

eAssessment and Generative AI

Graham Attwell, Pontydysgu, March 2024

What is Generative AI?

Generative artificial intelligence (generative AI, GenAI, or GAI) is artificial intelligence capable of generating text, images or other data using generative models, often in response to prompts. Generative AI models learn the patterns and structure of their input training data and then generate new data that has similar characteristics.

Wikipedia



Rick Payne and team / Better Images of AI / AI is... / CC-BY 4.0

Why assessment?

“Institutional accountability”

“Diagnosis”

“to give educators feedback about what students are learning or not learning so that instructional approaches, teaching materials, and academic support can be modified accordingly”

“to give students feedback about what students are learning or not learning”

“to evaluate student learning at the conclusion of a specific learning period”

“to identify specific student learning needs”

“To diagnose learning disabilities”

”determine eligibility for specialised educational services

“To evaluate the potential of different forms of learning or educational software”

“To determine competence for employment or a career”

“improving learning experiences for students”

“To compare institutional performance”

“To determine school leader and / or teachers grades / pay rates”

“To provide a showcase”

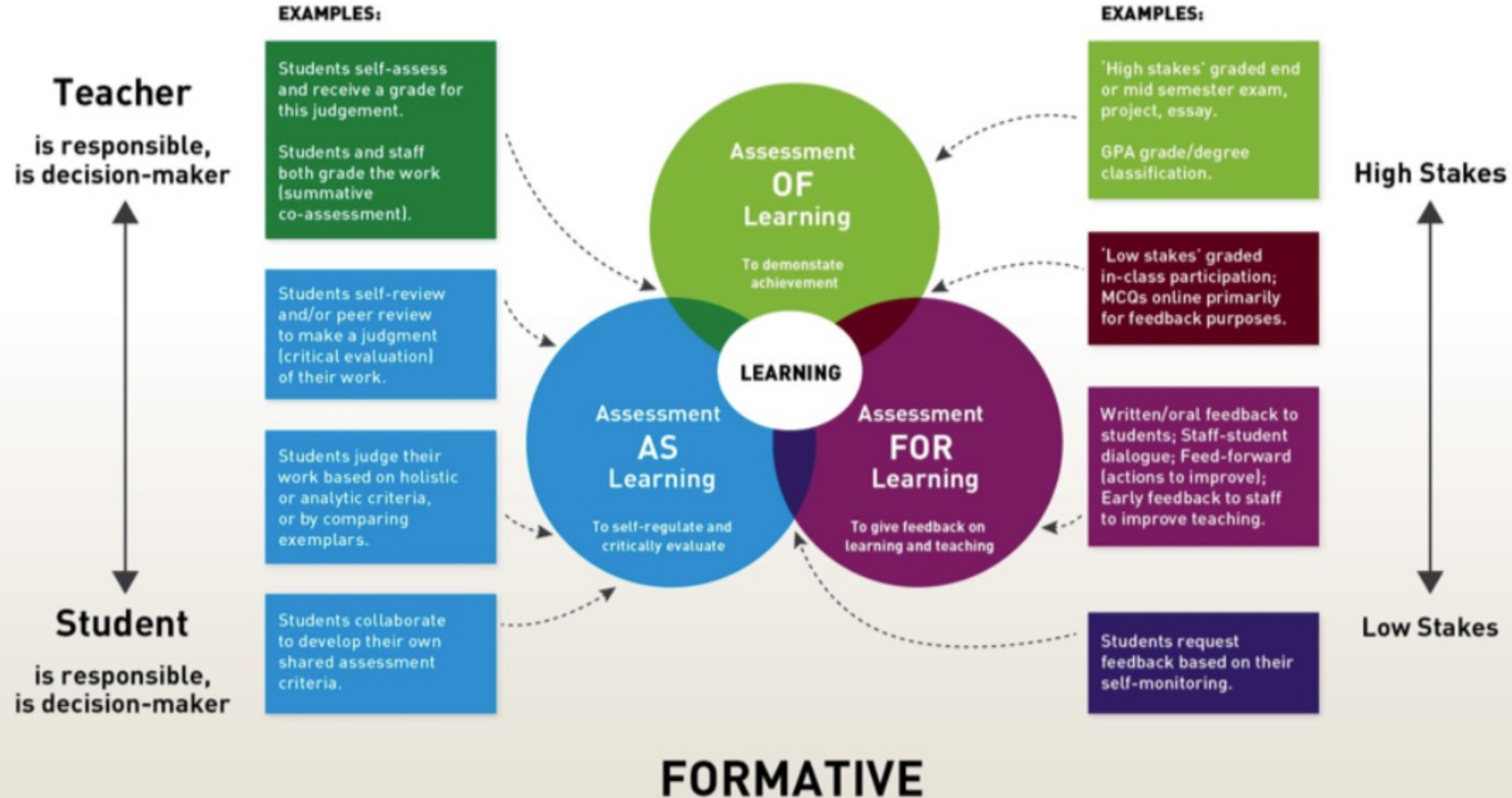




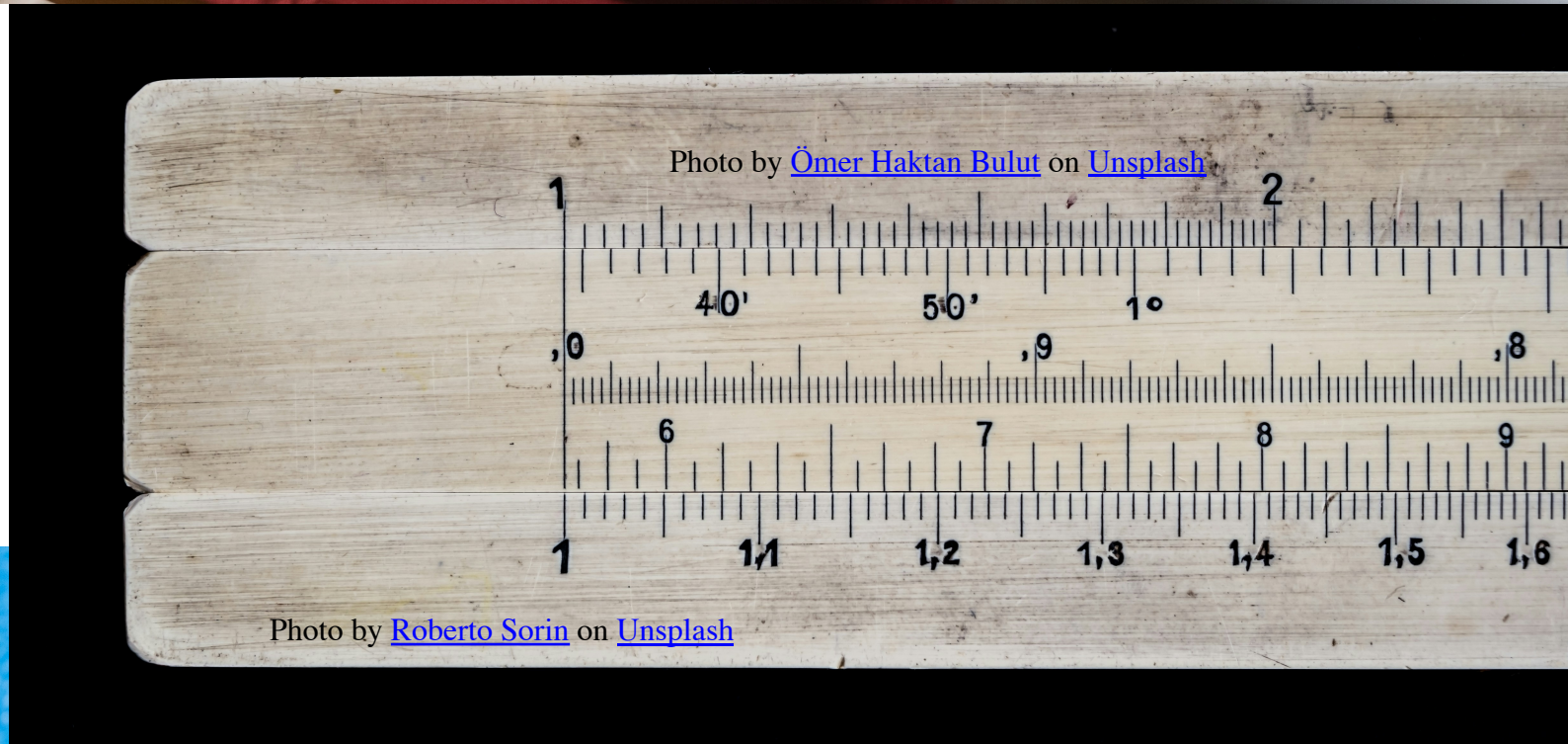
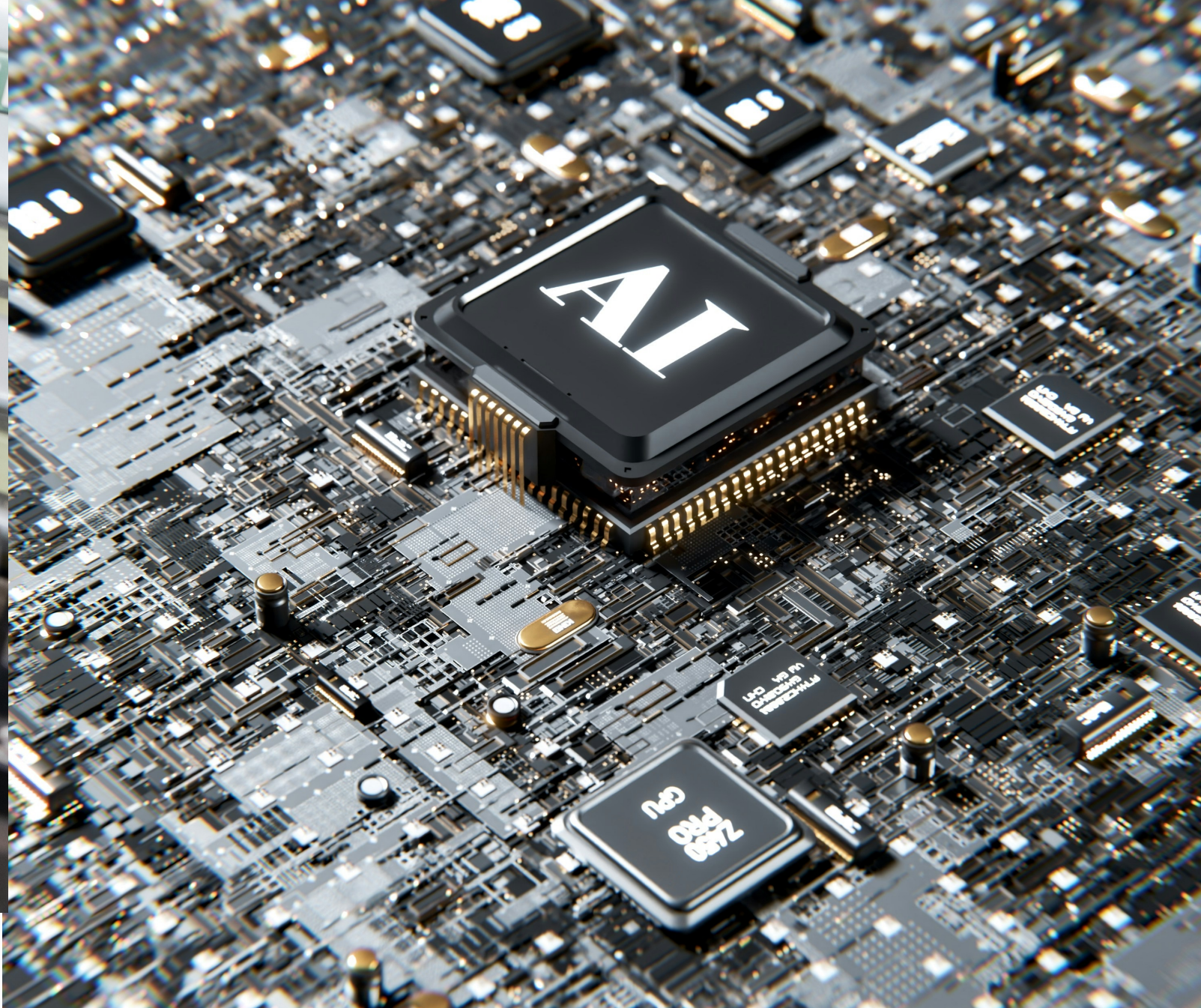
Diagnostic Summative Formative

