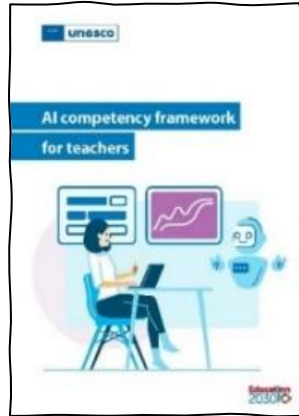


# **Human-centred AI competency development**

*Fengchun Miao, UNESCO*

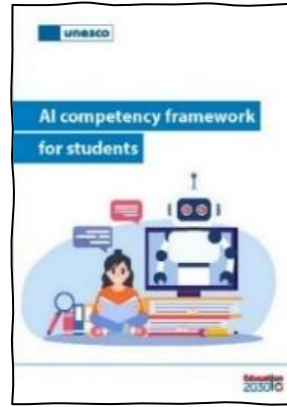
# Having been reviewing global trends for 8+ years

No. 1 for 18 months



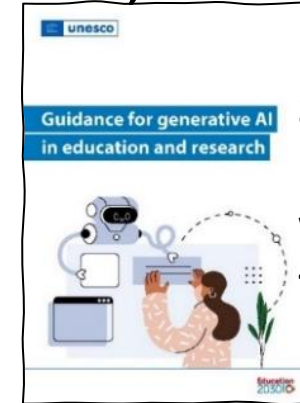
(2024)

No. 2 for 18 months



(2024)

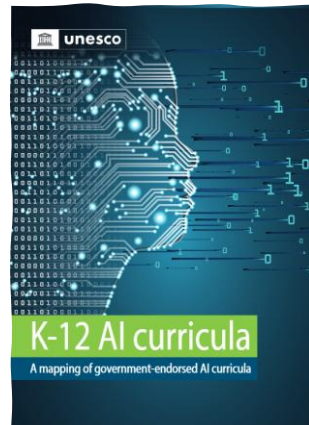
No.1 for 1 year + No.3 for 18 months; >1300 citations



(2023)

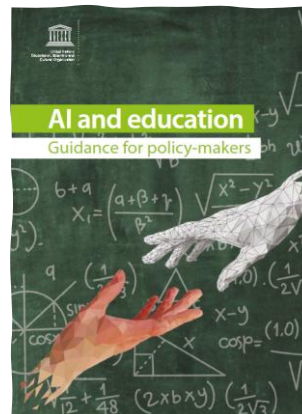
Spanish & Portuguese versions top 10

Top 30 for 3+ years



(2022)

Top 10 for 3+ years, >1800 citations



(2021)

Spanish version top 10

Top 30 for 3+ years,



(2019)

# Project of G77 + China on AI competencies

Regional seminar  
for Arab States  
*(online)*

22-23 April 2024

28-29 October 2024

Regional seminar for  
Asia and the Pacific  
*(online)*

28-29 April 2025

16-17 July 2025

Regional seminar for  
Latin America and the  
Caribbean  
*(Montevideo+online)*

11-12 December 2025

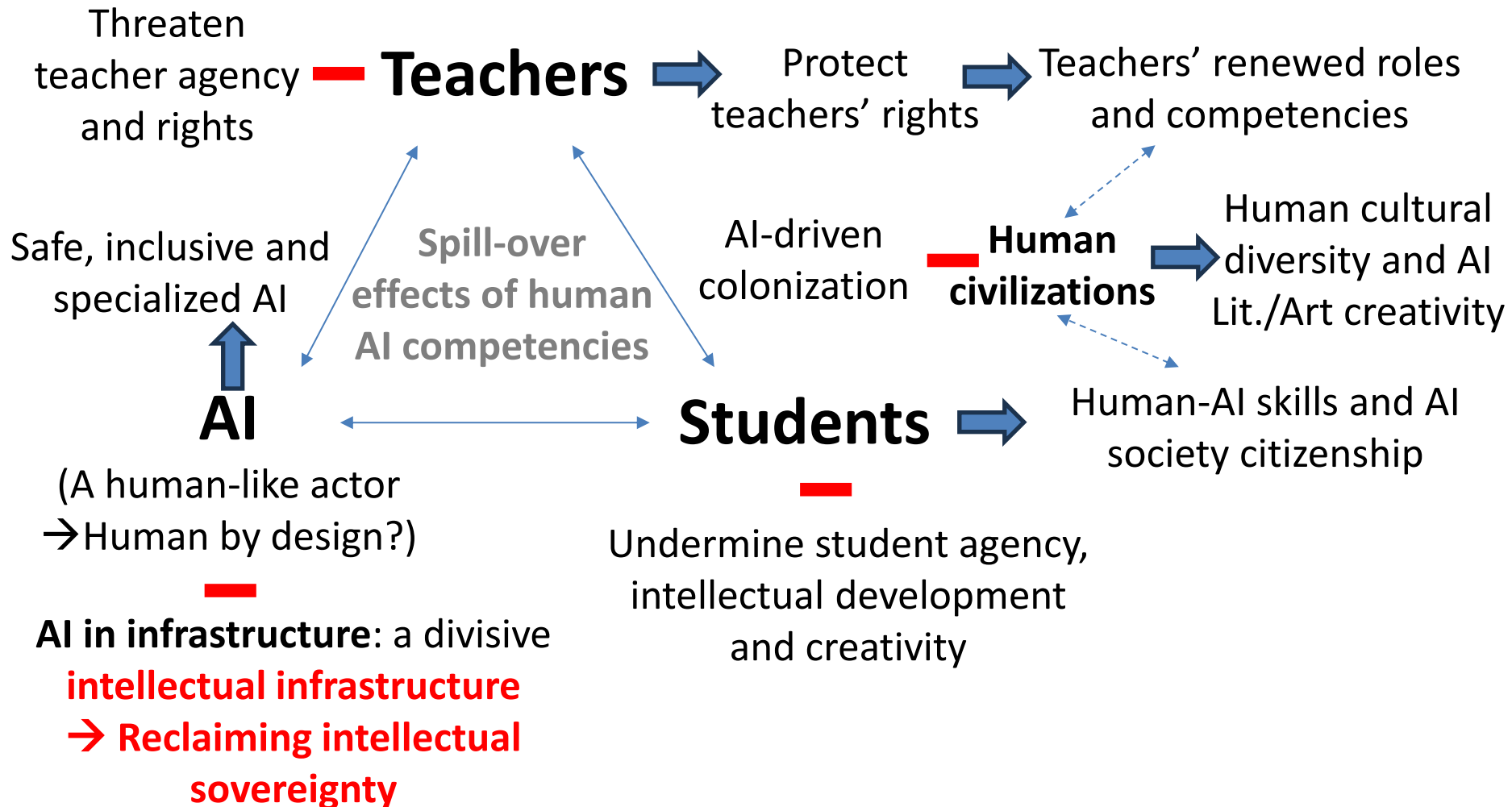
Sub-regional seminar for  
Francophone &  
Lusophone countries in  
Africa  
*Dakar*

Sub-regional seminar  
for Anglophone  
countries in Africa  
*(Online)*



- **1500+ policy-makers from around 130 countries** trained by seminars
- **Over 50 countries** developing or completing national AI competency frameworks

# Teacher-student-AI pedagogy: The core of AI and education



# Global status of AI-education intercourse

AI is far from a sufficient maturity:  
Lack of **safe** foundation AI;  
Lack of **specialized** tools;  
Lack of **skillful** users and supporters;  
Lack of **social** contracts



“AI for education” is the spillover effect of AI competencies.  
Administrative or commercial hype without AI competency  
is anti-educational.



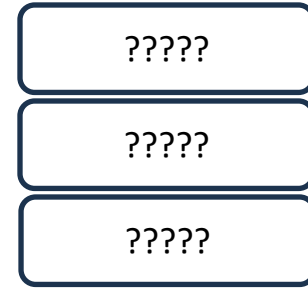
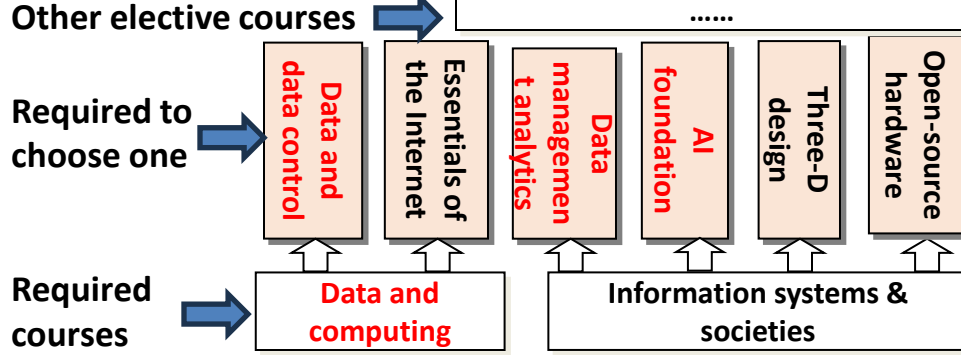
Education’s roles in solidifying AI competencies  
and long-term impact have been verified.

