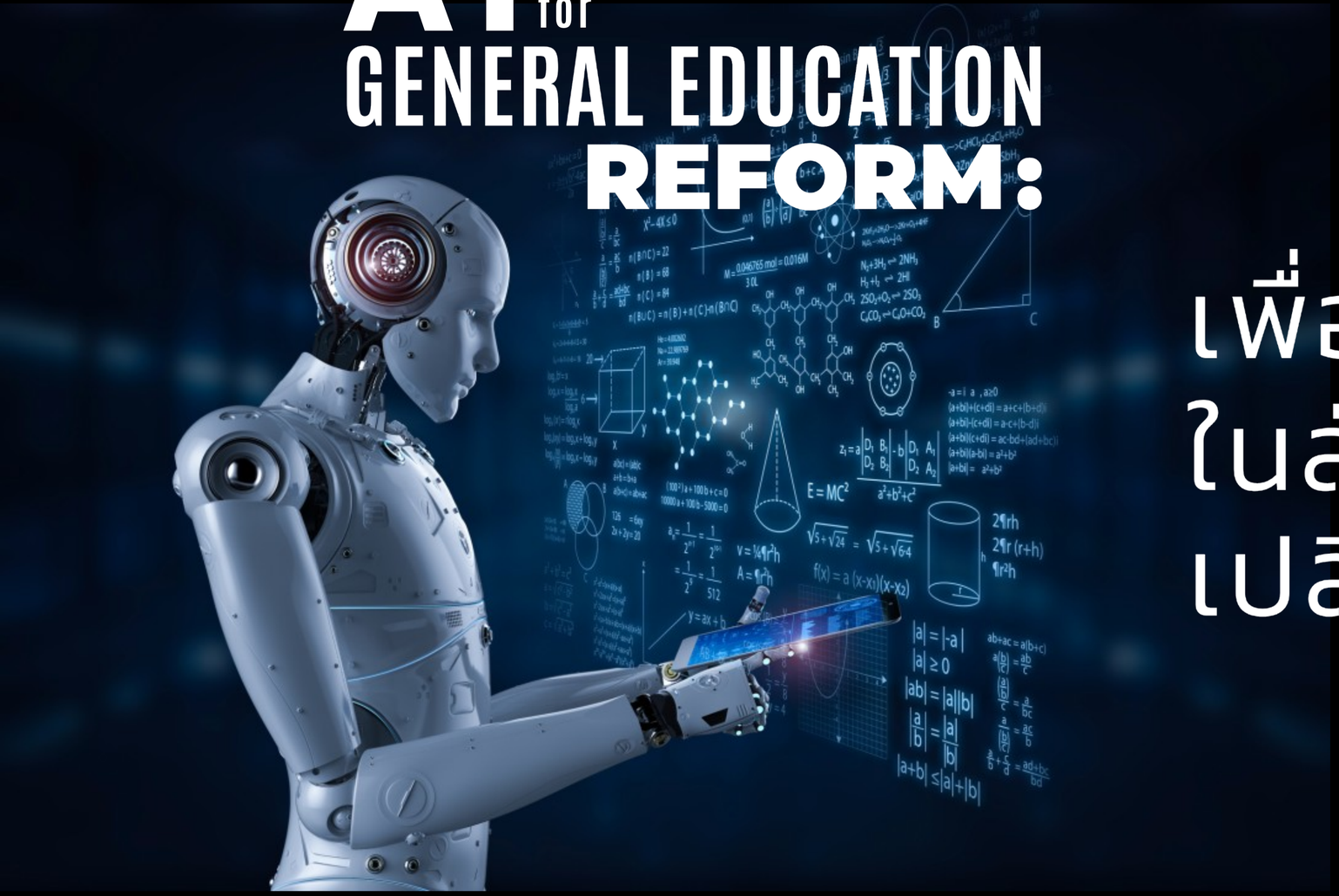
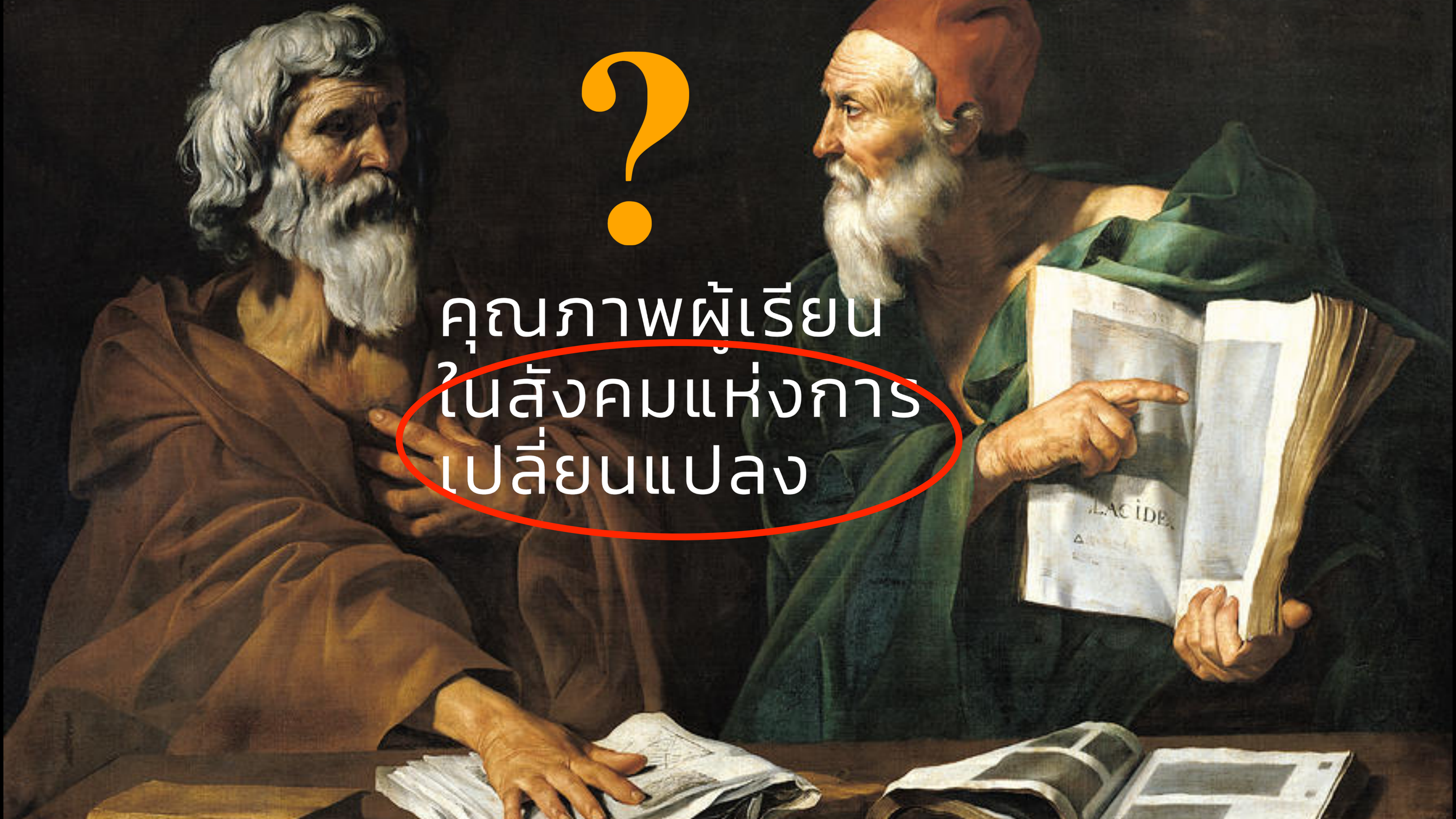
AI for GENERAL EDUCATION REFORM:



เพื่อคุณภาพผู้เรียน ในสังคมแห่งการเปลี่ยนแปลง

Assoc. Prof. Bundit Thipakorn
Advisor to the President; KMUTT
General Education Reform
November 27, 2025


?
คุณภาพผู้เรียน
ในสังคมแห่งการ
เปลี่ยนแปลง

C21

Social Network

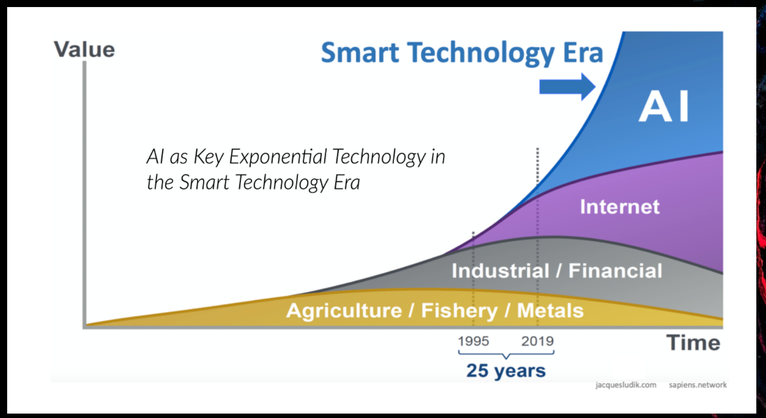
FACTS TODAY as a COMMODITY only ONE CLICK away ...

UNPRECEDENTED CHANGE ...
in both "Scale" and "Speed"

Create the societal NEEDS TECHNOLOGY...

with Exponential rate NEW NORMAL

Change TECHNOLOGY the SOCIETY ...
new normal of life



KMUTT

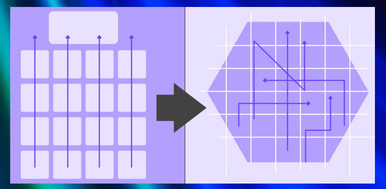
BYST

สังคมที่ไม่เคยหยุดเปลี่ยนแปลง

"Today, university need to prepare students for more rapid economic and social change than ever before, for jobs that have not yet been created, to use technologies that have not yet been invented, and to solve social problems that we do not yet know will arise."