Validity
Reliability

SUMMATIVE



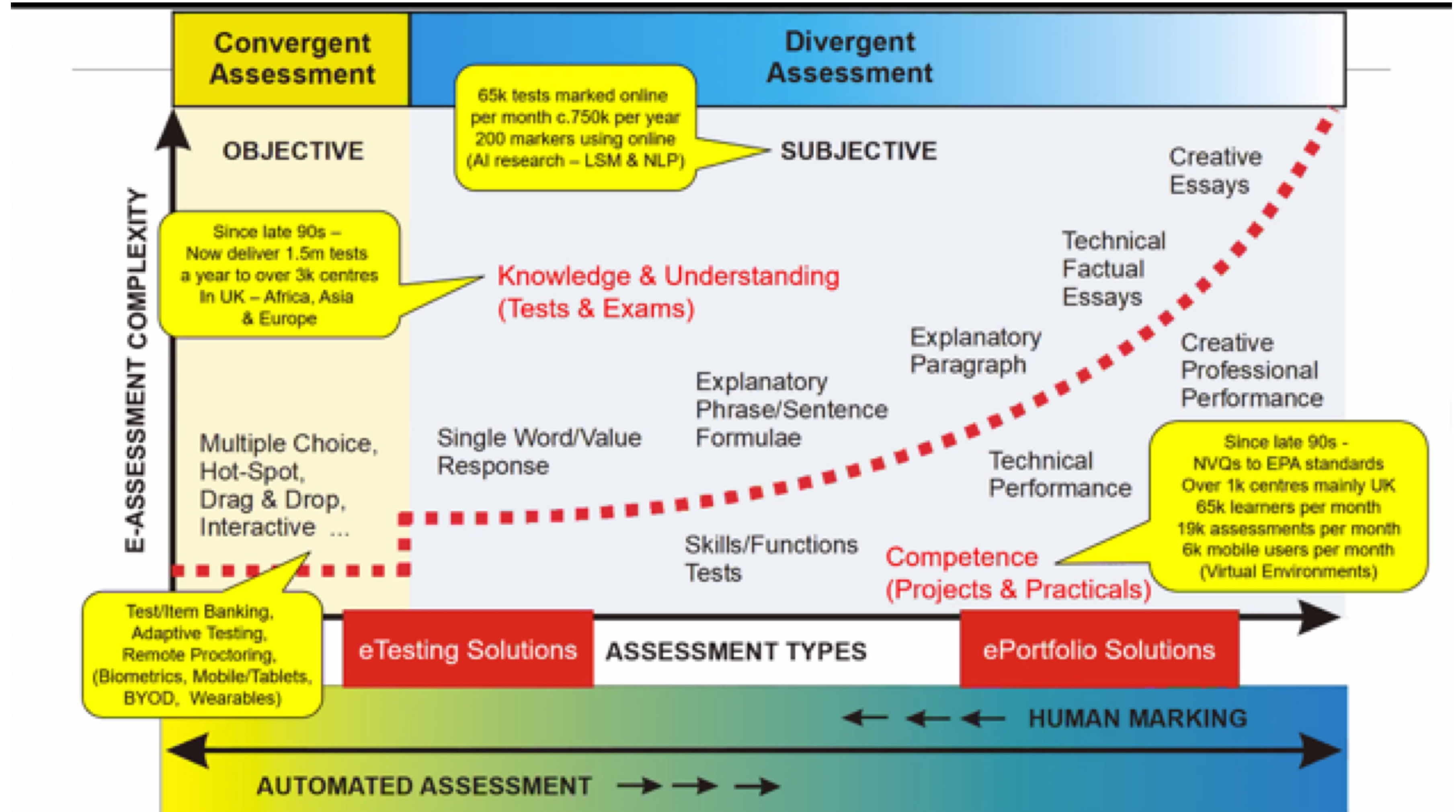
FORMATIVE



PANIC

Technology and Education

Digital Assessment Strategies



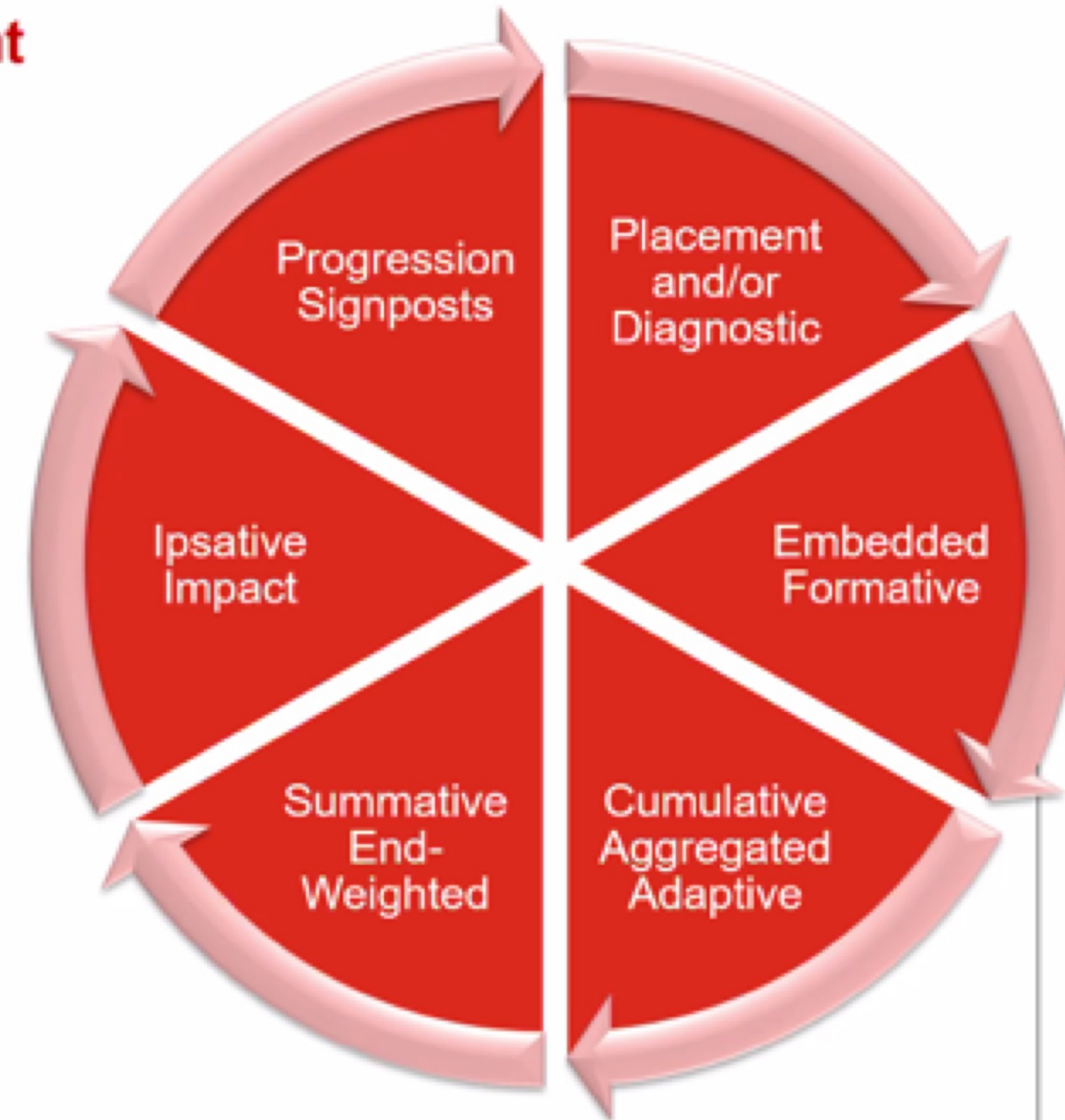
Digital Assessment Strategies

Learning & Assessment Value Wheel

Similar assessment methodologies and skillsets can be used to address judgement interventions at any point in the learning cycle.