# China national AI-related curricula for grades 1-12 (2004-2017-2022)

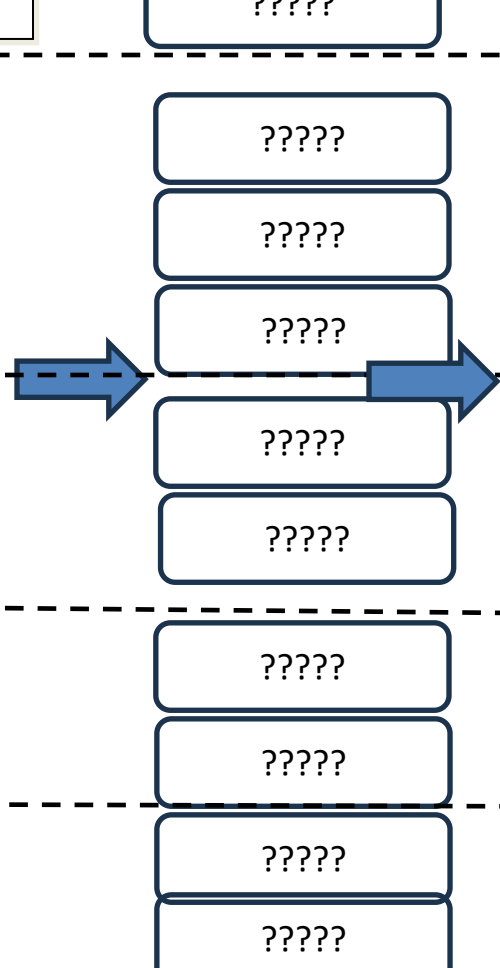
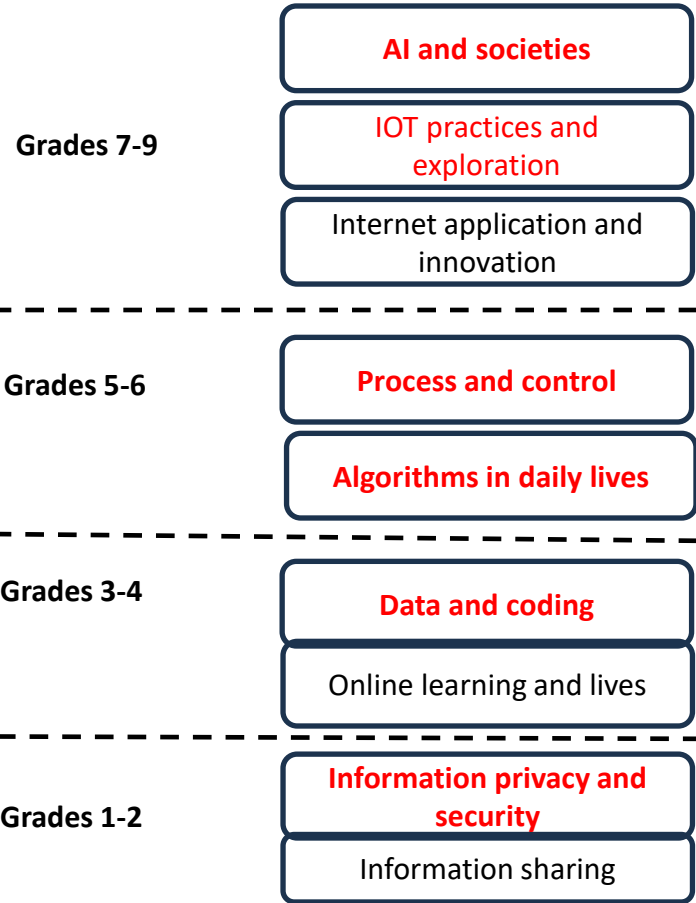


# Teaching AI for all grades 1-12 (2025)

National ICT Curriculum Standard for Grades 10-12 (2004-2017-2020)



National Information Science and Technology Curriculum Standard for Grades 1-9 (2022)



How to spiral AI domains or content across grade levels ???

# Guidelines for K-12 AI curricula of Beijing: Curriculum structure

Aspect	Curricular module				
	Grades 1-2	Grades 3-4	Grades 5-6	Grades 7-9	Grades 10-12
AI Foundations	Basic AI foundations	Basic AI concept	Basic AI concept (cont.)	Key pillars of AI: Data, Algorithms, Computing	AI applications and advantages
		History of AI	History of AI (cont.)	Concept and categories of machine learning	AI-driven advancements across sectors
AI Applications & Technologies	AI application technologies	AI application technologies (cont.)	AI application technologies (cont.)	AI techniques	Achievements of innovative AI uses and prospects
		Foundational AI skills	Foundational AI skills (cont.)	AI technology application skills	Generative AI
Realization Methods of AI	AI to imitate human behaviors	Data collection and processing	Data collection and processing (cont.)	Basics of algorithms	Machine learning
		Basic processes of machine learning	Essentials of algorithms	AI system design	Deep learning
			Basic processes of machine learning (cont.)		Reinforcement learning
AI Ethics and Societies	AI and humanity	AI and humanity	AI and humanity	AI and humanity	Data security awareness and skills
	AI and societies	AI and societies	AI and societies	AI and societies	Social impact of AI

# How China produces AI talent?

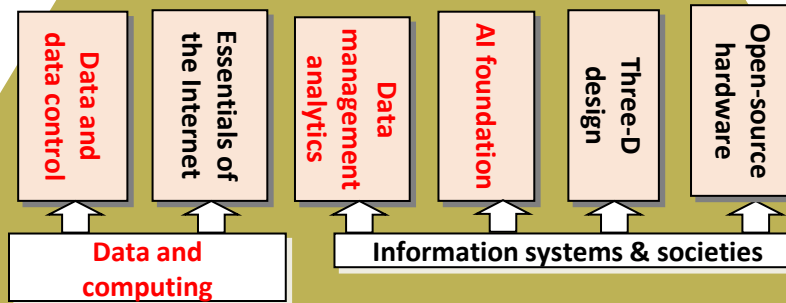
A frontier AI R&D incubating initiative

“AI 101”:  
15 core majors  
+ 10 use-case based core extended majors  
+ 2 comprehensive experimental courses

Higher education (Bachelors, Masters, and Doctoral programmes)

215+ universities offers 100+ “AI+X” majors

Grades 10-12 National AI-related curriculum

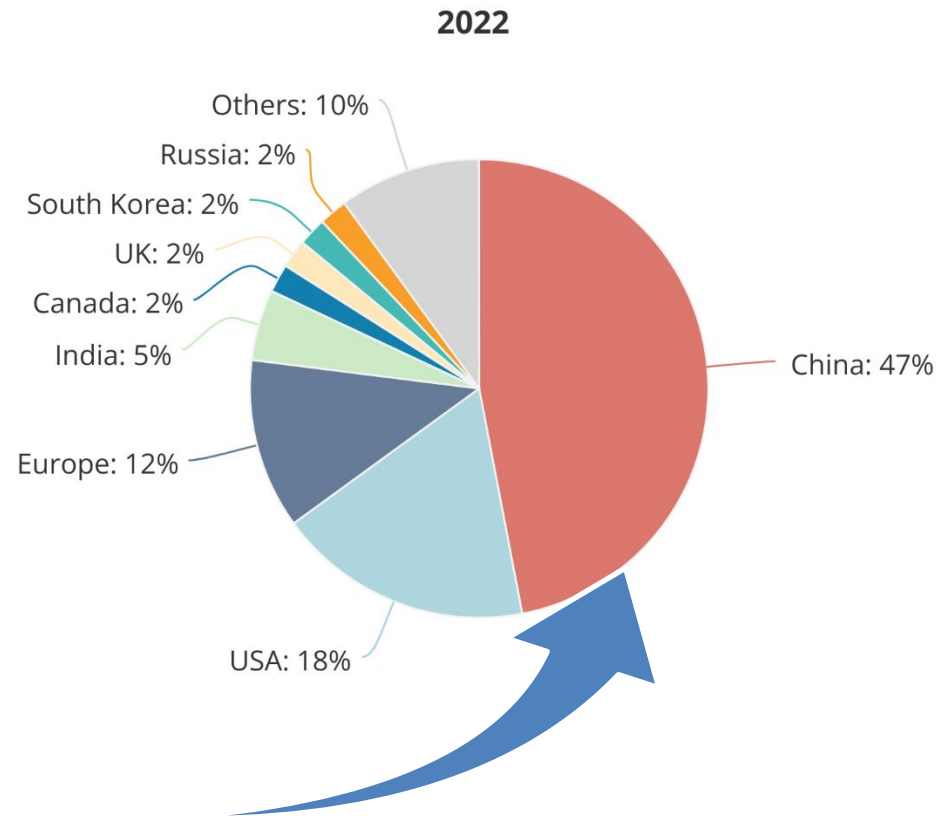


	Grades 1-2	Grades 3-4	Grades 5-6	Grades 7-9	Grades 10-12
AI Foundations	Basic AI foundations	Basic AI concept		Data, Algorithms, Computing	AI applications
		History of AI		Machine learning	AI across sectors
AI Applications & Technologies	AI application technologies	AI application technologies		AI techniques	Innovative AI uses
		Foundational AI skills		AI application skills	Generative AI
Realization Methods of AI	AI to imitate human behaviors	Data collection and processing		Basics of algorithms	Machine learning
		Basics of machine learning	Essentials of algorithms	AI system design	Deep learning Reinforcement learning
AI Ethics and Societies	AI and humanity	AI and humanity	AI and humanity	AI and humanity	Data security
	AI and societies	AI and societies	AI and societies	AI and societies	Social impact of AI

Grades 1-9 Beijing AI curriculum

# China produces the largest number of AI talents of the world

47% in 2022 — more Chinese AI talent are working in domestic AI industry than any other countries. (Source: The Global AI Talent Tracker 2.0, MacroPolo)



- **School education: Teaching AI for students (grades 1-12)**
- **Higher education: 100+ “AI+X” majors in 215 universities**  
→ what are these AI courses/majors?

