



# AI & Education Futures

Disruptions, Dilemmas, &  
Directions

Shafika Isaacs

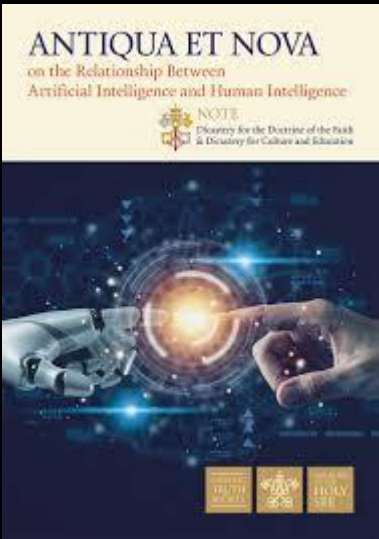
UNESCO

[s.Isaacs@unesco.org](mailto:s.Isaacs@unesco.org)



Liang Wenfeng', DeepSeek

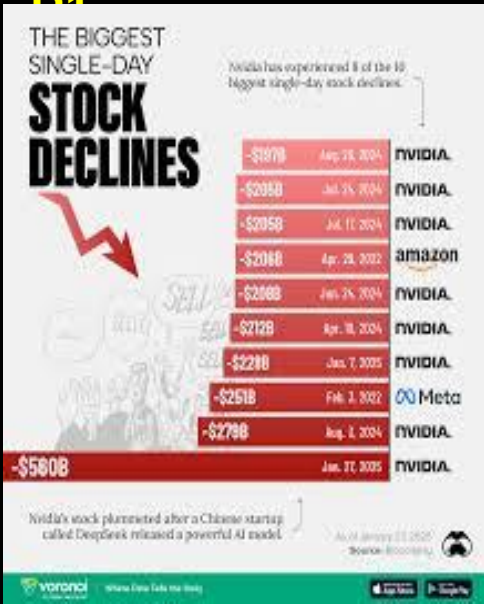
## AI Action Summit



## Vatican Released Note on the Relationship between Human and Artificial Intelligence



## Big Tech Retreat on Fact Checking Commitments



# Drivers of Exponential Growth

**Compute Power:** Advances in hardware and distributed computing enable faster training of larger models.

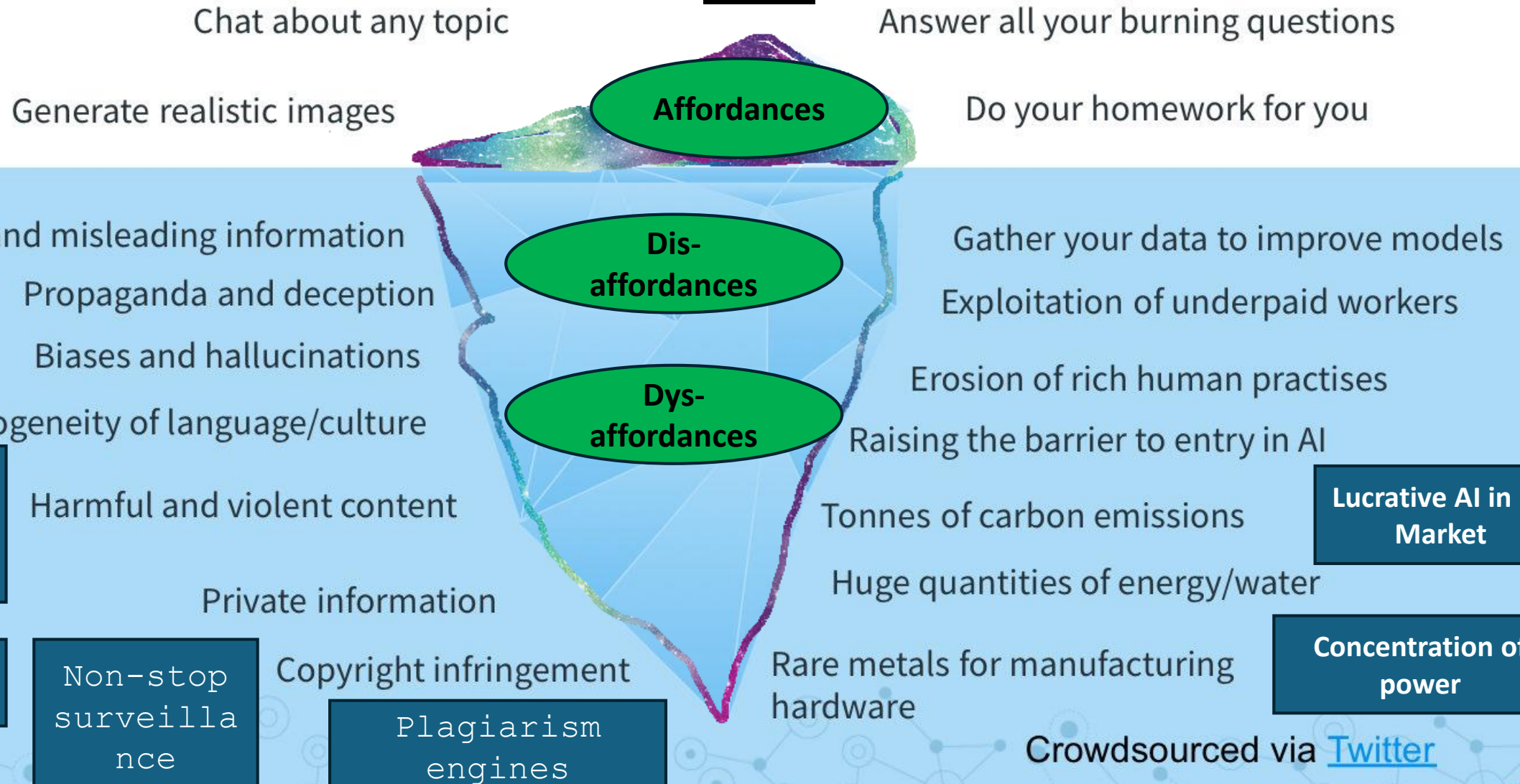