The traditional higher education system must adapt to the today's reality of:

- The Ever-Evolving Landscape of Work and Rapid Change
- Non-Linear Careers ...Multiple Transitions and Career Lattice...
- Uncertainty ...Unprecedented Contexts



Character Qualities for "LEARNING"

DIGITAL
Era
features of change

Career Pathways in “Flux…”

DIGITALLY DYNAMIC

สังคมที่ไม่เคยหยุดเปลี่ยนแปลง

Characteristics of the Ever-Evolving Landscape of Work…

- **Knowledge Abundance, Meaning Scarcity:** Knowing facts no longer defines value; being able to **interpret, apply, lead, adapt, and create value** does.
- **Skills Half-Live Think:** Talent value erodes rapidly as technologies change every 3–5 years.
- **Work Identities Fragment:** Individuals cycle through multiple professional identities, simultaneously or sequentially.

DIGITAL Era

features of change

- **Value-Based Economy Emerges:** Nations compete on innovation, design, creativity, digital fluency, sustainability, culture, trust, citizen well-being.
- **Human-AI Symbiosis:** AI performs analysis, retrieval, and automation; humans drive contextual judgment, empathy, ethics, systems thinking, and creative leadership.

DIGITAL WAYS ...

of thinking, living, and organizing human activities ...

New logic of human activity:

- Creating Unprecedented Values
- Data-Driven
- Hyperconnectivity: people, knowledge, work, and value creation through data, networks, and intelligent machines
- Automated or Intelligence
- Personalised
- Interative and Continuously Improvement
- Transparent, Open, and Collaborative

DIGITAL Era

features of change

DIGITAL
Era

Everything
as-a-services

The digital systems connect **people**, **knowledge**, **work**, and **value creation** through **data**, **networks**, **intelligent machines**, and **Artificial Intelligence**...

the age of digital ways of thinking, living, and organizing human activities.

BEYOND
TECHNOLOGIES

BYST

คุณภาพผู้เรียน

AN Ever-EVOVLING LANDSCAPE OF WORK

DIGITALLY DYNAMIC

สังคมที่ไม่เคยหยุดเปลี่ยนแปลง

SPECIALIST

professional & vocational

GENERALIST

well - rounded

DEPTH Breadth

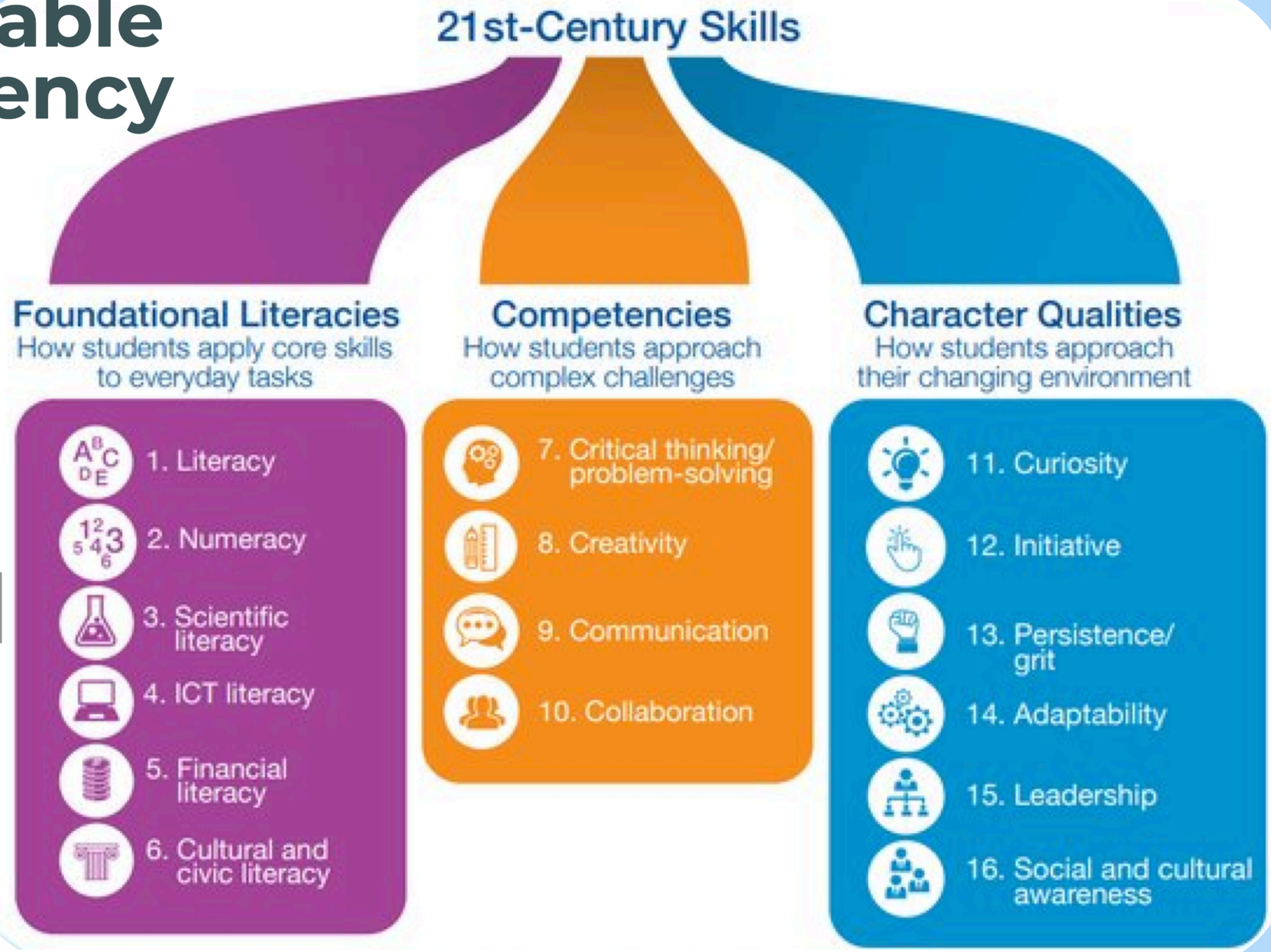
specific PROFESSION general

non PROFESSIONAL

M+GE+E=D

?

Transferable Competency



DATA and AI Literacies

Lifelong Learning

Character Qualities for "LEARNING"

Intellectual

Dexterity

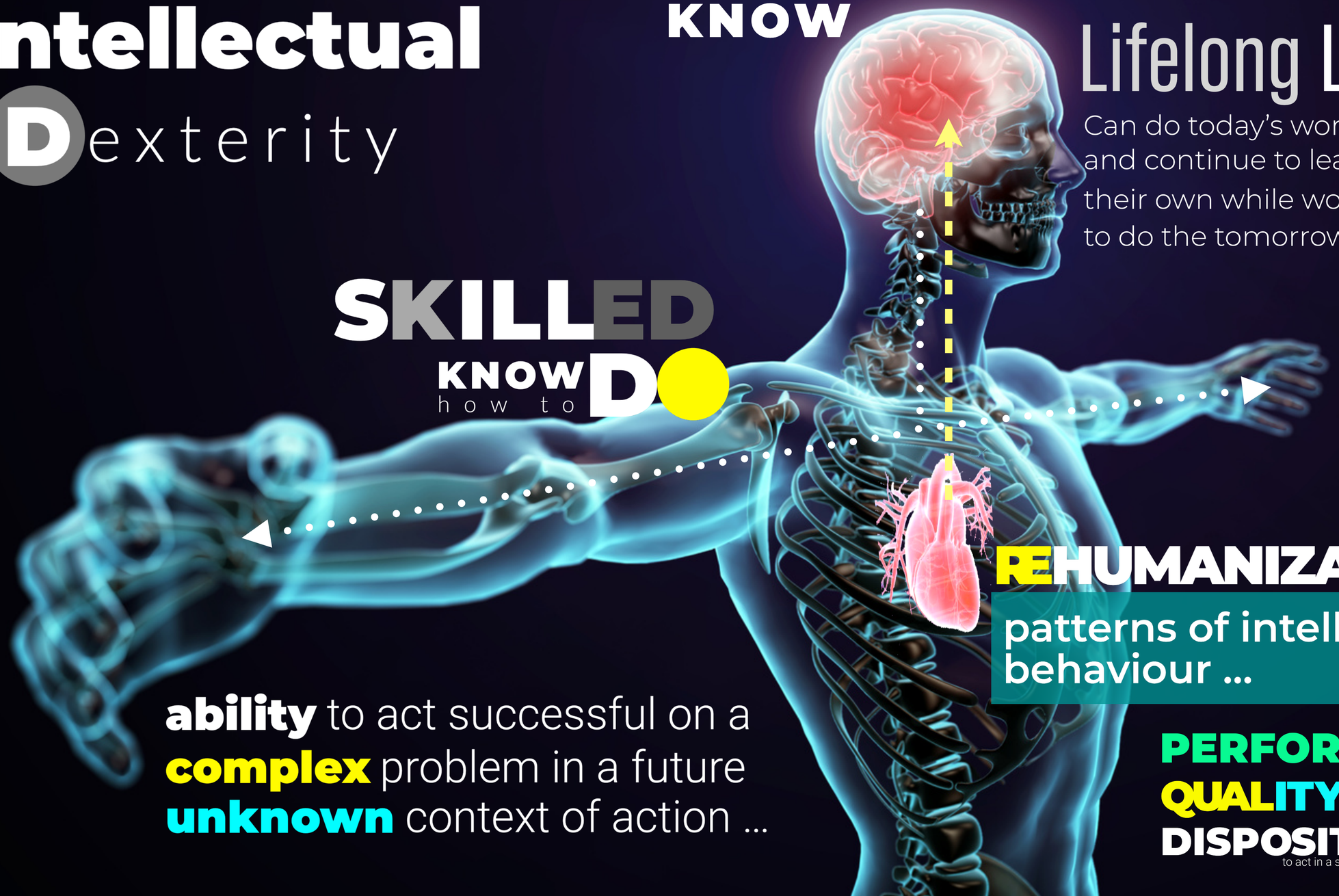
KNOW

Lifelong Learning

Can do today's work
and continue to learn on
their own while working
to do the tomorrow's work ...