# UNESCO

## AI competency framework for teachers

Towards **rights-based** **autonomous use** of AI in education



# Key principles: A social contract for human-AI interaction

(pages 16-20)

Teacher development as lifelong learning

Applicability for all teacher and digital evolution

Promoting trustworthy and climate-friendly AI

Protecting teachers right and define teachers' roles

A human-centred approach

**A social contract for human-AI interaction**

- **Training and support as a precondition for effective AI in education**

- Practices and reflection of progression

- Maintaining intrinsic motivation

- Applicability across contexts

- Digital +/→ AI competencies

- Ethical principles for validating AI

- More climate-friendly AI tools

- Uphold teachers' rights

- Adjust teachers' duties

- Human-accountable use of AI

- Inclusive design, deployment, and uses

- Explainability of AI tools

- Human-controlled impact of AI

- Debunking AI hypes

- Understanding AI's threats from design

- Ensuring human and social values to prevail

# *Teachers' duties in AI societies*

Teachers should be **trained and supported** to become:

- Critical reviewers of AI and AI society citizens
- Co-creators of ethical rules and role models for AI ethics
- Co-designers of AI-assisted learning settings
- Accountable designers and facilitators of AI-pedagogy
- Co-leaners of AI

# AI Competency Framework for Teachers (AI CFT)

Training goals  
or AI literacy for  
**all teachers**



Training & support  
goals of practices for  
**master teachers**

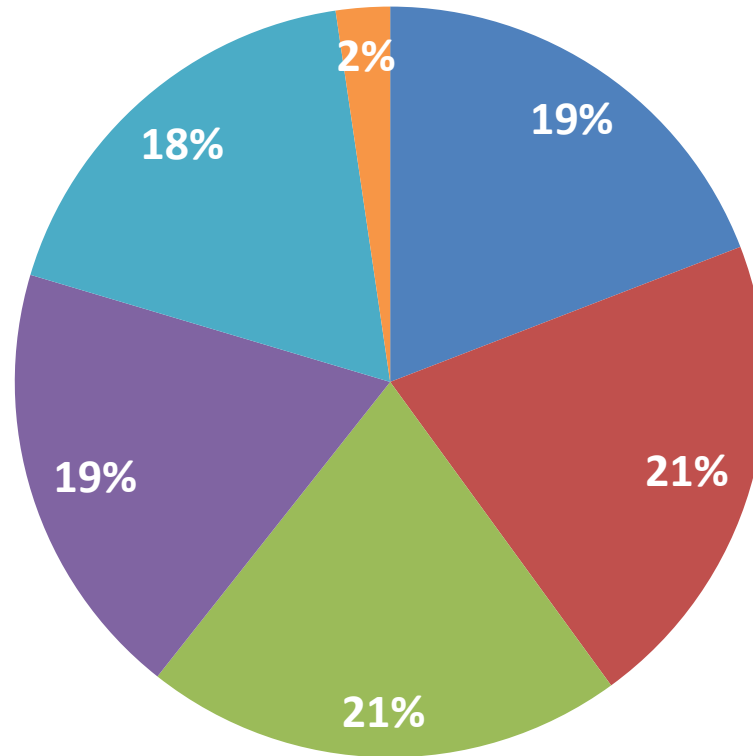


Goals towards  
transformation for  
**expert teachers**



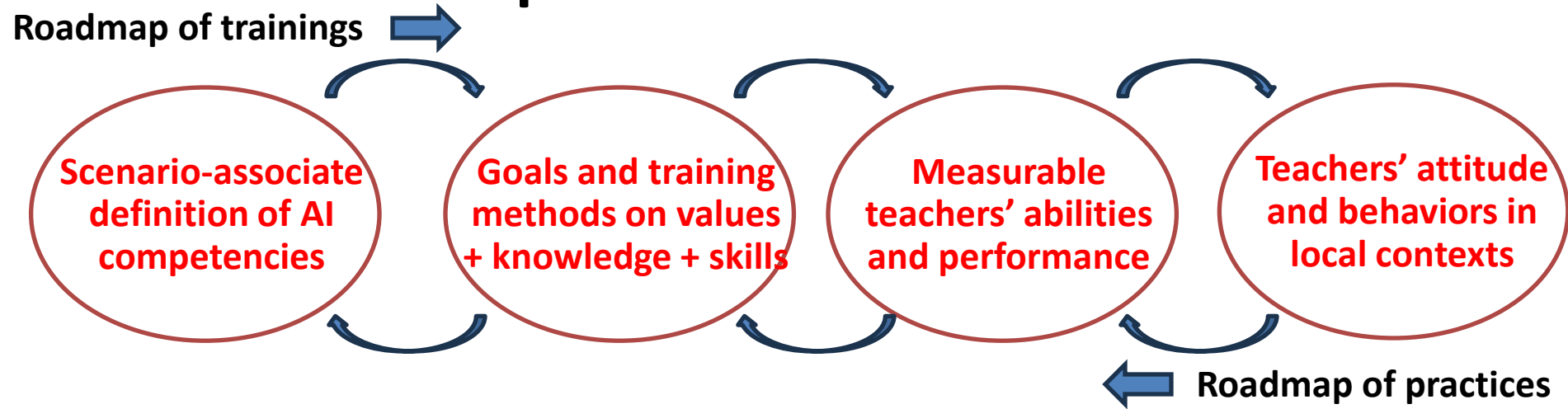
Aspects	Progression Levels		
	Acquire	Deepen	Create
Human-centred mindset	Human agency	Human accountability	Social responsibility
Ethics of AI	Ethical principles	Safe and responsible use	Co-creating ethical rules
AI foundations and applications	Basic AI techniques and applications	Application skills	Creating with AI
AI pedagogy	AI-assisted teaching	AI-pedagogy integration	AI-enhanced pedagogical transformation
AI for professional development	AI enabling lifelong professional learning	AI to enhance organizational learning	AI to support professional transformation

# Validation of Aspects of AI CFT by policy-makers and curriculum developers



- Human-centered mindset
- Ethics of AI
- AI pedagogy
- AI foundations and application
- AI for professional development
- Other

# Specifications of AI CFT: Steering competency-based practical uses of AI



## Progression level 1: Acquire

	TEACHER COMPETENCY	CURRICULAR GOALS (CG) (Teacher training or support programmes should ...)	LEARNING OBJECTIVES (LO) (Teachers can ...)	CONTEXTUAL ACTIVITIES (Teachers can demonstrate the following attitudinal or behavioural changes)
<b>Human-centred mindset</b>	<b>1.1 Human agency:</b> Teachers have a critical understanding that AI is human-led, and that corporate and	CG1.1.1 Foster critical thinking on AI by organizing teachers to discuss and take perspectives on the dilemma of benefits offered by AI versus the risks of diminishing human autonomy and human agency; use specific	LO1.1.1 Critically reflect on the benefits, limitations and risks of specific AI tools in their local educational settings and the subject areas and grade levels they teach.	<b>Unpack hype around AI:</b> Critically examine hype around concrete AI tools through basic risk-benefit analysis and by highlighting the central role of humans in using AI tools

# Human-centred mindset:

From **human agency** to **social responsibilities** in AI societies

Progression Level		
Acquire	Deepen	Create
<p><b>1.1 Human agency:</b></p> <p>CG1.1.1 Critical thinking on benefits, limitations and risks of AI in local settings and with respect to their own responsibilities.</p> <p>CG1.1.2 Key steps in the life cycle of AI – human decisions’ impact of AI.</p> <p>CG1.1.3 Overreliance on AI undermine thinking skills and human agency.</p> <p>CG1.1.4 Basic tips to protect human agency</p>	<p><b>1.2 Human accountability:</b></p> <p>CG1.2.1 Risks related to the absence of human accountability in educational management, assessment, teaching &amp; learning.</p> <p>CG1.2.2 Human accountability is a legal obligation.</p> <p>CG1.2.3 Associations between human accountability and teachers’ rights.</p> <p>CG1.2.4 Absence of users’ accountability in specific AI tools.</p>	<p><b>1.3 Social responsibility:</b></p> <p>CG1.3.1 Importance of protecting social and emotional well-being from commercially-driven AI manipulation.</p> <p>CG1.3.2 Reimagine safe, inclusive and just AI societies.</p> <p>CG1.3.3 Internalization of social responsibilities as citizens in an AI society.</p>

# Ethics of AI:

From **adopting** ethical principles to **co-creating** ethical rules

Progression Level		
Acquire	Deepen	Create
<p><b>2.1 Ethical principles:</b></p> <p>CG2.1.1 Surface ethical controversies real cases.</p> <p>CG2.1.2 Essential ethical principles.</p> <p>CG2.1.3 Ethical principles and regulations.</p> <p>CG2.1.4 Advocate for inclusivity in the use of AI.</p>	<p><b>2.2 Safe and responsible use:</b></p> <p>CG2.2.1 Main threats to AI safety → ‘safety by design’ and ‘safety by use’.</p> <p>CG2.2.2 Typical legal duties when using AI.</p> <p>CG2.2.3 Compliance with regulations in local contexts and work responsibilities.</p>	<p><b>2.3 Co-creating ethical rules:</b></p> <p>CG2.3.1 Inquiry into the social impact of AI.</p> <p>CG2.3.2 Critical examination of users’ guidance of AI platforms.</p> <p>CG2.3.3 Expanded knowledge on AI ethics and skills to co-draft or amend ethical rules.</p>