**Algorithmic Innovations:** Techniques like reinforcement learning from human feedback (RLHF) and diffusion models improve model performance and efficiency.

**Investment:** Billions of dollars are being poured into AI research by big tech companies and startups

**Data Availability:** The explosion of digital data (text, images, videos) provides the raw material for training increasingly sophisticated models.

**AI as a highly contested space**

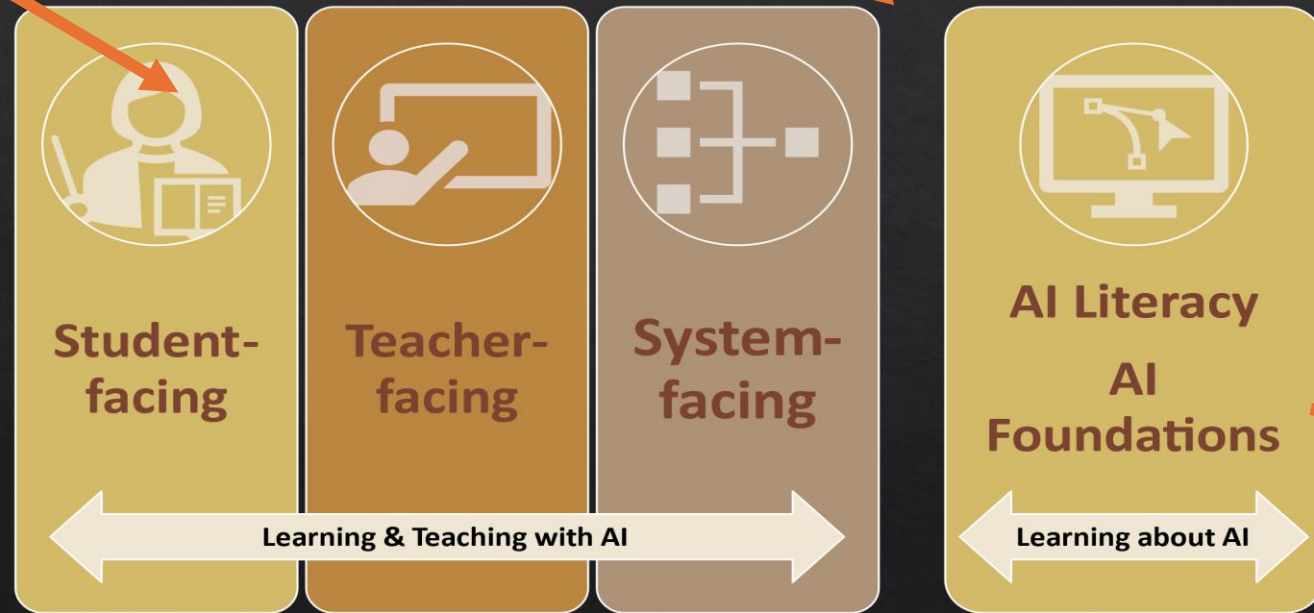
# Generative AI Models: [REDACTED]