The key difference in applications is often down to how you play back the outcomes to the learner or other stakeholders.

The purpose and nature of the judgements will often dictate the acceptable assessment models. Technology has an increasing role to play in all stages of assessment and learning





Authentic Assessment

Authentic assessment relates to what students experience in the real world. Instead of testing students' proficiency in completing tests, authentic assessment methods are designed to assess knowledge and test how students apply that knowledge in real world situations.....

purposeful application of knowledge in practice is increasingly more important than knowledge recall. In short – knowing 'stuff' is important, but knowing how to apply that 'stuff', in different contexts, is invaluable....

Importantly, authentic assessment mechanisms give students the ability to focus on how they solve problems.....

authentic assessment, which includes the opportunity for reflection, allows students to show their 'workings out'. And importantly, they can decide what they'd do better or differently in future – allowing for continuous improvement.

Shane Sutherland, 2022



Assessment in Vocational Education and Training

Competence based

Related to real work tasks

Combines knowledge and practice

Uses the tools of the job

Often uses photographic evidence

Authentic



POLICY PROPOSAL

GOVERNMENT & ECONOMICS

Highway to Autonomy

11-12

3 Hours

Self-Guided

Self-driving trucks with drivers already haul goods across the US daily. By 2024, they may go solo. In this project, students explore the benefits and challenges of autonomous vehicles and propose policies for how to use and regulate them.

[Access Now →](#)



MOBILE APP PROTOTYPE

BIOLOGY

Interspecies Communication App

9-10

4 hours

Self-Guided

In this project, students explore the possibilities and challenges of communicating with different species using AI. They work in small groups to prototype a mobile app that facilitates communication between different species.

[Access Now →](#)



PODCAST

ELA

Interview With ChatGPT

9-10

5 Hours

Self-Guided

ChatGPT claims to generate human-like text, but how can we use, understand, and evaluate it? Students team up to create a podcast interviewing ChatGPT to analyze its uses.

[Access Now →](#)



POSTER

CS: IMPACTS

Facial Recognition For Good, Evil, and Everything in Between

9-10

2.5 Hours

Self-Guided

How can the same technology be used for both good and evil, for order or individualism? Students create a poster explaining the many ways recognition shapes our society.

[Access Now →](#)



VISION BOARD

BIOLOGY

Picturing the Future of Medicine

9-10

2.5 Hours

Self-Guided

Medicine is a hotbed of innovation in artificial intelligence. Students develop a vision board for the future of medicine, grounding their ideas in current technologies while thinking big about possible futures.

[Access Now →](#)



INFOGRAPHIC

GOVERNMENT & ECONOMICS

The 29 AIs of Washington, D.C.