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# AI foundations and applications:

## Transferability, adaptivity, and creativity

Progression Level		
Acquire	Deepen	Create
<p><b>3.1 Basic AI techniques and applications:</b></p> <p>CG3.1.1 Basic conceptual knowledge on AI; How a specific AI tool is developed based on data and algorithms.</p> <p>CG3.1.2 Hands-on operation of AI tools.</p> <p>CG3.1.3 Users' testing of AI tools.</p> <p>CG3.1.4 Teachers' own collection of AI tools including open-source tools.</p>	<p><b>3.2 Application skills:</b></p> <p>CG3.2.1 'Operation &amp; comparison' experiences of AI tools.</p> <p>CG3.2.2 Deepened conceptual knowledge of AI.</p> <p>CG3.2.3 Problem-based learning of operational skills in data, algorithms and coding.</p> <p>CG3.2.4 Hands-on assessment of the 'ethics by design' of AI tools.</p>	<p><b>3.3 Creating with AI:</b></p> <p>CG3.3.1 Adaptability and creativity in customizing AI tools.</p> <p>CG3.3.2 Critical views on open-source AI.</p> <p>CG3.3.3 Simulate and practice adaptability and creativity in co-creating AI tools.</p> <p>CG3.3.4 Examine ethical and pedagogical appropriateness of AI tools and iteratively update AI tools for schools.</p>

# AI pedagogy:

**Instructional design → learning design → scenario design**

## Progression Level

### Acquire

### Deepen

### Create

#### 4.1 AI-assisted teaching:

CG4.1.1 Lesson analyses → design of AI-assisted lessons.

CG4.1.2 Be mindful of scholarly research on AI assisted teaching.

CG4.1.3 Transferable use of foundational knowledge and skills on AI-assisted teaching.

CG4.1.4 Pedagogical validation of AI and AI-assisted teaching design.



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#### 4.2 AI-pedagogy integration:

CG4.2.1 Analyses of AI-enhanced learning → learning design.

CG4.2.2 Deepened knowledge of research on AI for learning and student agency, thinking, social-emotional learning.

CG4.2.3 Integrated uses of AI knowledge and skills to meet students' needs.

CG4.2.4 Transfer to learning design and cycles of “learning design, learning facilitation, reflection and redesign”.



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#### 4.3 AI-enhanced pedagogical transformation:

CG4.3.1 Design scenarios on AI for students' development.

CG4.3.2 Insights into the interplay between pedagogical principles and AI triggered pedagogical transformations to promote intellectual development, nurture creativity, and foster social and emotional skills.

CG4.3.3 Skills to create AI learning environments

CG4.3.4 Hands-on co-design of human–AI interactive scenarios



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# AI for professional development:

Lifelong learners → peer learners → professional transformation

Progression Level		
Acquire	Deepen	Create
<b>5.1 AI enabling lifelong professional learning:</b> CG5.1.1 Motivation for lifelong professional learning in the AI era. CG5.1.2 Self-assessment on AI competency gaps. CG5.1.3 Awareness of teacher-facing AI tools. CG5.1.4 Leveraging of AI for professional learning.	<b>5.2 AI to enhance organizational learning:</b> CG5.2.1 Continuous motivation for professional learning and collaboration. CG5.2.2 Knowledge expansion on AI for professional development. CG5.2.3 Deepened operational skills in the use of data analytics to support professional learning CG5.2.4 Hands-on assessment of deeper ethical issues of using AI for professional learning.	<b>5.3 AI for professional transformation :</b> CG5.3.1 Teachers to be agents of change. CG5.3.2 Enhanced skills to use AI to support institutional professional learning. CG5.3.3 Customize or assemble AI to help people with disabilities. CG5.3. Creative users of AI for self-actualization and transformation.

# Implementation strategies

Teachers' AI competencies is **only the necessary condition** for effective use of AI in education.



Teachers should not be held accountable for building sufficient conditions beyond their duties.

# Implementation strategies

## 1. Regulate AI and ensure trustworthy AI tools for education

### Regulations on AI: Key elements of accountabilities for multiple stakeholders

- (1) Governmental regulatory agencies
- (2) Providers of AI systems and AI services
- (3) Institutional users
- (4) Individual users

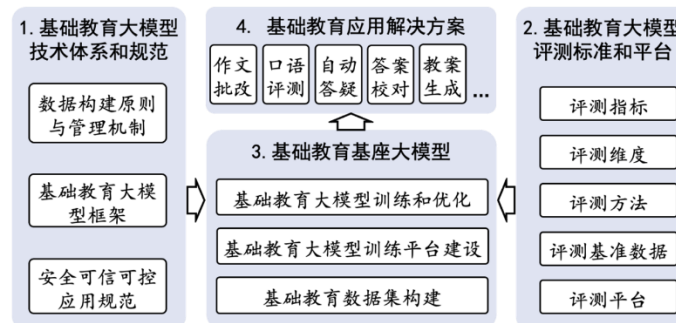
### Key criteria for validation:

security; bias; accuracy of outputs; human accountability for the protection of data privacy and legal data ownership; explainability of AI models; linguistic and cultural representativeness of data used to train the AI models for target users; appropriateness for users at different ages and with different abilities; collection and exploitation of users' data; intended business models; impact on teachers' rights and human agency