**Adaptive tutoring systems**  
Dialogue-based tutoring  
systems, Automatic  
writing evaluation,  
Chatbots  
**AI Assistants**

**Teacher Assistants**  
Tools for Resource Curation,  
Teacher Coaching,  
Assessment support, and  
Lesson Generation

**Education's administrative  
tasks: finances,  
timetabling, student  
recruitment, exam  
administration**



**TECHNOLOGICAL**  
Understanding how  
AI works & how to  
create AI

**HUMAN**  
Societal impact of AI  
Responsible, Ethical  
AI by Design

**Critical approach: public-interest AI**  
**-co-creating sustainable, equitable,**  
**ethical AI systems by design**

**Critical approach illuminates the  
visible and invisible ways in which  
AI deepens inequalities, and  
injustices**

**Critical approach challenges simplistic,  
common sensical certainties,  
instrumental reasoning and illuminates  
the messiness**

# Inclusivity & Accessibility

## **SOCIAL PROBLEM**

Learning challenges experienced by learners with disabilities

## **AI TOOLS**

Tailored assistance for learners with disabilities, language accessibility

## **CRITICAL APPROACH**

Cultural relevance  
Data protection  
Reinforce stereotypes  
Inaccuracies

# Personalized Learning

## EDUCATION PROBLEM

Learning backlogs,  
learning  
difficulties

## AI TOOLS

Customised  
instruction,  
matching content  
complexity student  
cognitive levels  
Immediate feedback  
prompt responses

## CRITICAL APPROACH

Prone to bias based  
on skewed data sets

Can restrict  
students to content  
only find  
manageable

Objective  
correctness  
neglecting nuanced  
insights provided  
by human educators