11-12

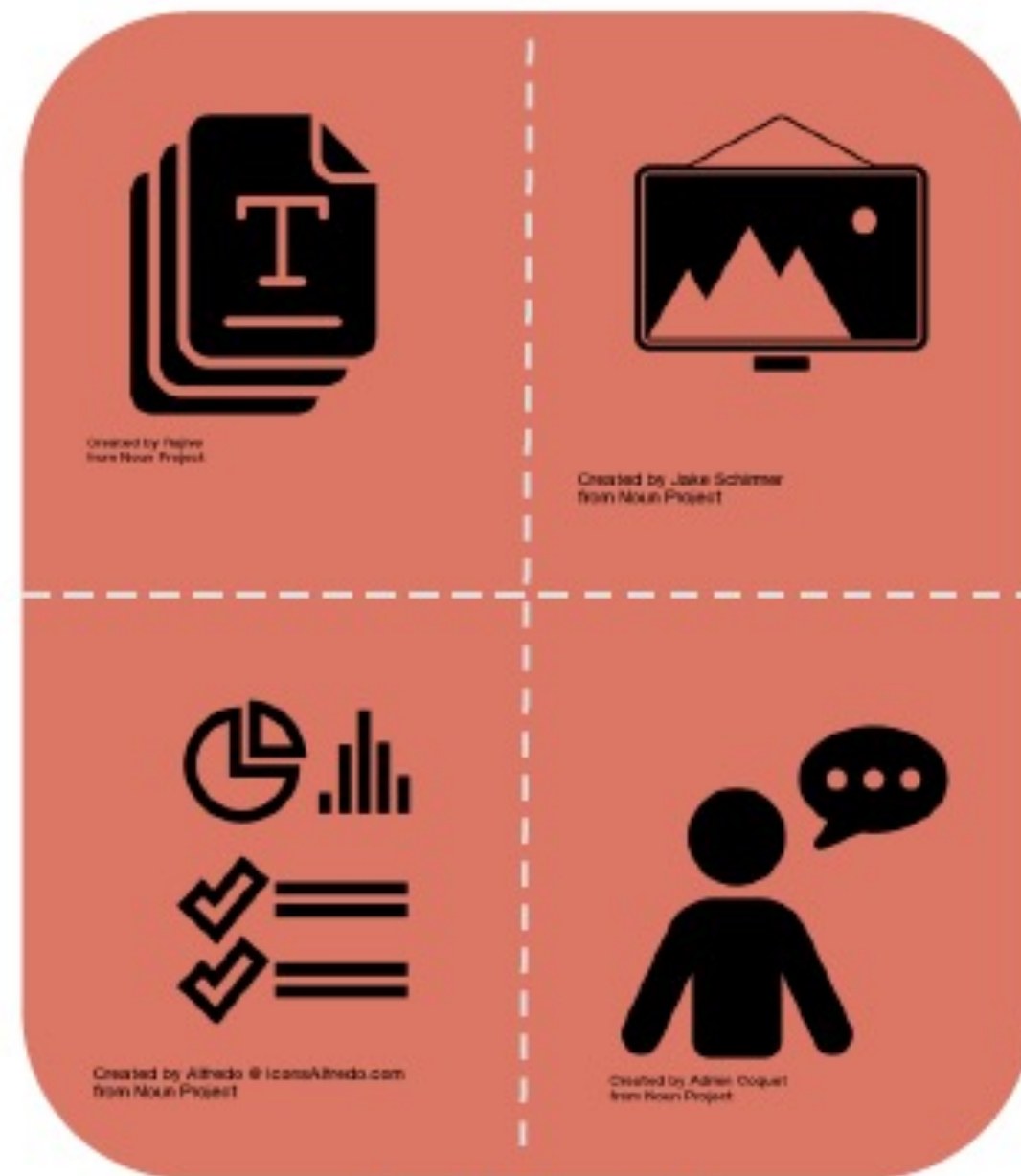
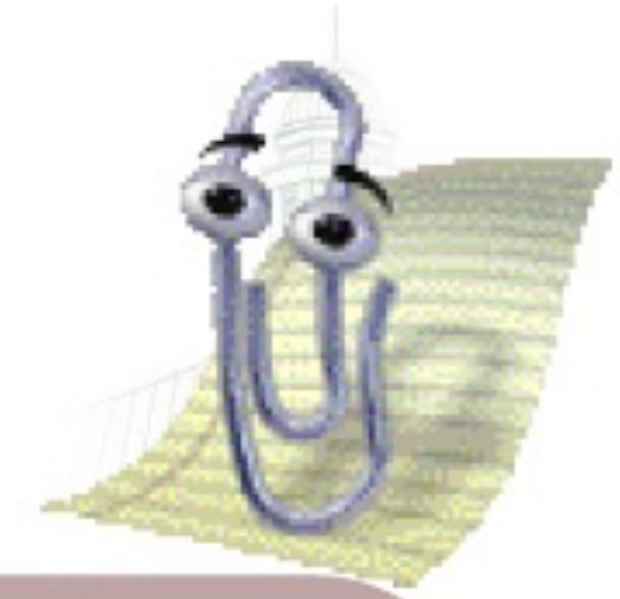
3 Hours

Self-Guided

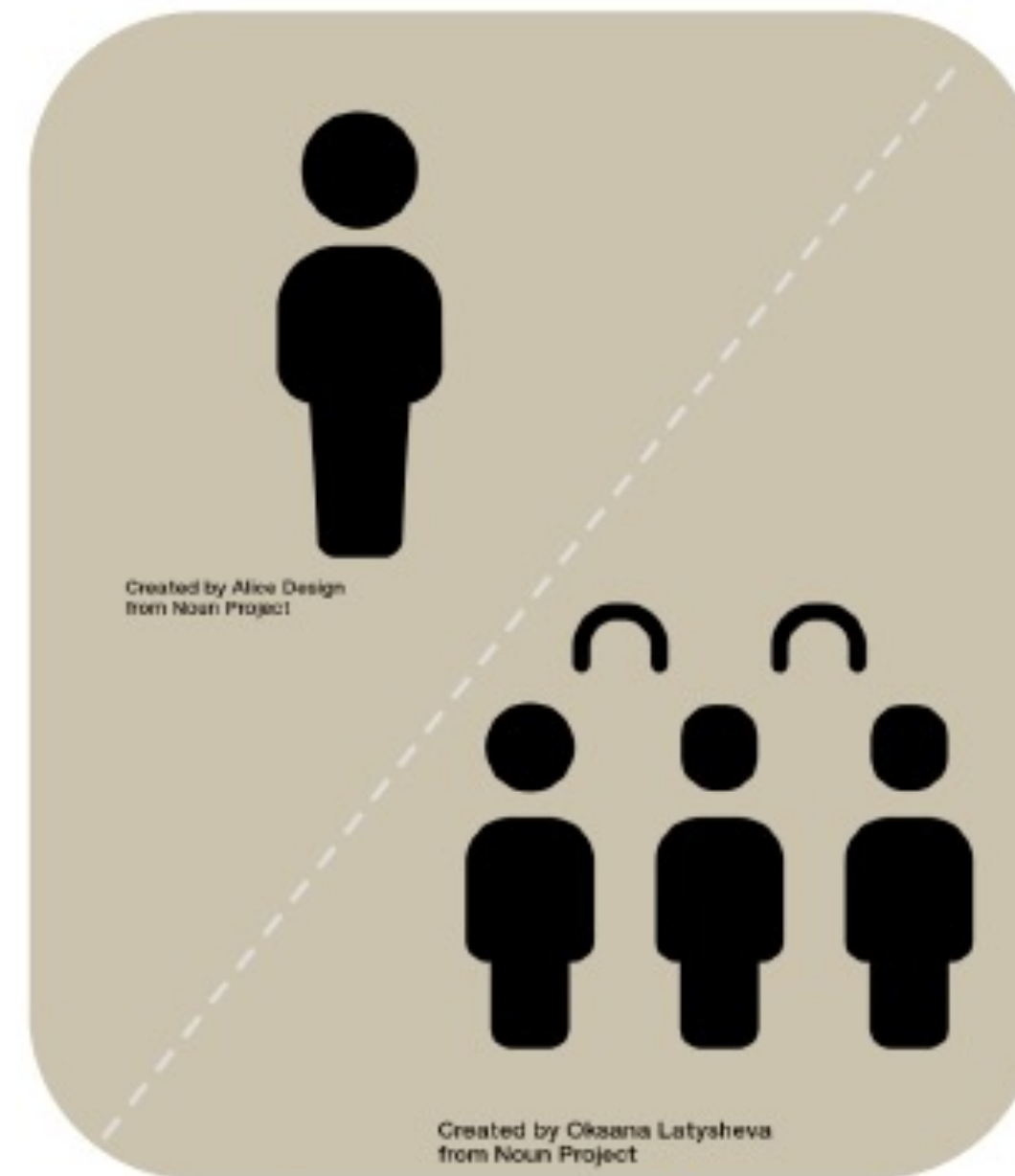
The City of Washington, D.C uses dozens of algorithms to make automated decisions about government services. Students create a poster showing how these algorithms affect D.C residents.