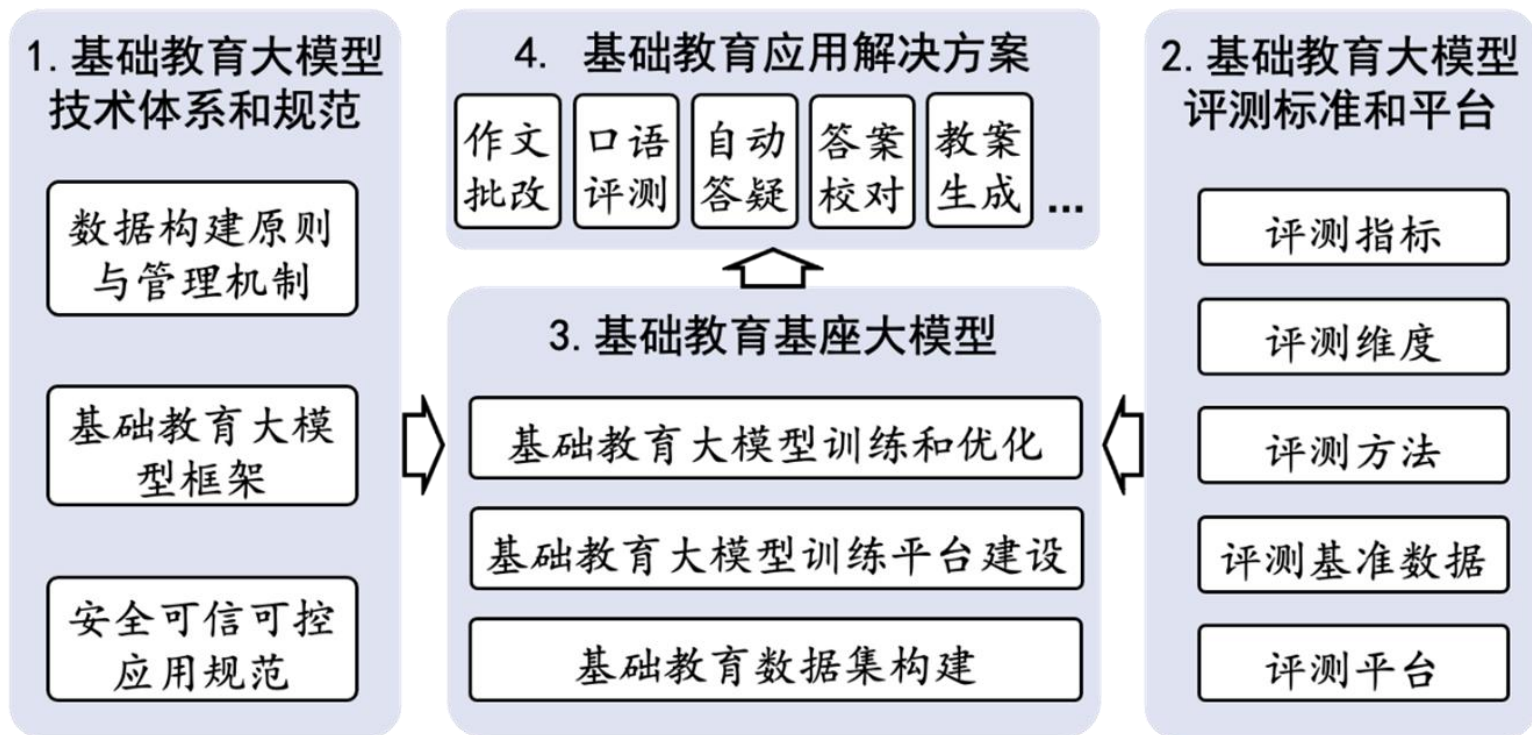


→ **PolarisEDU: a Sandbox for educational LLMs (Beijing)**

→ **A technical standard for educational LLMs**



# A technical standard for educational LLMs



# AI and education: Global status, trends in China, next steps

UNESCO Recommendation on the Ethics of AI

The Law on the Security of Internet

Building data infrastructure to leverage data as production elements

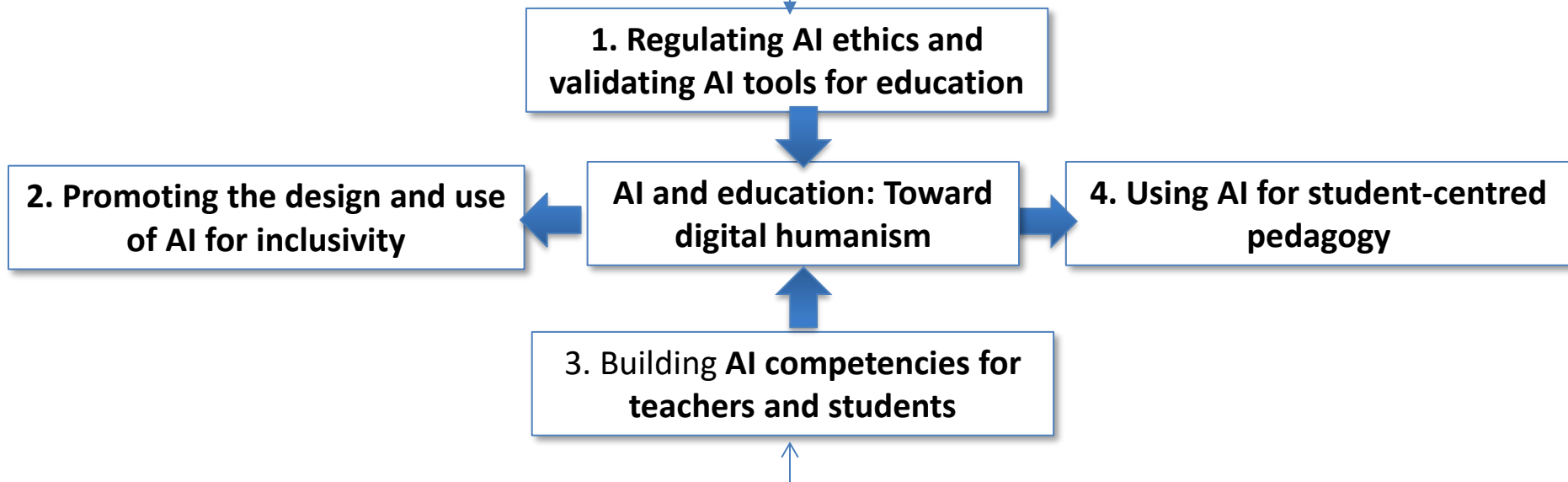
Data Security Law of China + Personal Information Protection Law of China

Management of Deep Synthesis of Internet Information Services

Interim Measures for the Management of Generative AI Services

Measures for Identifying Synthetic Content Generated by AI

→ **Need to build validation mechanisms to ensure safe and proper AI for education**



→ **Needs to professionalize “AI teachers” and “AI competency evaluation”**

# Implementation strategies

## 2. Build **enabling policies and conditions** for AI in education

### Barriers to the use of AI:

- 1) Motivation & teaching hours: Teachers overloaded by more pressing priorities.
- 2) Teachers lack **knowledge, guidance and support.**
- 3) **Tech infrastructure is too old or dysfunctional** to support AI.

### Policies should be designed to:

- 1) weigh the option of AI against other priorities before promoting its use to teachers
- 2) support and motivate teachers to make responsible uses after validating AI options
- 3) support teachers to address barriers of AI access and affordability

# Implementation strategies

## 3. Formulate **local AI competency frameworks** for teachers

**Guangdong Province of China (March 2025):** (1) [AI competency framework for students](#) and (2) [for teachers](#); (3) [Guidelines for AI curricula for students](#)

**Beijing Municipal Government:** (1) [Guidelines for school AI curriculum](#) (June 2025); (2) [Blueprint on leveraging AI to empower school education](#) (July 2025)

# Implementation strategies

## 4. Design and streamline training and support programmes

### AI4T MOOC AI for Teachers



#### MOOC Artificial Intelligence for Teachers

- 1 AI in education.**  
Since AI is already in the classroom, find out what it can be used for, and the challenges involved.
- 2 What is meant by AI?**  
Find out what AI really is - foundations and limits - before exploring the various uses of AI technologies in education.
- 3 How does AI work?**  
Explore the different types of AI, including machine learning and neural networks, in order to grasp what is at stake with data for AI tools.
- 4 AI at our service as teachers?**  
Make informed use of AI tools in education, having identified the potential risks associated with their use.



### Micro-courses for educators

Reshaping Learning Experiences in Schools

Google sheet with machine learning

AI project lifecycle

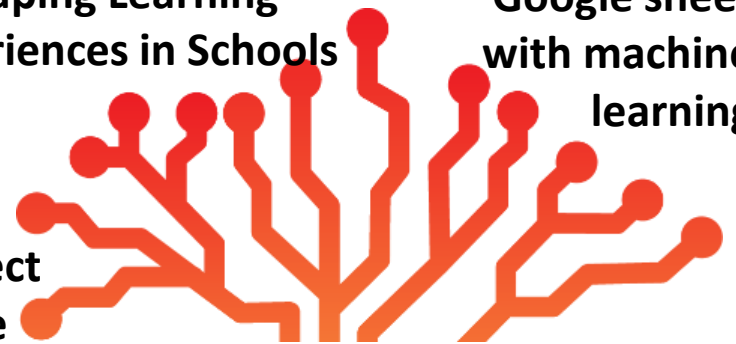
Apps with teachable machine

AI learning program

Computer vision

Data science in Match & Physics

Data analytics for everyone



AI SINGAPORE

# Implementation strategies

## 5. Develop contextual performance-based assessment tools

<b>TEACHERS' COMPETENCY (e.g., Level 2)</b>		<b>Learning objectives based on teachers' background</b>	<b>Assessment methods relevant to AI domains</b>	<b>Grading criteria</b>
<b>Overall tests or exams</b>	<b>Human accountability</b>	Specifications → adaptation	Examples → assessment items	To be defined
	<b>Safe and responsible use</b>	Specifications → adaptation	Examples → assessment items	To be defined
	<b>Application skills</b>	Specifications → adaptation	Examples → assessment items	To be defined
	<b>AI-pedagogy integration</b>	Specifications → adaptation	Examples → assessment items	To be defined
	<b>AI to enhance organizational learning</b>	Specifications → adaptation	Examples → assessment items	To be defined