SKILLED

KNOW how to **DO**



REHUMANIZATION

patterns of intellectual behaviour ...

ability to act successful on a
complex problem in a future
unknown context of action ...

PERFORMANCE

QUALITY

DISPOSITION

to act in a self-organized way

The NEXT General Education ...

KNOW

- 1. Literacy
- 2. Numeracy
- 3. Scientific literacy
- 4. ICT literacy
- 5. Financial literacy
- 6. Cultural and civic literacy

DATA and AI

Lifelong Learning

SKILLED

KNOW how to DO

- 7. Critical thinking/ problem-solving
- 8. Creativity
- 9. Communication
- 10. Collaboration

- 11. Curiosity
- 12. Initiative
- 13. Persistence/ grit
- 14. Adaptability
- 15. Leadership
- 16. Social and cultural awareness

REHUMANIZATION

patterns of intellectual behaviour ...

AN Ever-EVOVLING of everything ...

The NEXT General Education ...

“

an education that nurtures workforces capable of creating value through knowledge, technology, ethics, and collective action in an evolving world.

“high-agency humans” capable of evolving with change

KMUTT

BYST

The
NEXT
General Education …

Core Characteristics:

- **Adaptive Expertise:** can transfer knowledge across domains
- **Meta-Learning Capacity:** knows how to learn what they need, when they need it
- **Character-Driven Performance:** approaches work with integrity, curiosity, and resilience
- **Ethical & Civic Agency:** act with responsibility toward society and planet
- **Creative & Cultural Intelligence:** create value from culture, identity, and imagination
- **Transdisciplinary Thinking:** integrate knowledge across domains to create value
- **Technological Humanism:** human-centered AI data and digital fluency
- **Systems Sense-Making:** Understand and act in complexity
- **Ect.**

It is not about "learning everything," but "becoming" someone capable of creating value in anything.

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BYST

HABITS of MIND

a way of behaving intelligently when faced with a problem where the answer is not immediately known

1. Persisting

Stick to it!

Persevering in task through to completion; remaining focused. Looking for ways to reach your goal when stuck. Not giving up.

2. Managing Impulsivity

Take your time!

Thinking before acting; remaining calm, thoughtful and deliberative.

3. Listening with understanding and empathy

Understand others!

Devoting mental energy to another person's thoughts and ideas; Make an effort to perceive another's point of view and emotions.

4. Thinking flexibly

Look at it another way!

Being able to change perspectives, generate alternatives, consider options.

5. Thinking about your thinking

(Metacognition)

Know your knowing!

Being aware of your own thoughts, strategies, feelings and actions and their effects on others.

6. Striving for accuracy

Check it again!

Always doing your best. Setting high standards. Checking and finding ways to improve constantly.

7. Questioning and problem posing

How do you know?

Having a questioning attitude; knowing what data are needed & developing questioning strategies to produce those data. Finding problems to solve.

8. Applying past knowledge to new situations

Use what you learn!

Accessing prior knowledge; transferring knowledge beyond the situation in which it was learned.

9. Thinking & communicating with clarity and precision

Be clear!

Strive for accurate communication in both written and oral form; avoiding over-generalizations, distortions, deletions and exaggerations.

10. Gather data through all senses

Use your natural pathways!

Pay attention to the world around you Gather data through all the senses. taste, touch, smell, hearing and sight.

11. Creating, imagining, and innovating

Try a different way!

Generating new and novel ideas, fluency, originality

12. Responding with wonderment and awe

Have fun figuring it out!

Finding the world awesome, mysterious and being intrigued with phenomena and beauty.

13. Taking responsible risks

Venture out!

Being adventuresome; living on the edge of one's competence. Try new things constantly.

14. Finding humor

Laugh a little!

Finding the whimsical, incongruous and unexpected. Being able to laugh at one's self.

15. Thinking interdependently

Work together!

Being able to work in and learn from others in reciprocal situations. Team work.

16. Remaining open to continuous learning

Learn from experiences!

Having humility and pride when admitting we don't know; resisting complacency.

The
NEXT
General Education …

“

LEARN to BE and
LEARN to Live Together …

“high-agency humans” capable of evolving with change

KMUTT

BYST

EDUCATION

educate (v.)

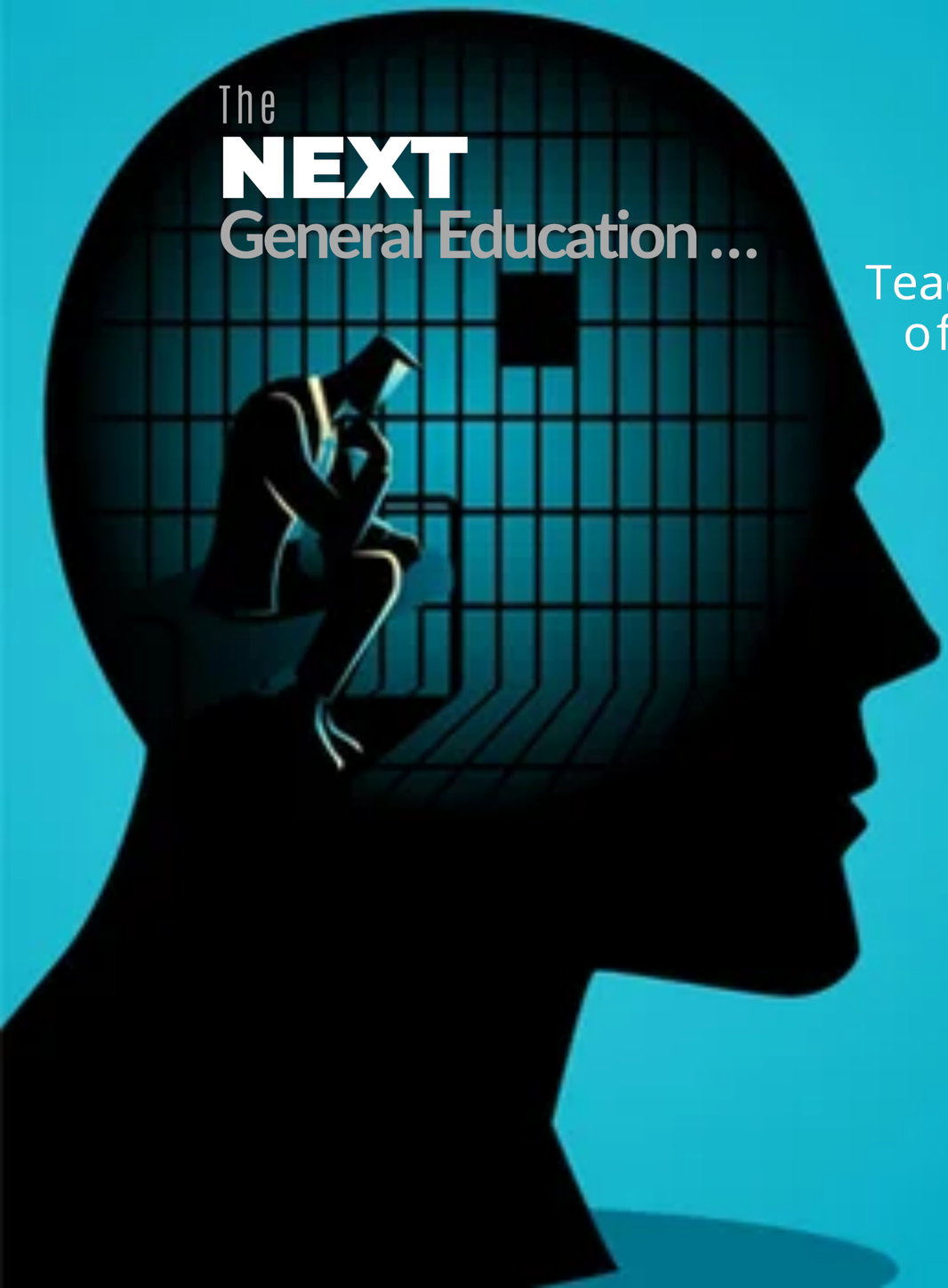
mid-15c., *educaten*, "bring up (children), to train," from Latin *educatus*, past participle of *educare* "bring up, rear, educate" (source also of Italian *educare*, Spanish *educar*, French *éduquer*), which is a frequentative of or otherwise related to *educere* "bring out, lead forth," from *ex-* "out" (see **ex-**) + *ducere* "to lead" (from PIE root ***deuk-*** "to lead"). The meaning "provide schooling" is attested by 1580s. Related: **Educated**; *educating*.

- Education is harmonious development of the physical, mental, spiritual and social, the forth dimension of life…
- Education means to "bring out" of the learner that spirit of learning and wonder, the desire to know that thirsts for knowledge…
- Education means to teach the mind to think…
- Education means to "lead out" internal hidden talent of a child or person…
- Education means to learn, to know , and to "lead out"…
- Education means a transcendental change of mind and/or attitude…

Education, as per UNESCO, is a tool for global change, aiming to cultivate socially responsible individuals with lifelong learning, critical thinking, and aesthetic appreciation, contributing to a harmonious society.