# Learner Autonomy & Critical Thinking

## EDUCATION PROBLEM

Learning difficulties,  
learners lack  
critical thinking  
skills

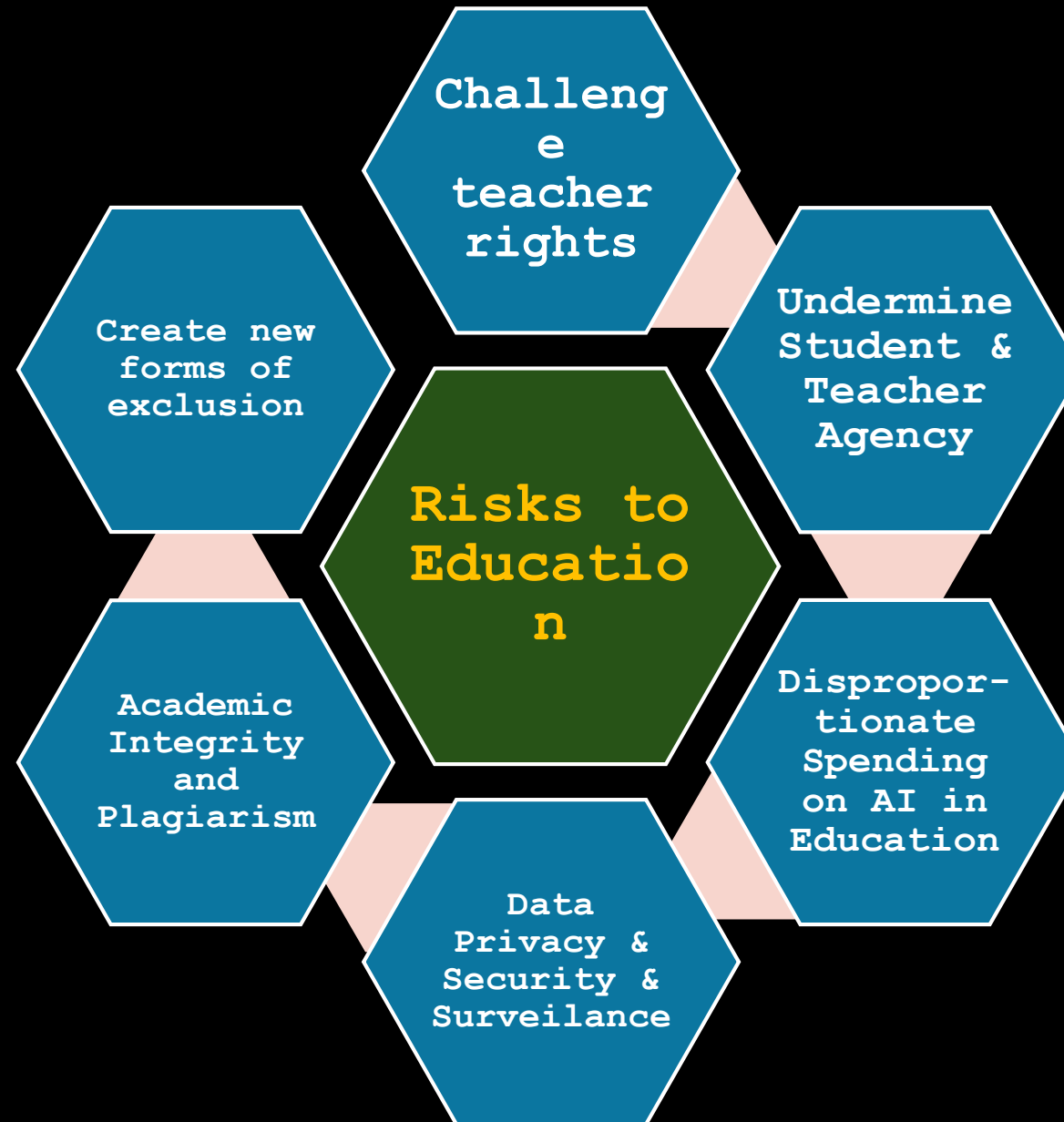
## AI TOOLS

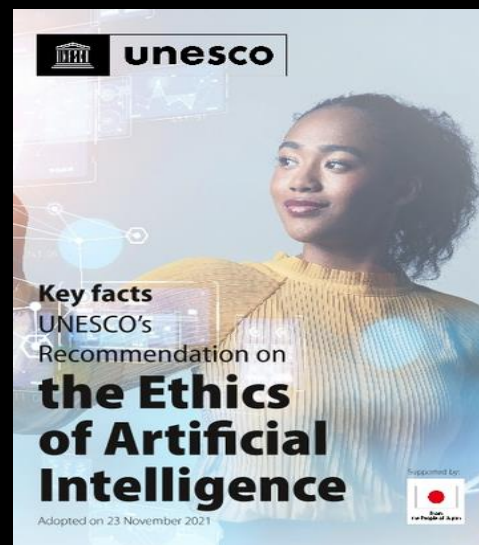
Develop decision  
making skills  
Enhance critical  
reasoning  
Facilitate  
independent  
learning