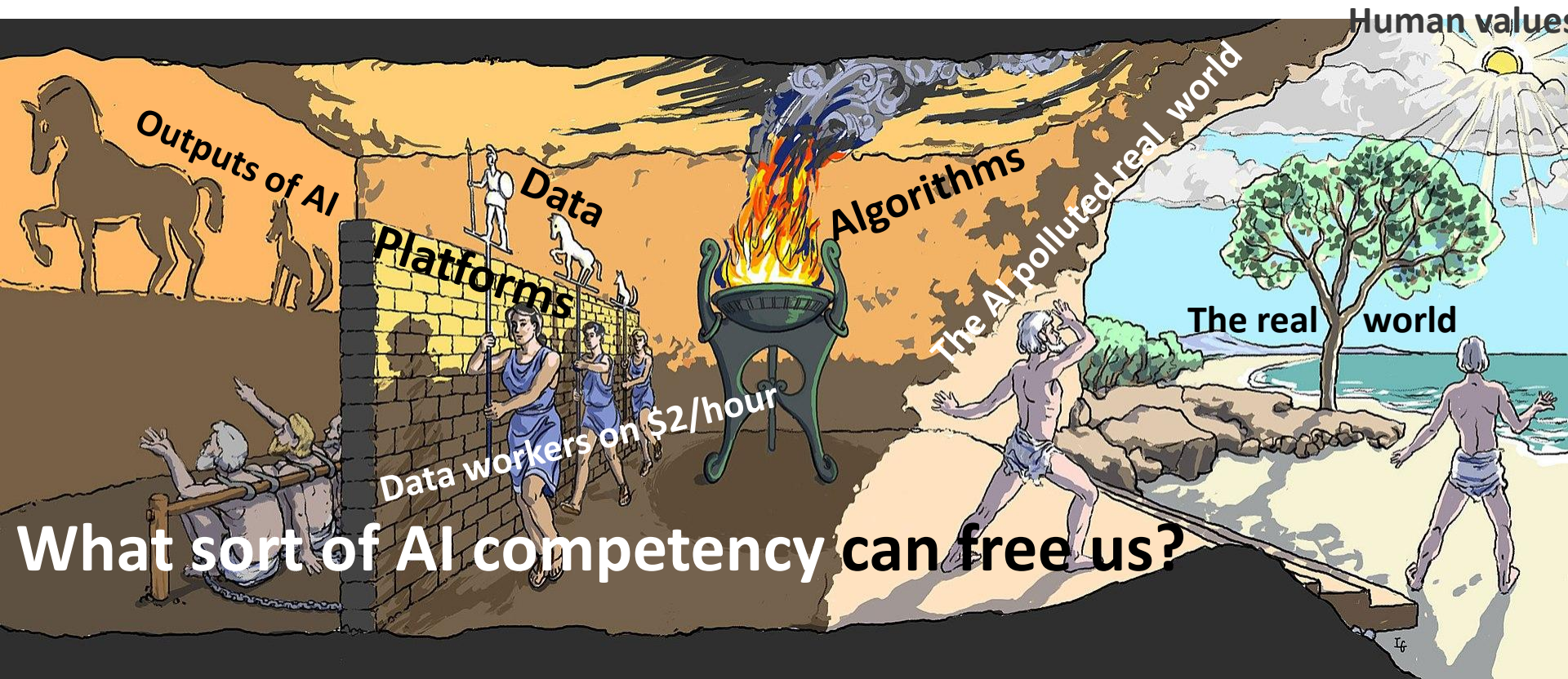
# UNESCO

## AI competency framework for students

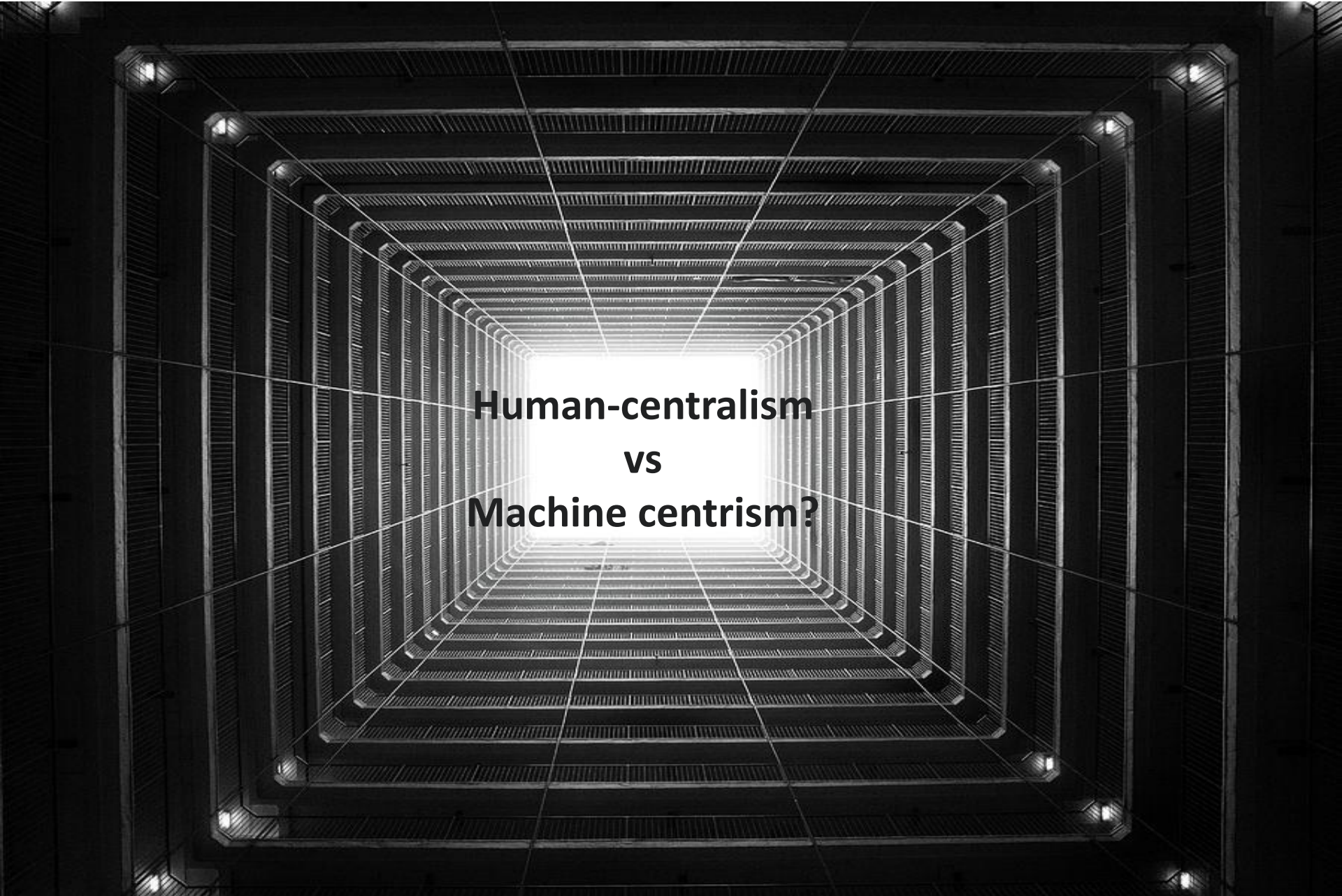
Preparing **responsible** and **creative AI citizens**



# Plato's Allegory of Cave: Human competencies vs. AI enslaving



**The real world in the upcoming AI era is a world to build ...**



**Human-centralism  
vs  
Machine centrism?**

*What sort of **human societies** do we want to build in the AI era?*

*What sort of **human competencies** do we need to prepare for the desired human societies in the AI era?*

# *What sort of AI society citizenship?*

- **Critical AI citizens, not AI addicts.**
- **Responsible users of AI, not deepfake distributors.**
- **Co-creators of AI tools, not only passive prompters.**
- **Leaders of next generations of AI, not only rote coders.**

# Principles for AI CFS

- **Fostering critical thinking on AI for real-world challenges**
- **Prioritizing human-centred interaction with AI**
- **Steering more climate friendly AI**
- **Facilitating transferable AI competencies**
- **Promoting digital inclusivity**

# AI Competency Framework for Students

**AI literacy** for citizens  
and  
foundation for students



Exit mastery level  
for  
all students

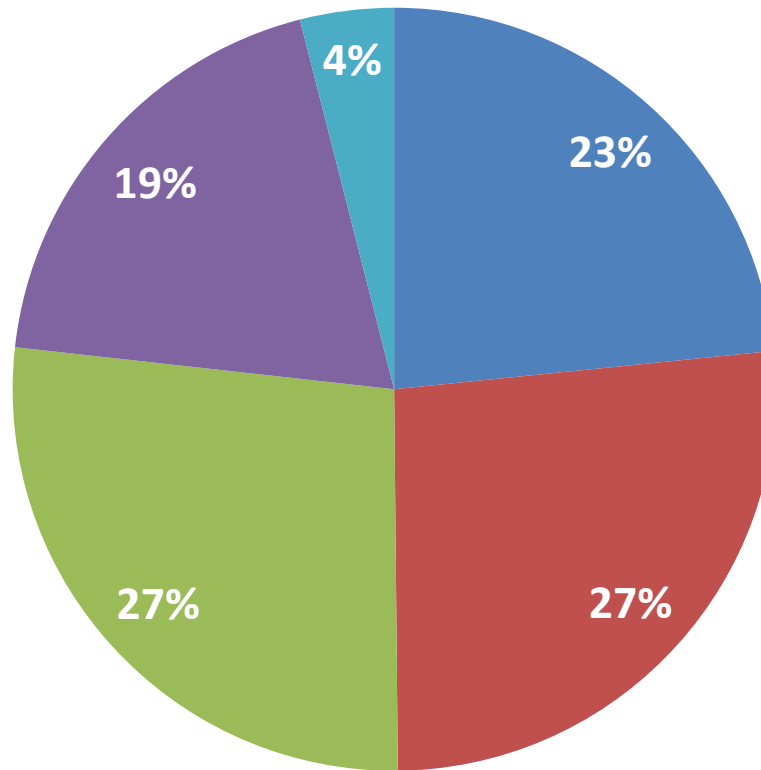


Extended outcomes  
and  
elective curricula



Aspects	Progression Levels		
	Understand	Apply	Create
Human-centred mindset	Human agency	Human accountability	AI society citizenship
Ethics of AI	Embodied ethics	Safe and responsible use	Ethics by design
AI techniques and applications	AI foundations	Application skills	Creating AI tools
AI system design	Problem scoping	Architecture design	Iteration and feedback loops

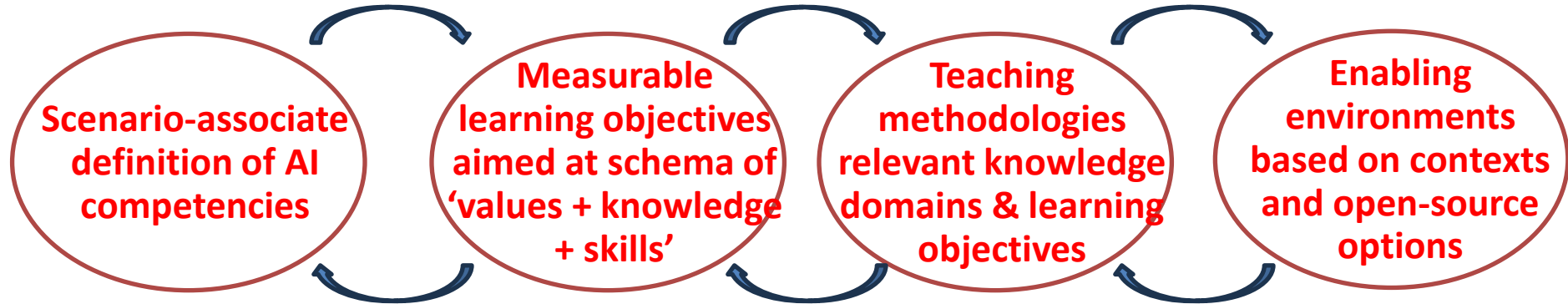
# Validation of Aspects of AI CFS by policy-makers and curriculum developers



- Human-centered mindset
- Ethics of AI
- AI techniques and application
- AI system design