KMUTT

BYST

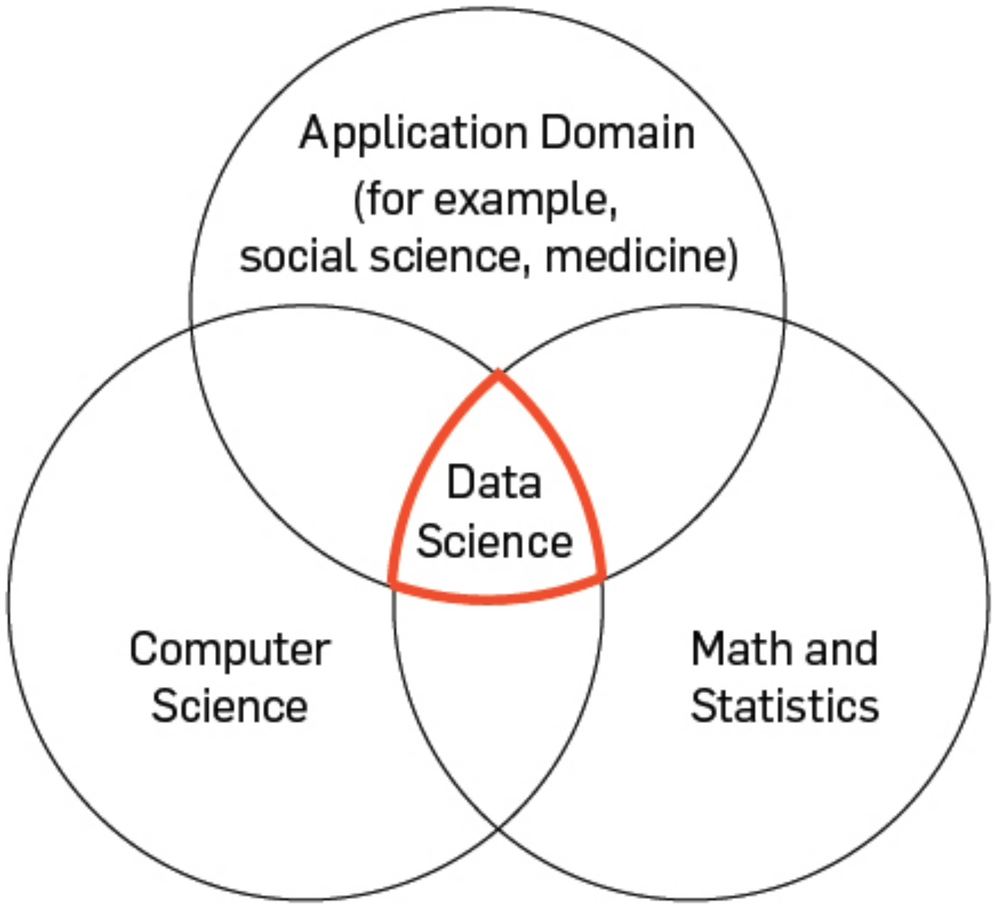


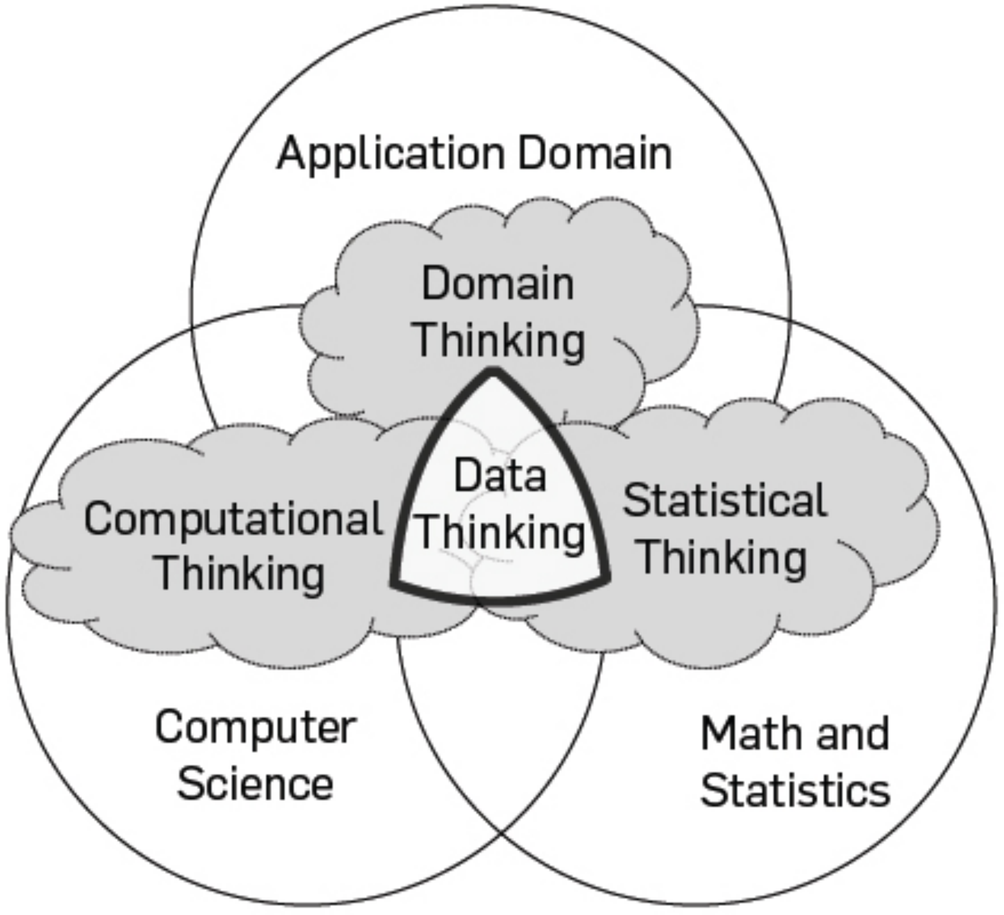
The
NEXT
General Education …

EDUCATION

Teaching of the **MIND** to **THINK**

a transcendental CHANGE of **MIND** and/or **ATTITUDE**


Application Domain
(for example,
social science, medicine)
Data
Science
Computer
Science
Math and
Statistics


Application Domain
Domain
Thinking
Computational
Thinking
Data
Thinking
Statistical
Thinking
Computer
Science
Math and
Statistics

The
NEXT
General Education ...

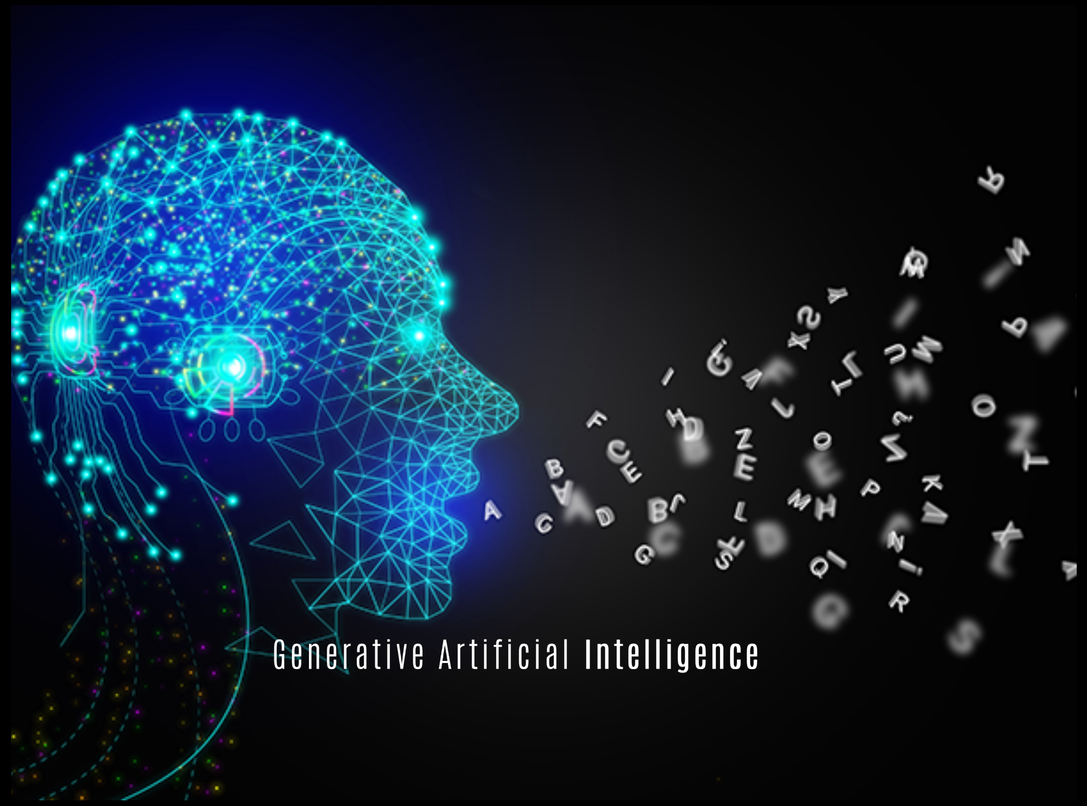
Learning as a "Process..."

EDUCATION

Education is a lifelong journey that never ends. It is not just about preparing for a future career or acquiring a certain set of skills, but rather it is about shaping our character, broadening our horizons, and providing us with the tools to live a fulfilling life.

Education is life itself.