## CRITICAL APPROACH

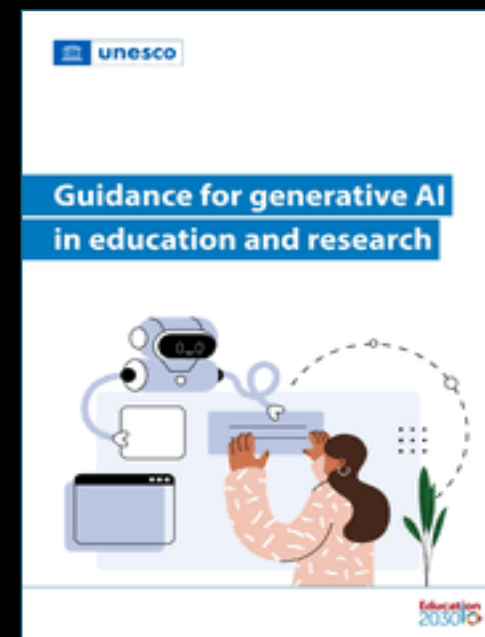
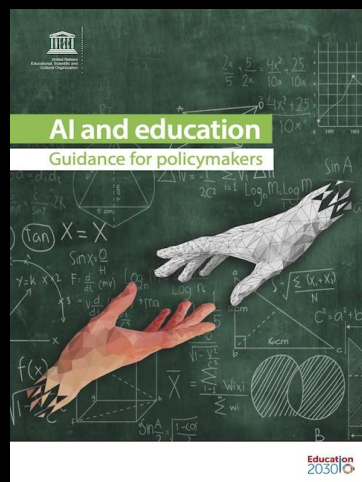
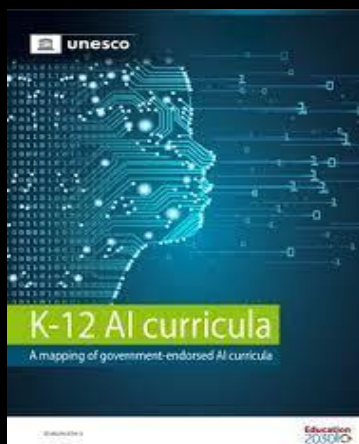
Compromise  
independent  
judgement  
  
Can also reduce  
creativity and  
critical thinking  
  
Encourage  
intellectual  
laziness

# AI poses risks and threats to Education





#TechOnOurTerms



# Guiding Principles

**A human-AI social  
contract towards  
the public common  
good**

**A human-centred  
approach: Cultivate  
human agency**

**Human rights  
based**

**Ethical AI by  
Design**

**Sustainable AI**

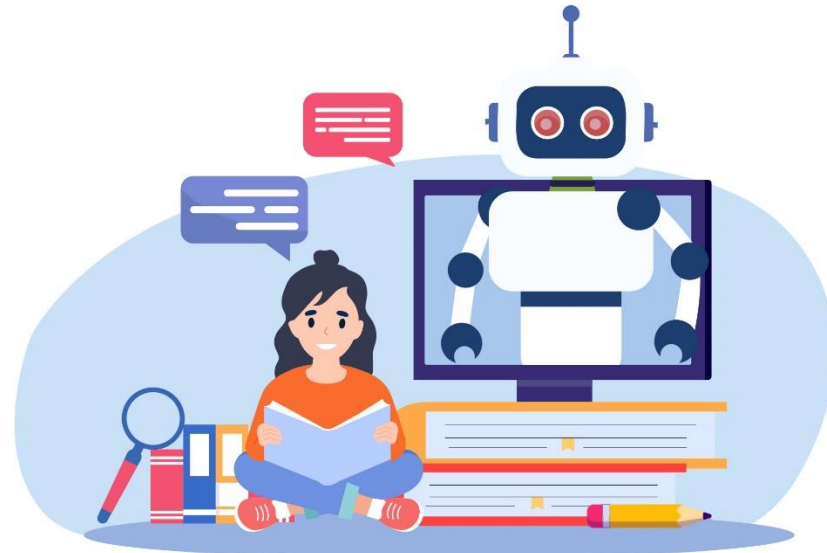
**Equity, inclusion  
& social justice**