# Specifications: guiding design of AI curricula for students

Roadmap of AI curriculum design



Roadmap of curriculum implementation

	COMPETENCY	CURRICULAR GOALS	PEDAGOGICAL METHODS	LEARNING ENVIRONMENTS
<b>Human-centred mindset</b>	Human Agency (Definition)	<ul style="list-style-type: none"> <li>▪ "AI is human-led"</li> <li>▪ Human control over AI</li> <li>▪ Dynamic human agency vs. machine agency</li> </ul>	Conflict-based pedagogical methods	<ul style="list-style-type: none"> <li>▪ <b>Unplugged learning settings</b></li> <li>▪ Basic digital environments</li> </ul>
<b>Ethics of AI</b>	Embodied ethics (Definition)	<ul style="list-style-type: none"> <li>▪ AI dilemmas and reasons behind ethical conflicts</li> <li>▪ 6 ethical principles on AI</li> <li>▪ Internalization of ethical principles</li> </ul>	Scenario-based understanding and internalization	<ul style="list-style-type: none"> <li>▪ Critical uses of <b>open-source AI tools, programming libraries, and datasets</b></li> </ul>

# 1. Human-centred mindset: from human agency to **AI citizenship**

<b>Human-centred Mindset</b>	<b>Human agency</b> CG 1.1.1: An understanding that <b>AI is human-led</b>  CG1.1.2: The awareness of <b>human control</b> over AI at regulation and institutional levels  CG1.1.3: Critical thinking on the <b>dynamic relationship between human agency and machine agency</b>	<b>Human accountability</b> CG1.2.1 Human accountability is <b>a legal obligation</b> of AI creators and AI service providers  CG1.2.2 Human accountability is <b>a legal and social responsibility</b> when using AI in making decision on humanity  CG1.2.3 Human accountability requires competencies to steer the use of AI for human capabilities	<b>AI society citizenship</b>  CG1.3.1 An awareness of <b>being a critical AI citizen</b> CG1.3.2 <b>Personal social responsibilities</b> in AI societies  CG1.3.3 <b>A sense of self-actualization</b> as an AI citizen and the lifelong learning attitude to AI
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↓  
Pages 29-30

↓  
Pages 37-39

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Pages 45-47

# 2. Ethics of AI:

## From embodied ethics to ethics by design

Ethics of AI	Embodied Ethics	Safe and Responsible Use	Ethics by Design
	<p>CG2.1.1 Illustrate <b>dilemma</b> decisions around AI and surface main <b>reasons behind</b> ethical conflicts</p> <p>CG2.2.1 Facilitate <b>scenario-based understanding of ethical principles</b> on AI and their personal implications</p> <p>CG2.1.3 Guide the <b>embodied reflection and internalization</b> of ethical principles on AI</p>	<p>CG2.2.1 Foster the <b>self-awareness and habitual compliance</b> with ethical principles for responsible use of AI</p> <p>CG2.2.2 Offer opportunities to reinforce <b>self-disciplined responsibilities</b> in the use of AI</p> <p>CG2.2.3 Deepen <b>practical knowledge on safe use of AI and awareness of locally applicable regulations</b></p>	<p>CG2.3.1 Build the awareness and understanding on <b>“Ethics by Design” when learning the design of AI</b></p> <p>CG2.3.2 Develop critical attitude to <b>“Ethics by Design”</b> behind existing AI systems</p> <p>CG2.3.3 Prepare social responsibilities to <b>uphold “Ethics by Design”</b> in regulations on AI</p>



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### 3. AI technique and applications:

## Interdisciplinary curricula and task-based learning

<b>AI techniques and applications</b>	<b>AI foundations</b> CG3.1.1 Exemplify the definition and scope of AI (what AI is and is not)  CG3.1.2 Conceptual knowledge on how AI is trained based on data and algorithms  CG3.1.3 Open-minded thinking on AI and an interdisciplinary foundation for AI  CG3.1.4 Human-centred considerations in the design and use of AI	<b>Application skills</b> CG3.2.1 Knowledge and skills on data modelling, engineering, and analysis  CG3.2.2 Age-appropriate technical skills in AI programming  CG3.2.3 Analytical and synthetic skills to leverage open-source datasets and AI tools	<b>Creating AI tools</b> CG3.3.1 Advanced skills to develop task-based AI tools  CG3.3.2 Creativity in applying AI knowledge and skills to customize AI toolkits and coding  CG3.3.3 Skills to test and optimize their self-crafted AI tools
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# 4. AI system design

AI system design

## 4.1 Problem scoping

CG4.1.1 Critical thinking skills on **when AI should not be used**

CG4.1.2 Skills in scoping a problem to be solved by an AI system

CG4.1.3 Skills on assessing an AI systems' need for data, algorithms, and computing resources

## 4.2 Architecture design

CG4.2.1 Acquisition of methodological knowledge and technical skills on AI architecture

CG4.2.2 Advanced technical skills and project management competencies needed by AI system building

## 4.3 Iteration and feedback

CG4.3.1 Develop the skills to critique an AI system

CG4.3.2 Technical skills and social responsibilities in optimizing, reconfiguring or **shutting down an AI system**

CG4.3.3 Self-identities as co-creators in the AI era



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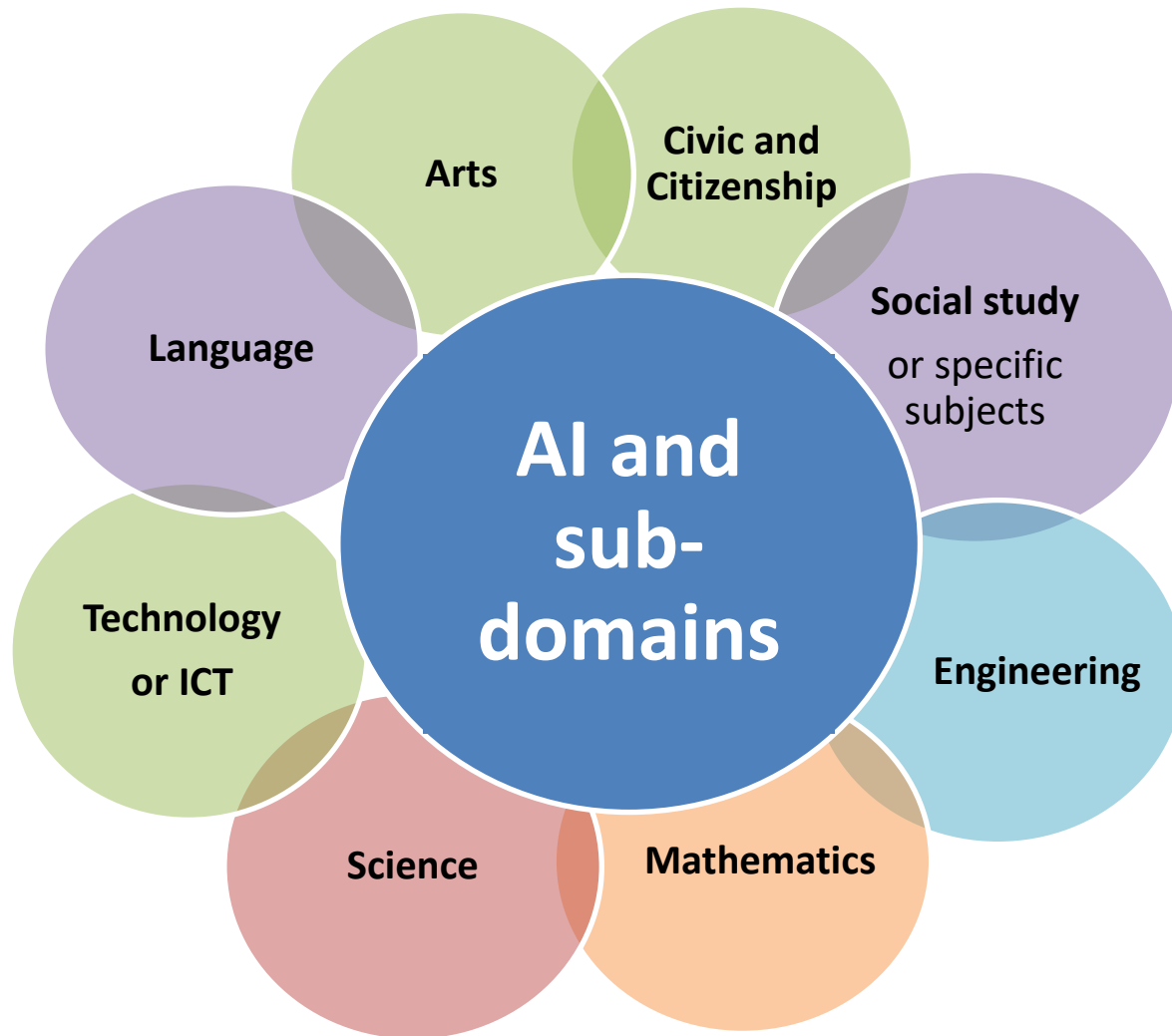


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# Build interdisciplinary core and cluster AI curricula