[Access Now →](#)

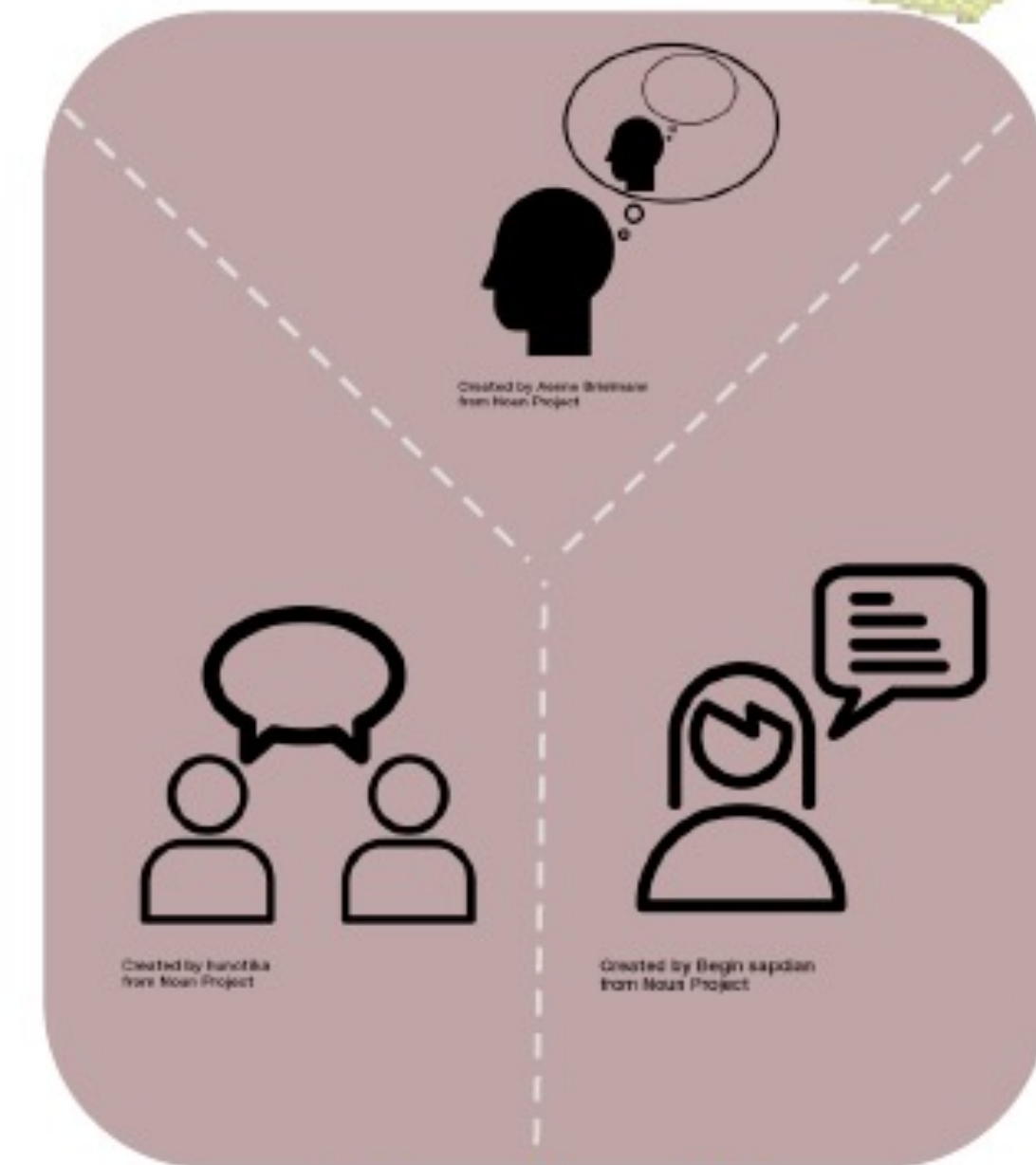
Demonstrate learning in a variety of ways