It is time for
RADICAL
CHANGE

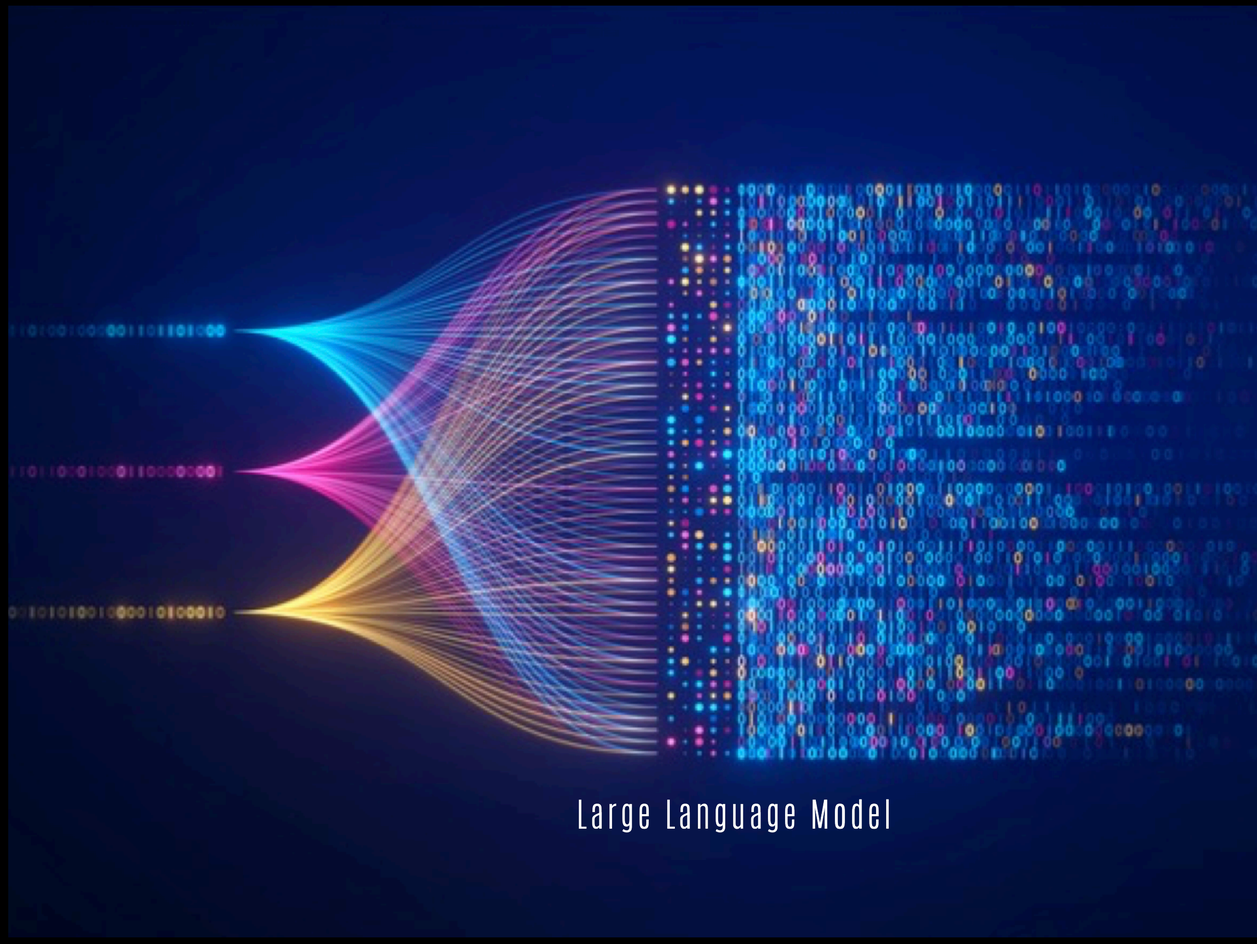


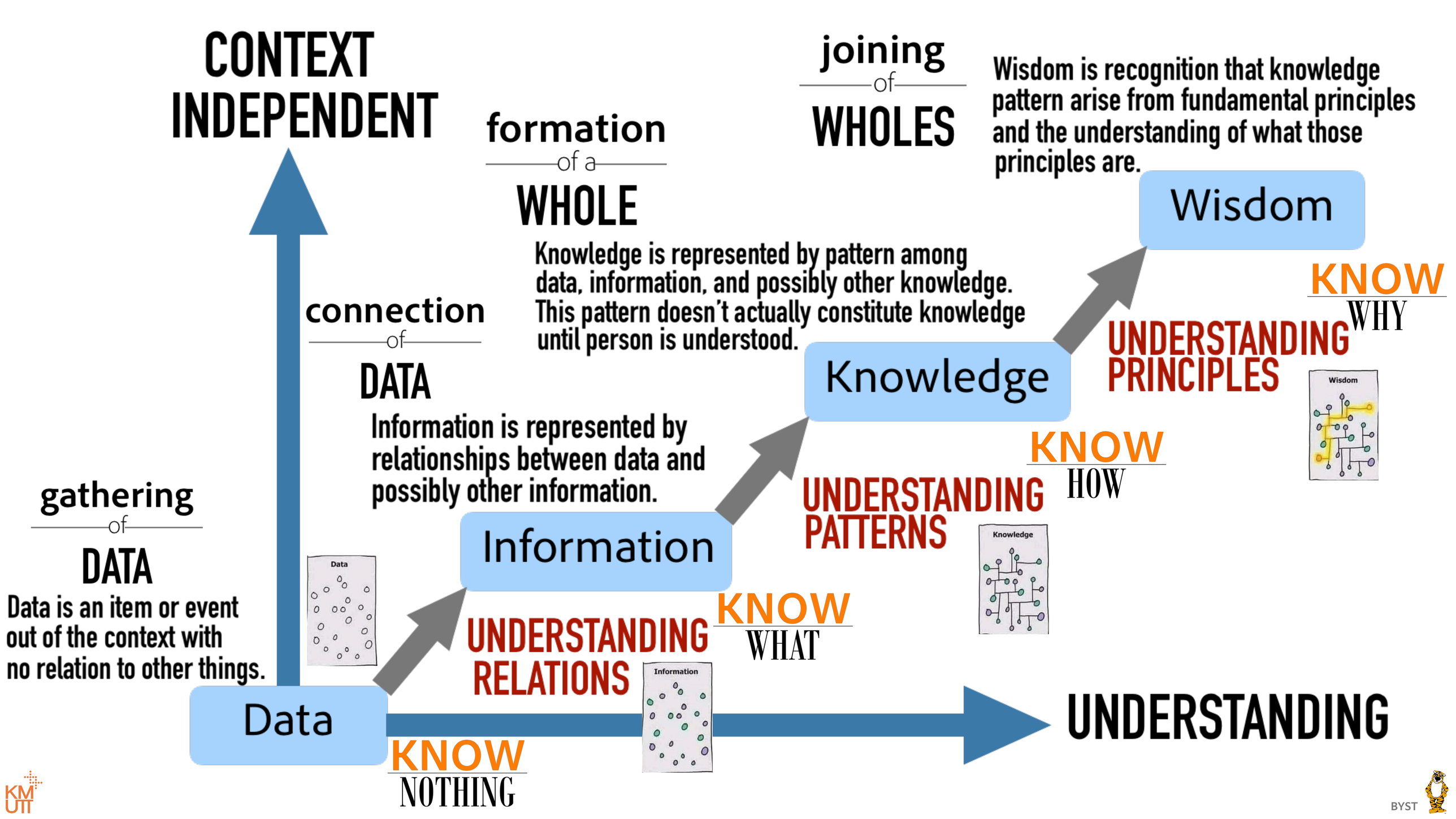
ARE THEY SMART YET ?

The role of Large Language Models (LLMs)

A Large Language Model (LLM) is an artificial intelligence system trained on massive amounts of “text data” to understand, generate, and manipulate human language.

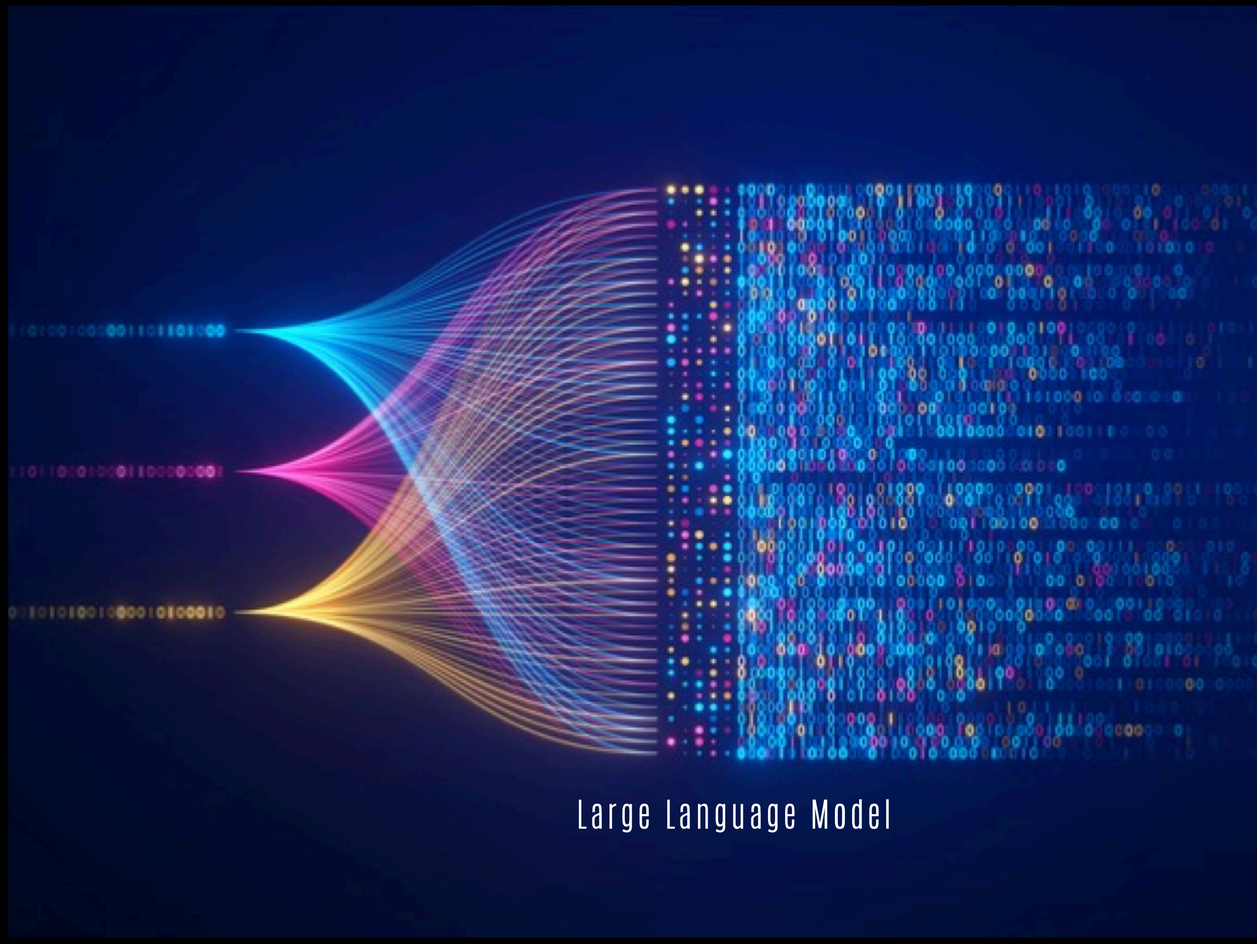
It is an neural network that encode linguistic knowledge, world knowledge, reasoning patterns, and “task behaviours.”




