.15



The Academy was born from experiencing both sides of the classroom. Gary knows the acute frustration of sitting through a lecture that simply does not connect, and the profound relief of receiving a perfectly timed, clear explanation.

Evaluate your own study habits

¶ 2.16

The Retained

Think of a skill or fact you learned and still remember well. How was it practiced? How often?

The Forgotten

Think of something you studied once and completely forgot.

What differentiates these two experiences? Based on the seven ideas presented, what does this suggest about how you should structure your own study time?

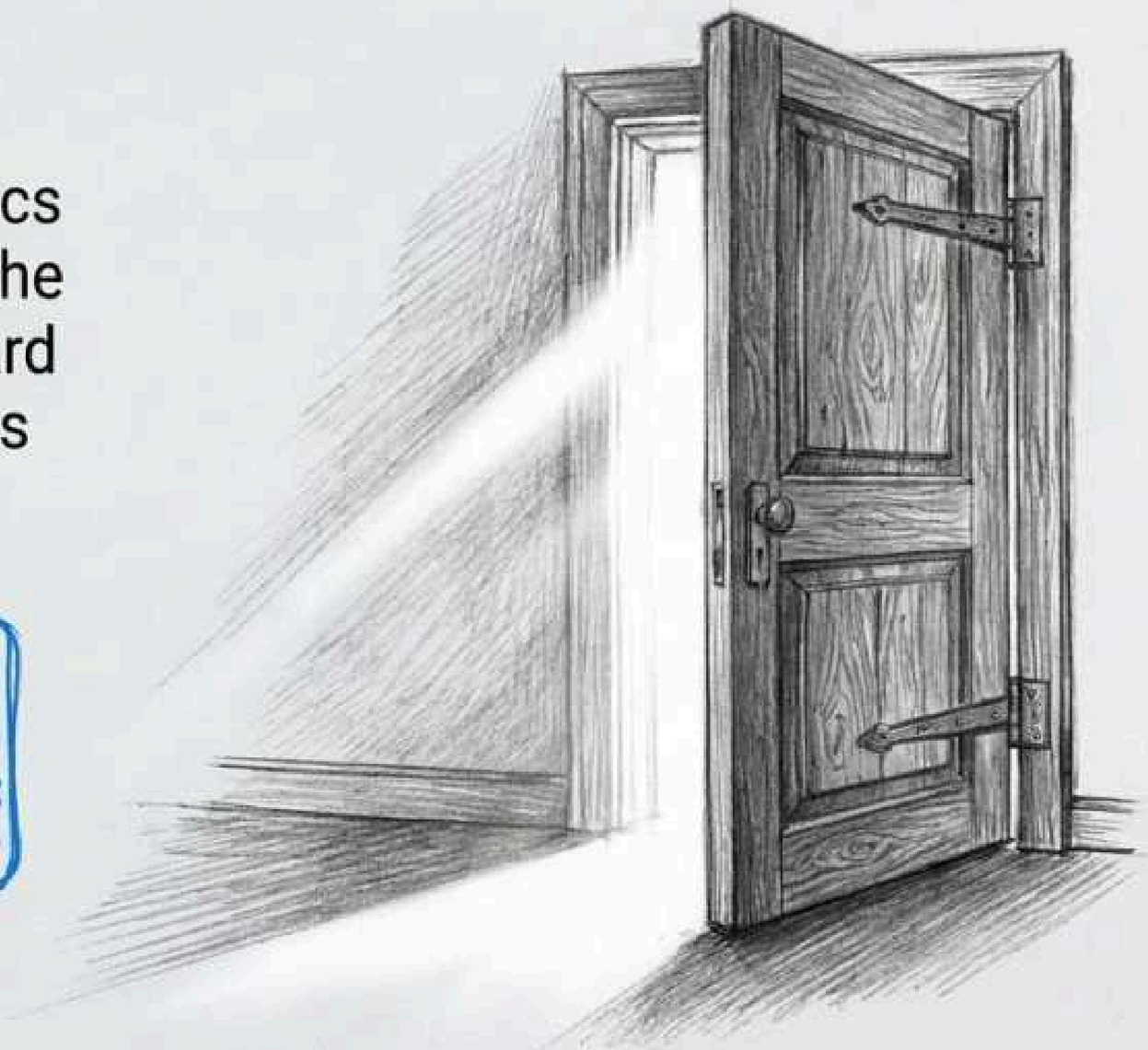
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The frustrations that led to building something new

¶ 2.17

We have established the mechanics of learning. Next, we will explore the systemic frustrations with standard education that made building this new model necessary.

Lecture 3:
Why the Academy Exists.



Gemini Notebook