## AI competency framework for teachers



## AI competency framework for students



| TEACHER<br>Competency Aspects   | Progression                                     |                                          |                                        |
|---------------------------------|-------------------------------------------------|------------------------------------------|----------------------------------------|
|                                 | Acquire                                         | Deepen                                   | Create                                 |
| Human-centred Mindset           | Human agency                                    | Human accountability                     | AI Society Citizenship                 |
| Ethics of AI                    | Embodied ethics                                 | Safe and responsible uses                | Ethics by design                       |
| AI Foundations & Applications   | Basic AI technique and applications             | Application skills                       | Creating with AI                       |
| AI Pedagogy                     | AI-assisted teaching                            | AI-pedagogy integration                  | AI-enhanced Pedagogical Transformation |
| AI for Professional Development | AI as enabler of lifelong professional learning | AI as enabler of organizational learning | AI enables professional transformation |

Critical AI Literacy

# AI Competency Framework for Students

| STUDENT<br>Competency Aspects | Progression     |                          |                            |
|-------------------------------|-----------------|--------------------------|----------------------------|
|                               | 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 & Applications  | AI Foundations  | Application skills       | Creating AI Tools          |
| AI System Design              | Problem Scoping | Architecture Design      | Iteration & Feedback Loops |

| TEACHER<br>Competency Aspects   | Progression                                     |                                          |                                        |
|---------------------------------|-------------------------------------------------|------------------------------------------|----------------------------------------|
|                                 | Acquire                                         | Deepen                                   | Create                                 |
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# ACQUIRE: Human-centred mindset

## TEACHER COMPETENCY

Teachers are expected to cultivate an understanding that AI is fundamentally human-directed and critically assess its impact on human autonomy

## CURRICULA GOALS

Teacher training programmes should use examples of AI tools to expose teachers to their risks to human agency and human autonomy

## LEARNING OBJECTIVES

Teachers should be able to conduct basic reflections on the risks of AI tools in local education settings and subject areas

## CONTEXTUAL ACTIVITIES

Teachers should be able to demonstrate attitudinal changes: understand why some AI tools should be banned and how they may threaten human rights and diminish human agency

| TEACHER<br>Competency Aspects   | Progression                                     |                                          |                                        |
|---------------------------------|-------------------------------------------------|------------------------------------------|----------------------------------------|
|                                 | Acquire                                         | Deepen                                   | Create                                 |
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# CREATE

## Human-centred mindset

### TEACHER COMPETENCY

Teachers are expected to advocate for the design of inclusive AI that enables social justice & equity

### CURRICULA GOALS

Teacher training programmes can include debates on how AI companies profiteer from reinforcing addiction to using AI tools