CONTEXT INDEPENDENT
formation of a WHOLE
joining of WHOLES
Wisdom is recognition that knowledge pattern arise from fundamental principles and the understanding of what those principles are.
Wisdom
KNOW WHY
UNDERSTANDING PRINCIPLES
Wisdom
Knowledge is represented by pattern among data, information, and possibly other knowledge. This pattern doesn't actually constitute knowledge until person is understood.
Knowledge
KNOW HOW
UNDERSTANDING PATTERNS
Knowledge
connection of DATA
Information is represented by relationships between data and possibly other information.
Information
KNOW WHAT
UNDERSTANDING RELATIONS
Information
gathering of DATA
Data is an item or event out of the context with no relation to other things.
Data
Data
KNOW NOTHING
UNDERSTANDING

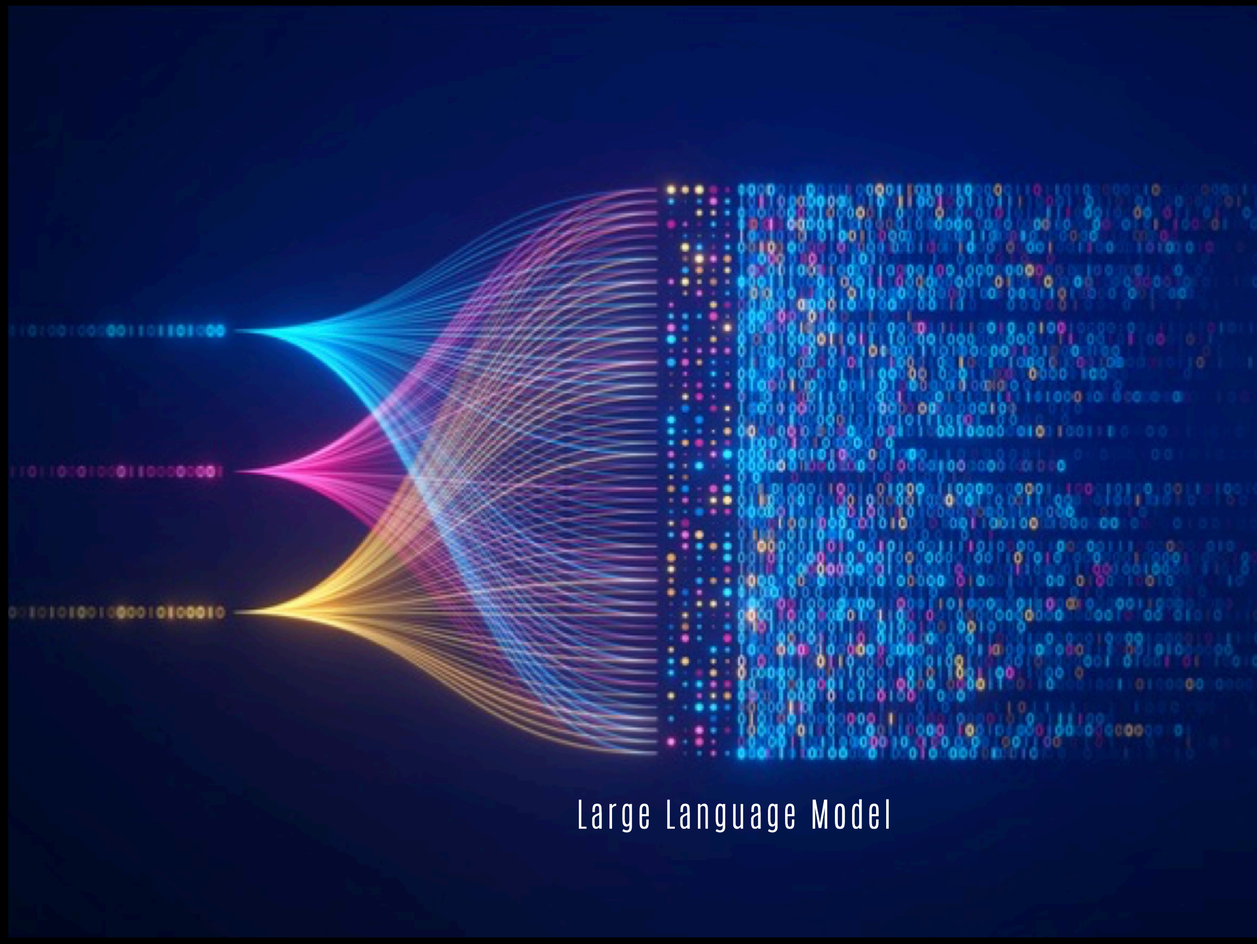
What is LLM For?

- **Understanding:** interpreting natural language queries, summarising text, extracting meaning, sentiment, or intent, passing ambiguous or incomplete language
- **Generating:** writing new text in any style, drafting business reports, emails, or articles, producing stories, explanations, or dialogues, creating structured content (tables, outlines, framework
- **Transforming:** translating languages, rewriting in new styles or tones, converting unstructured text into structured formats, simplifying or expanding content
- **Resoning:** logical inference, planning and decision-making, math and symbolic operations, step-by-step problem solving

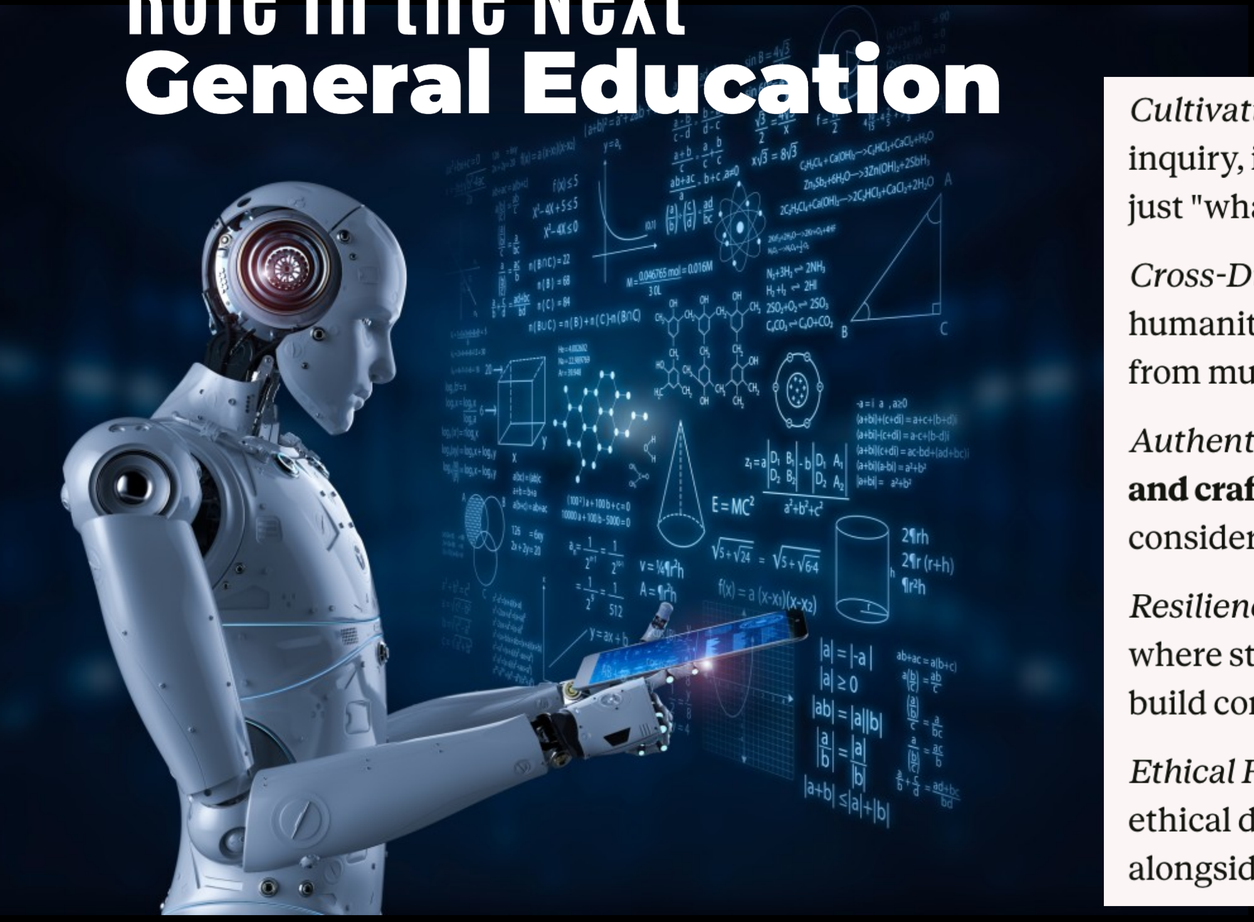


What Generative AI Cannot Do:

- Truly Understanding
- Know the Real World
- Guarantee Truth
- Reason Perfectly
- Avoid Bias
- Create Genuine Human Meaning
- Act Physically
- Behave Ethically by Itself
- Replace Human Responsibility



AI 's Role in the Next **General Education**



Cultivating Intellectual Character - AI can help students develop habits of mind: rigorous inquiry, intellectual humility, ethical reasoning, and synthesizing across disciplines. Not just "what to think" but "how to think with character."