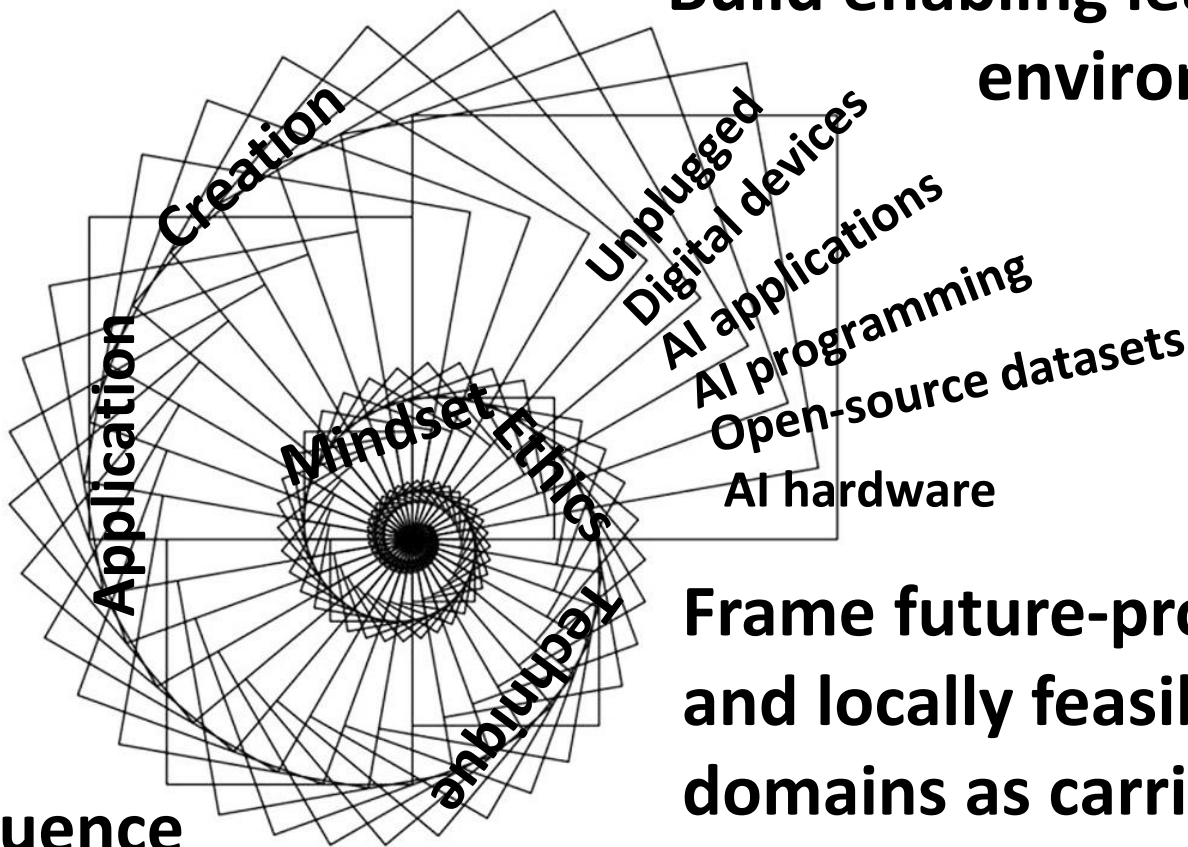


# Iterate AI curricula

**Guide cohort-based pedagogical activities**

**Promote professionalization of AI teachers**

**Build enabling learning environment**



**Tailor spiral Curricular sequence**

**Frame future-proofing and locally feasible AI domains as carriers of curriculum**

# Build competency-based assessments

- Construct **criterion-referenced assessments** to measure the mastery of AI competencies
- Adapt performance scenarios to **assess overt performance and latent competencies**
- Configure **authentic assessment tasks** and grading scales for AI competencies

# Project of G77 + China on AI competencies

- For all 137 G77+China Member States
- Teachers + students
- Regional seminars + country support
- Linguistic relevance



# Examples of adoption of localization

## I. Country adoption - from 7 to more than 50 countries





- [Egypt endorses national AI competency framework for teachers with UNESCO](#) (14 October, 2025)
- China: [AI competency framework for students](#) and [teachers](#), [Guidelines for AI curricula for students](#)
- [Cambodia started to develop its first ICT–AI Competency Framework for Teachers](#), supported by UNESCO through the \$27M GPE funds



# Examples of adoption of localization

## II. Institutional or domain-specific adoption

- [Johns Hopkins University From AI Literacy to Leadership for Faculty Development in Health Professions Education](#) – building on the UNESCO framework
- [CoDesignS AI Framework](#) – Education for Sustainable Development



### Phase 4: AI Teaching & Learning Competencies

#### AI Competency Framework – Teachers

The integration of AI into education has reshaped the traditional teacher-student relationship into a teacher-AI-student dynamic, requiring teachers to adapt to new roles and acquire specific competencies. Despite AI's transformative potential in processing information, generating content, and aiding decision-making, many countries lack defined standards or training programmes to prepare educators for its use.

To address this gap, the **UNESCO AI Competency Framework for Teachers** identifies the essential knowledge, skills, and values educators need in the AI era. Built on principles of protecting teachers' rights, enhancing human agency, and promoting sustainability, the framework outlines competencies across five dimensions: **Human-centred mindset, Ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning**. These competencies are structured into three progression levels: **Acquire, Deepen, and Create** (UNESCO, 2024).

This framework serves as a global reference for developing national AI competency standards, guiding teacher training programmes, and designing assessments. It also provides strategies to help teachers build AI knowledge, apply ethical principles, and advance their professional development (UNESCO, 2024).

Aspects	Progression		
	Acquire	Deepen	Create
1. Human-centred mindset	Human agency	Human accountability	Social responsibility
2. Ethics of AI	Ethical principles	Safe and responsible use	Co-creating ethical rules
3. AI foundations and applications	Basic AI techniques and applications	Application skills	Creating with AI
4. AI pedagogy	AI-assisted teaching	AI-pedagogy integration	AI-enhanced pedagogical transformation
5. AI for professional development	AI enabling lifelong professional learning	AI to enhance organizational learning	AI to support professional transformation

Source: The AI competency framework high-level structure, aspects and progression levels, UNESCO AI competency framework for teachers: <https://ijmyur.com/wp/ai-efc/>

CoDesignS AI Framework (2024) is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](#)

# Examples of adoption of localization

## III. Further tools and training courses:

[Hamza Aoun](#); [Işıl Boy Ergül, PhD](#), [Sumeyye Kubra Dagli](#);

[Dr. Martha Umana](#); [Ghadah Fayez Almutairy, Ph.D.](#)

## IV. Course materials for Masters' or Ph.D. programmes



### AI in the Classroom: Investigate, Integrate, and Innovate Responsibly

#### Introduction

This training empowers educators to explore the practical and ethical integration of AI in education. Through hands-on tool investigation, collaborative discussions, and guided reflection, participants will learn how to design lessons that use AI to enhance creativity, engagement, and critical thinking—while maintaining human judgment, responsibility, and integrity at the center of learning.

#### Objectives

- Investigate AI Tools Critically
- Integrate AI into Lesson Design
- Foster Ethical and Responsible AI Use
- Empower Educators and Learners
- Bridge Innovation and Integrity



#### Expected Outcomes

- Identify the pedagogical value and ethical implications of various AI tools.
- Integrate AI meaningfully into lesson plans and classroom activities.
- Apply principles of ethical and responsible AI use in teaching and assessment.
- Demonstrate informed decision-making in selecting and adapting AI tools.
- Reflect on how AI can enhance learning while preserving human judgment and integrity.

Date : 1<sup>st</sup> Nov 2025

Start Time : 10:00AM Dubai Time



In Person Workshop

**Adapting AI competency frameworks  
for school teachers and students to  
higher education educators and students**

# Higher Education teachers' evaluation of 6×3 AI competency blocks (1178 teachers from 68 countries)

Aspects	Progression Levels		
	Acquire	Deepen	Create
Human-centred mindset	Human agency (92.%)	Human accountability (94.2%)	Social responsibility (95.4%)
Ethics of AI	Ethical principles (97%)	Safe and responsible use (97%)	Co-creating ethical rules (95.6%)
AI foundations and applications	Basic AI techniques and applications (93.6%)	Application skills (94%)	Creating with AI (87.5%)
AI pedagogy	AI-assisted teaching (88.5%)	AI-pedagogy integration (86.7%)	Pedagogical transformation (86.4%)
*AI for research	AI inspired ideation (85.2%) (88.2%)	AI assisted data analysis (85.4%)(87.4%)	AI for discoveries (82.4%)(85.2%)
AI for professional development	AI enabling lifelong professional learning (85.3%)	AI to enhance organizational learning (84.7%)	AI for professional transformation (80.1%)

# AI competency framework for **HE** educators

Qualification goals  
for **all HE educators**



Goals for  
**master teachers**



Goals for  
**expert teachers**



Aspects	Progression Levels		
	Acquire	Deepen	Create
<b>Human-centred mindset</b>	Human agency and wellbeing	Sustainable & inclusive accountability	Critic of AI societies
<b>Ethics of AI</b>	Embodied explainability	Reflexive compliance	Co-governance of AI
<b>AI foundations and applications</b>	AI knowledge schema	Critical trade-off and uses	Human-led co-creation
<b>AI pedagogy</b>	AI assisted teaching and management	AI augmented learning and assessment	Teacher-Student-AI pedagogy
<b>*AI for research</b>	AI inspired ideation	AI empowered data analytics	AI for discoveries
<b>AI for professional development</b>	Autonomous professional learning	Interdisciplinary collaborative learning	Cross-phase professional diagnostics

# AI competency framework for HE students

AI literacy  
for  
all HE students



Safe and fluent  
users of  
domain-specific AI



Creative  
co-creators of  
human-centred AI



Aspects	Progression Levels		
	Understand	Apply	Create
Human-centred mindset	Human agency	Human accountability	AI society citizenship
Ethics of AI	Embodied ethics	Safe and responsible use	Ethics by design
AI techniques and applications	AI foundations	Application skills	Creating with AI
AI tool design	Problem scoping	Specialized AI development	AI system design

**Thanks!**

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