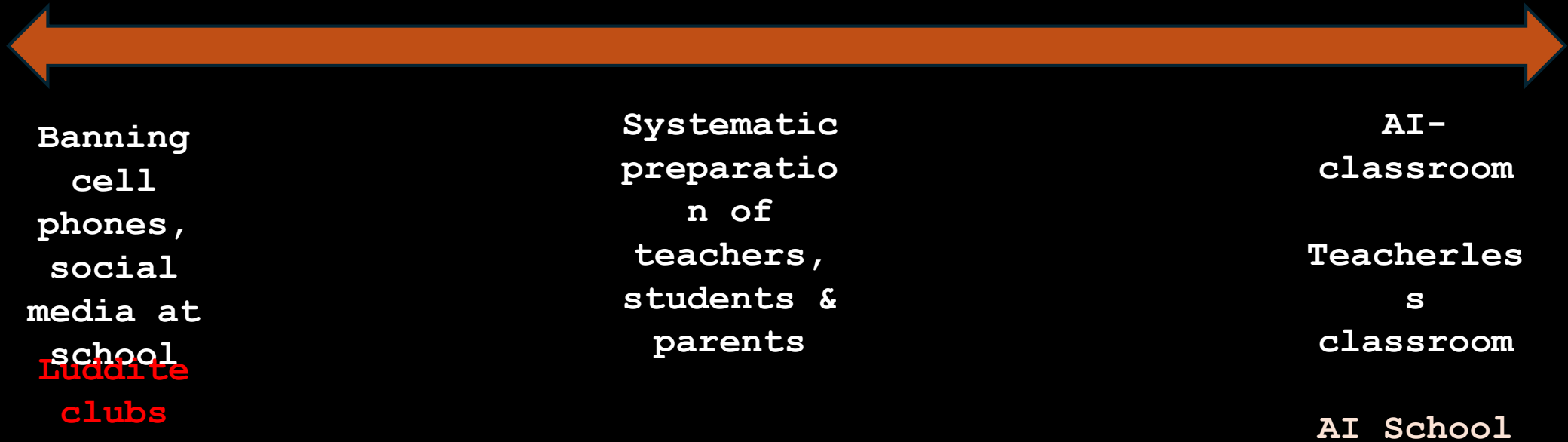
### LEARNING OBJECTIVES

Teachers should be able to reflect on the impact of AI on interpersonal relationships, work and the environment

### CONTEXTUAL ACTIVITIES

Write an essay or blog on how profit-driven AI and providers of AI threaten the social-emotional well-being people and the planet based on real world case studies

# Diverse institutional policy responses

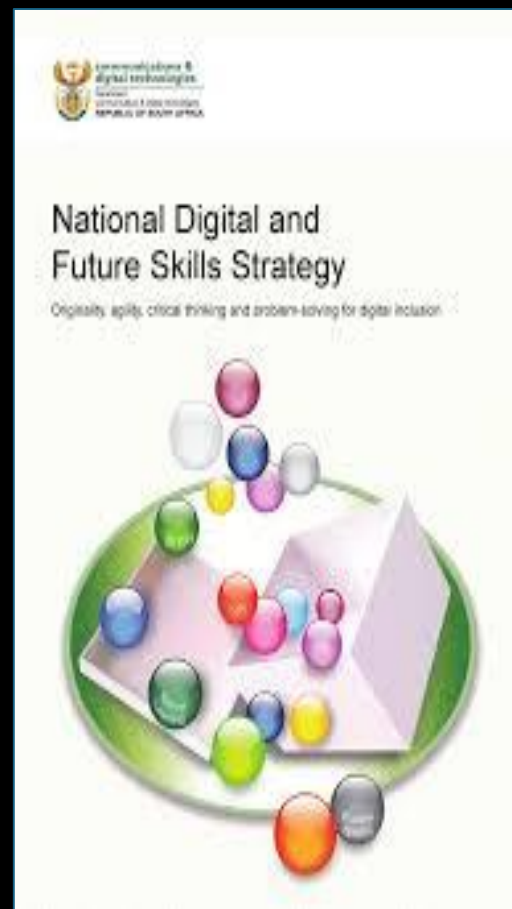




**E-Education White  
Paper (2004)**



**Presidential  
Commission on 4IR  
Report (2022)**



**National Digital &  
Future Skills Strategy  
(2021)**



**National AI Discussion  
Document (2023)**

# Towards AI in Education Policy

Build the robust  
evidence base of  
AIED affordances  
and injustices

Build the register of  
ethical equitable  
AIED designs,  
policies, practices

Dialogues between  
public and private  
sectors towards  
transparency and  
accountability

Develop  
communities of  
thinkers,  
researchers,  
creatives and  
tinkerers focused on  
ethical AI by design



INTERNATIONAL DAY  
FOR DIGITAL LEARNING  
19 MARCH 2025

**Digital learning realities in low-resourced contexts**  
Practices that promote learning equity

DIGITAL LEARNING WEEK  
2-5 September 2025  
UNESCO Headquarters

**AI and the Future of Education**  
**Disruptions, Dilemmas, and**  
**Directions**

CALL FOR THINK PIECES

Ideas LAB | UNESCO

**AI and the Future of Education**  
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**Directions**



Critical AI  
demands the  
vigilance of  
the wildebeest

Thank you for your  
kind attention

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