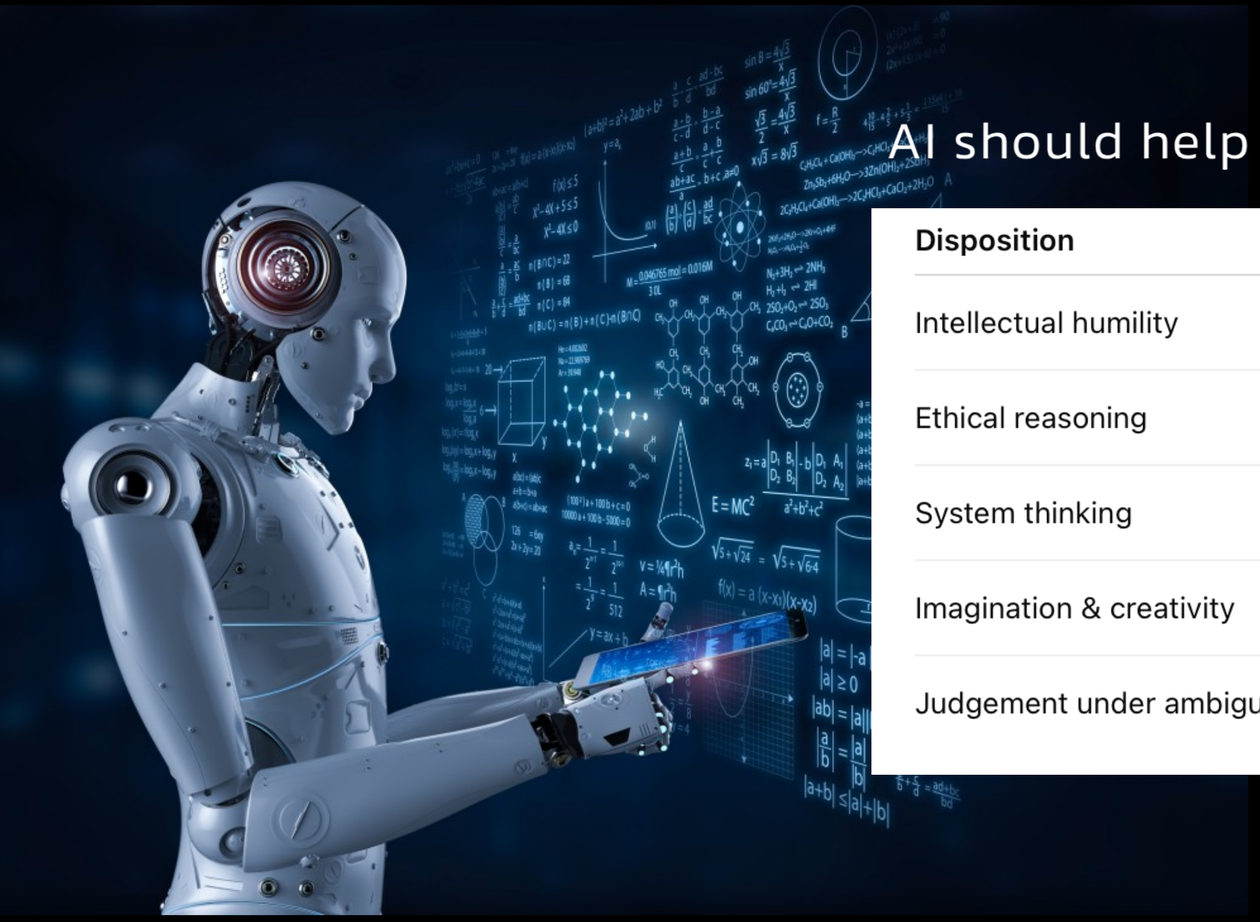
Cross-Disciplinary Synthesis - AI can model and facilitate connections between humanities, sciences, and arts that traditional silos prevent. Students learn to see problems from multiple frameworks simultaneously.

Authentic Work Quality - AI can provide sophisticated feedback on the **quality of thinking and craftsmanship** in student work - not just correctness, but depth, originality, ethical consideration, and elegance of reasoning.

Resilience Through Challenge - AI tutors can create "productive struggle" environments where students develop grit and adaptability through carefully calibrated challenges that build confidence in their ability to tackle the unfamiliar.

Ethical Formation - AI scenarios and simulations can help students wrestle with complex ethical dilemmas across professional and civic contexts, developing moral reasoning alongside technical competence.

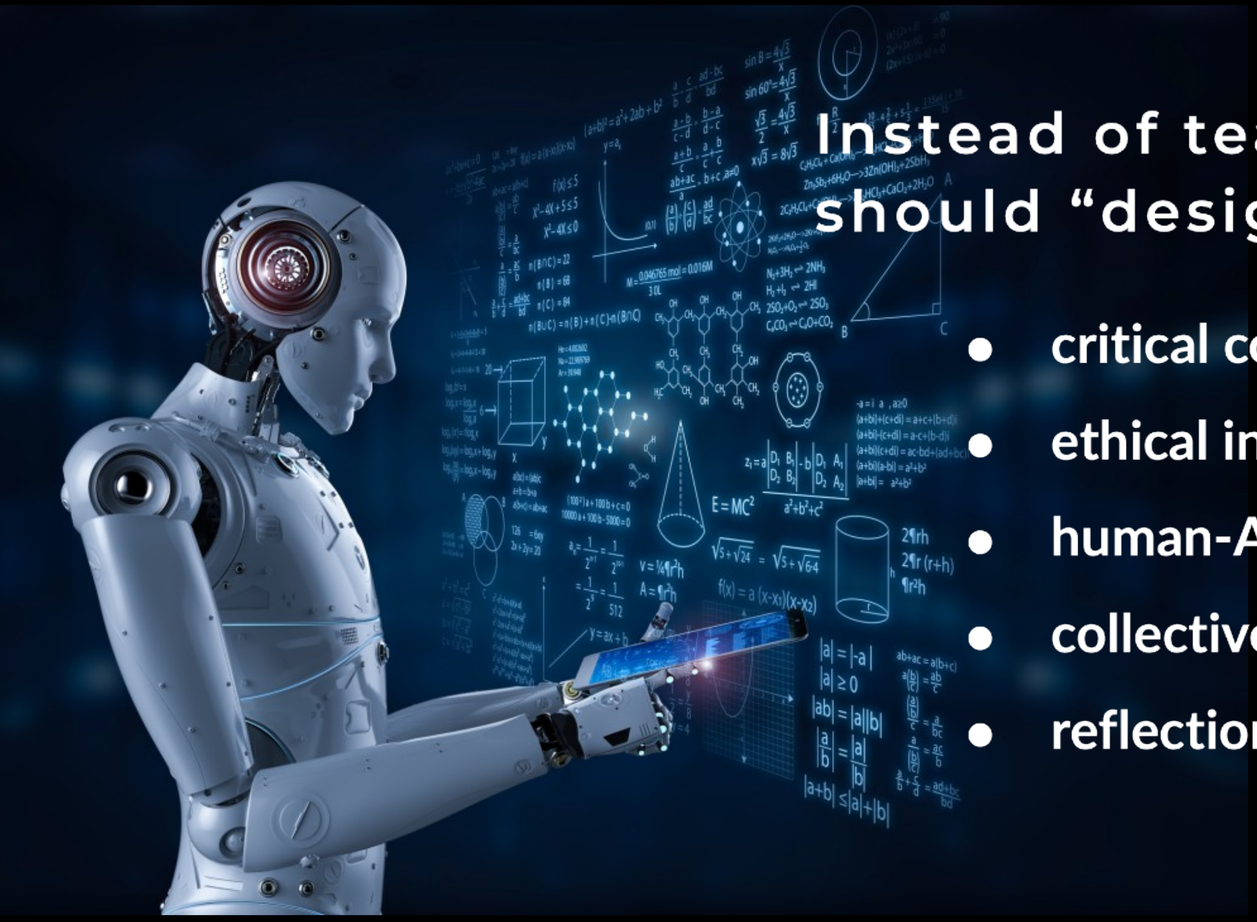
AI's Role in the Next General Education



AI should help cultivate **habits of mind**, such as:

Disposition	Why it matters in AI age
Intellectual humility	AI makes confident mistakes; humans must question "the answer"
Ethical reasoning	Intelligence is easily misused at scale
System thinking	Problems today are interconnected and dynamic
Imagination & creativity	AI imitates past patterns; humans must extend them
Judgement under ambiguity	Generative models produce plausible uncertainty

AI's Role in the Next General Education

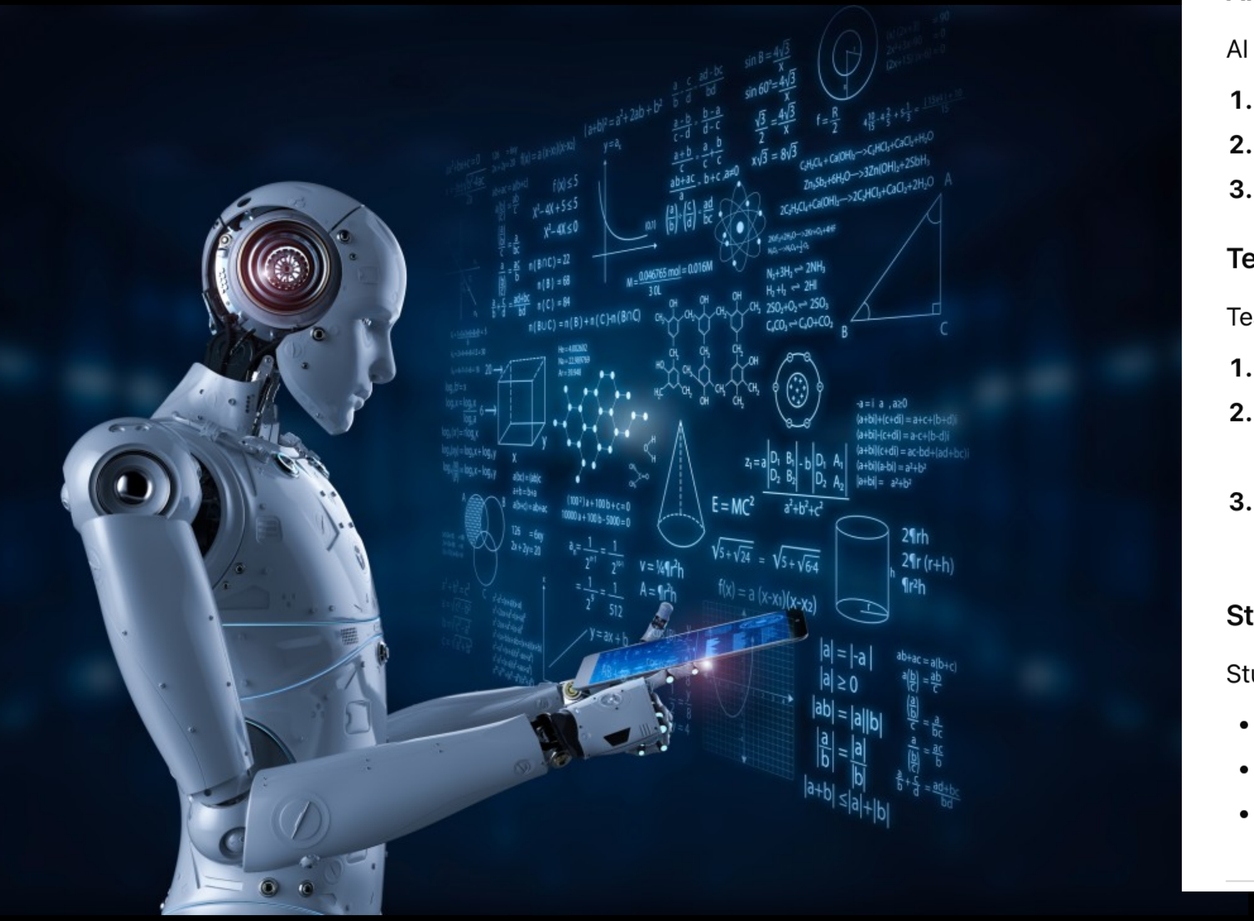


Instead of teaching "How to use AI," teachers should "design learning process" that builds:

- critical co-creation with AI (not automation)
- ethical inquiry into power and data
- human-AI dialogue as thinking process
- collective reasoning, not individual answers
- reflection on bias, values, and consequences

AI becomes a **partner in thinking**, not a tutor or tool.

AI's Role in the Next General Education



2. Redefine the roles: AI vs Teacher vs Student

AI's proper role

AI should be used as:

1. **Amplifier of options** – generating ideas, perspectives, scenarios, counterarguments.
2. **Simulator** – creating complex, changing contexts to practice decisions.
3. **Mirror** – helping students see patterns in their own thinking, writing, bias.

Teacher's proper role

Teachers become:

1. **Sense-maker and ethicist** – helping students judge *what matters* and *what is right*.
2. **Designer of productive constraints** – deciding when *not* to use AI, or how to use it in a disciplined way.
3. **Model of human disposition** – demonstrating humility, curiosity, courage, and responsibility when using AI.

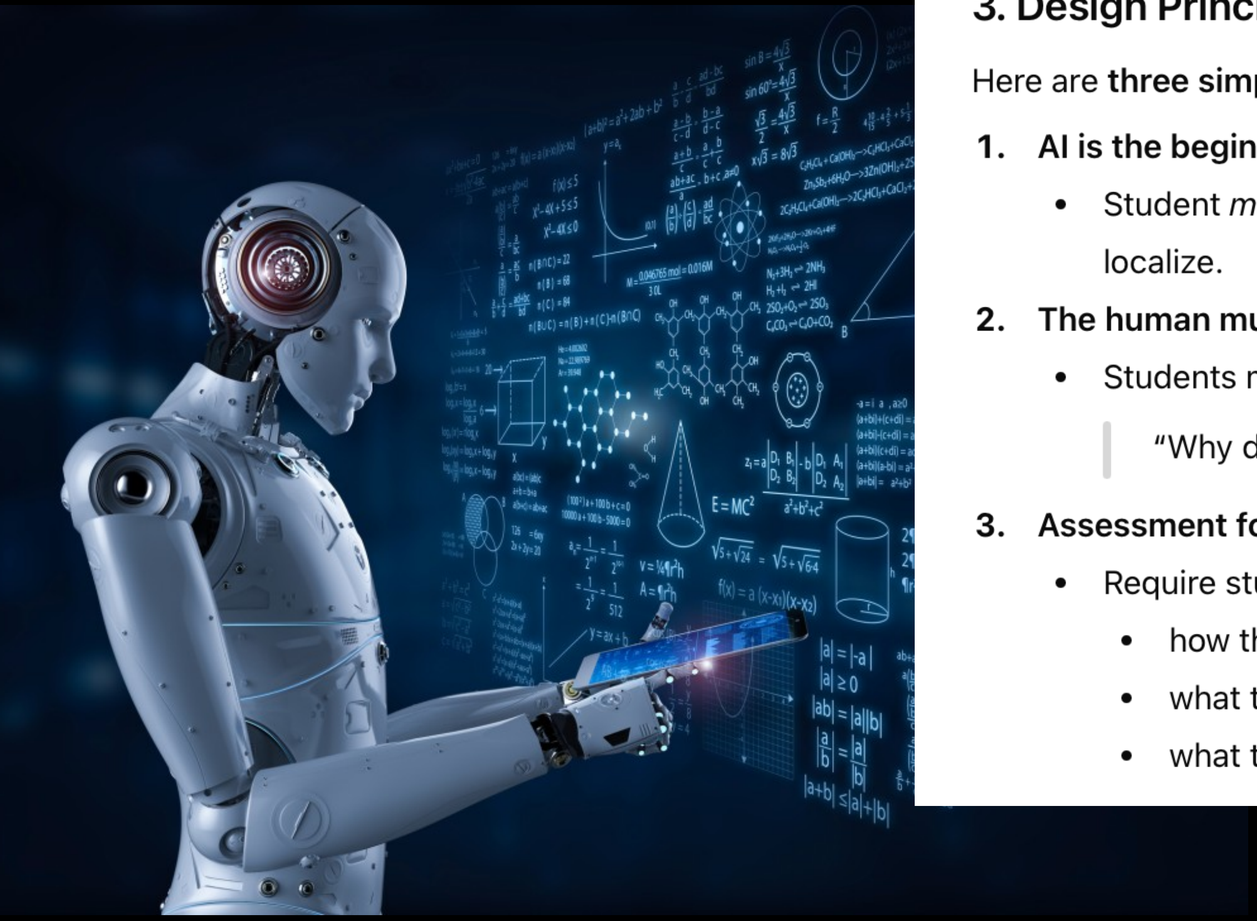
Student's proper role

Students are no longer passive receivers of content or clever "AI users". They are:

- **Strategists** – deciding *when, why, and how* to bring AI into a task.
- **Critics** – interrogating AI outputs, not consuming them.
- **Co-creators** – integrating AI, human insight, and real-world context into action.

AI becomes a **partner in thinking**, not a tutor or tool.

AI's Role in the Next General Education



3. Design Principles: How AI + Teacher Should Work Together

Here are **three simple design rules** you can use for curriculum, courses, or policy:

1. **AI is the beginning of the task, not the end.**
   - Student *must* go beyond AI's first answer: refine, critique, compare, contradict, contextualize, localize.
2. **The human must stay in the role of explainer and decision-maker.**
   - Students must be able to answer:

     > "Why did you choose this, against these alternatives, for this context?"
3. **Assessment focuses on process, judgement, and reflection — not just product.**
   - Require students to show:
     - how they used AI,
     - what they accepted/rejected and why,
     - what they would do differently next time.

AI becomes a **partner in thinking**, not a tutor or tool.

If you're not prepared to be **wrong**,
you'll **never** come up with **anything** original.

- Sir Ken Robinson

Goalcast