Artifact



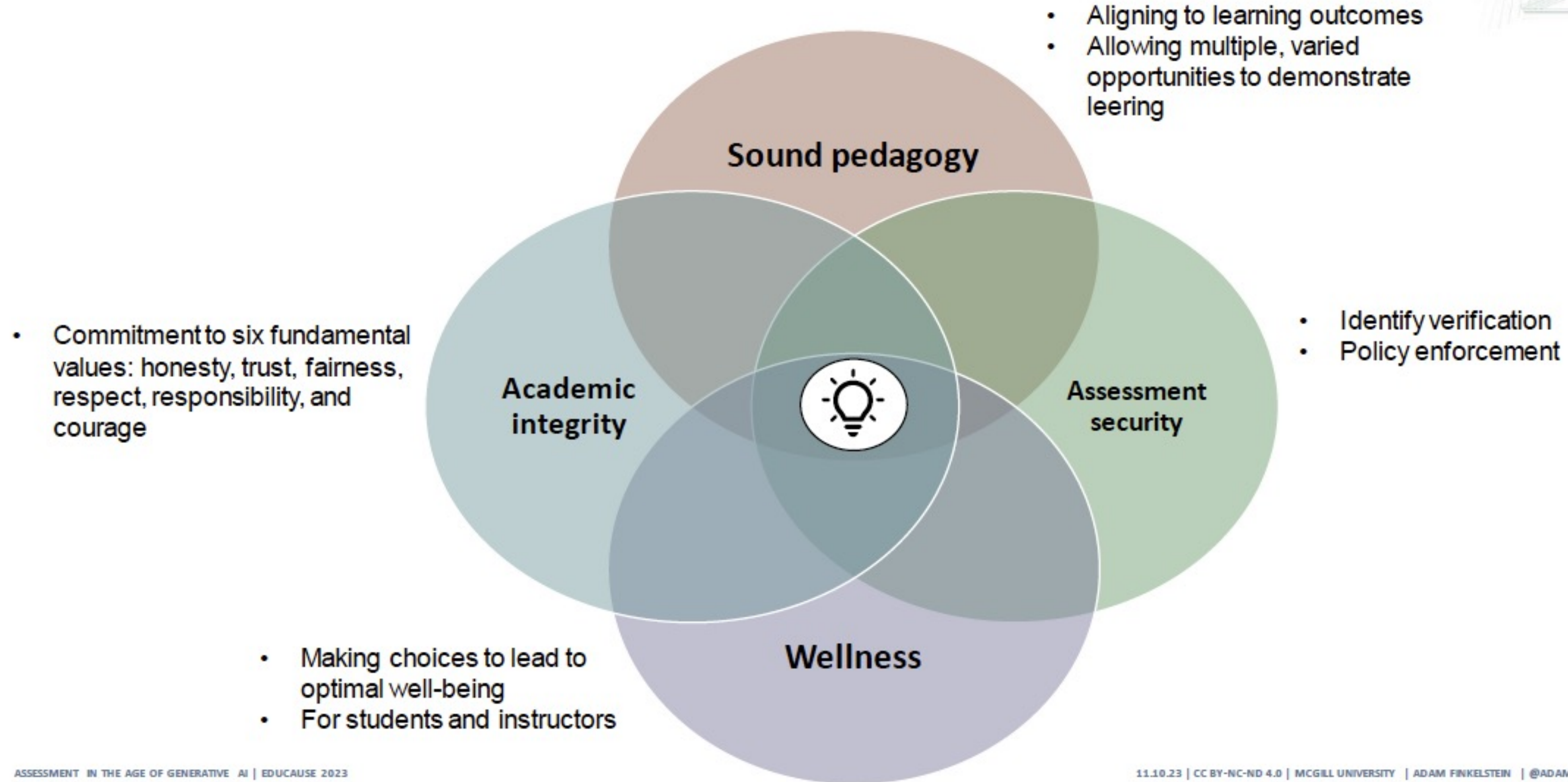
Interaction



Feedback

(Adapted from [Fenwick & Parsons, 2000](#); [Suskie, 2018](#))

Designing assessments



Bloom's Taxonomy Revisited

Use this table as a reference for evaluating and making changes to aligned course activities and assessments (or, where possible, learning outcomes) that account for generative Artificial Intelligence (AI) tool capabilities and distinctive human skills.

All course activities and assessments will benefit from **review** given the capabilities of AI tools; those at the **Remember** and **Analyze** levels may be more likely to need **amendment**.



Attribution 4.0 International (CC BY 4.0)

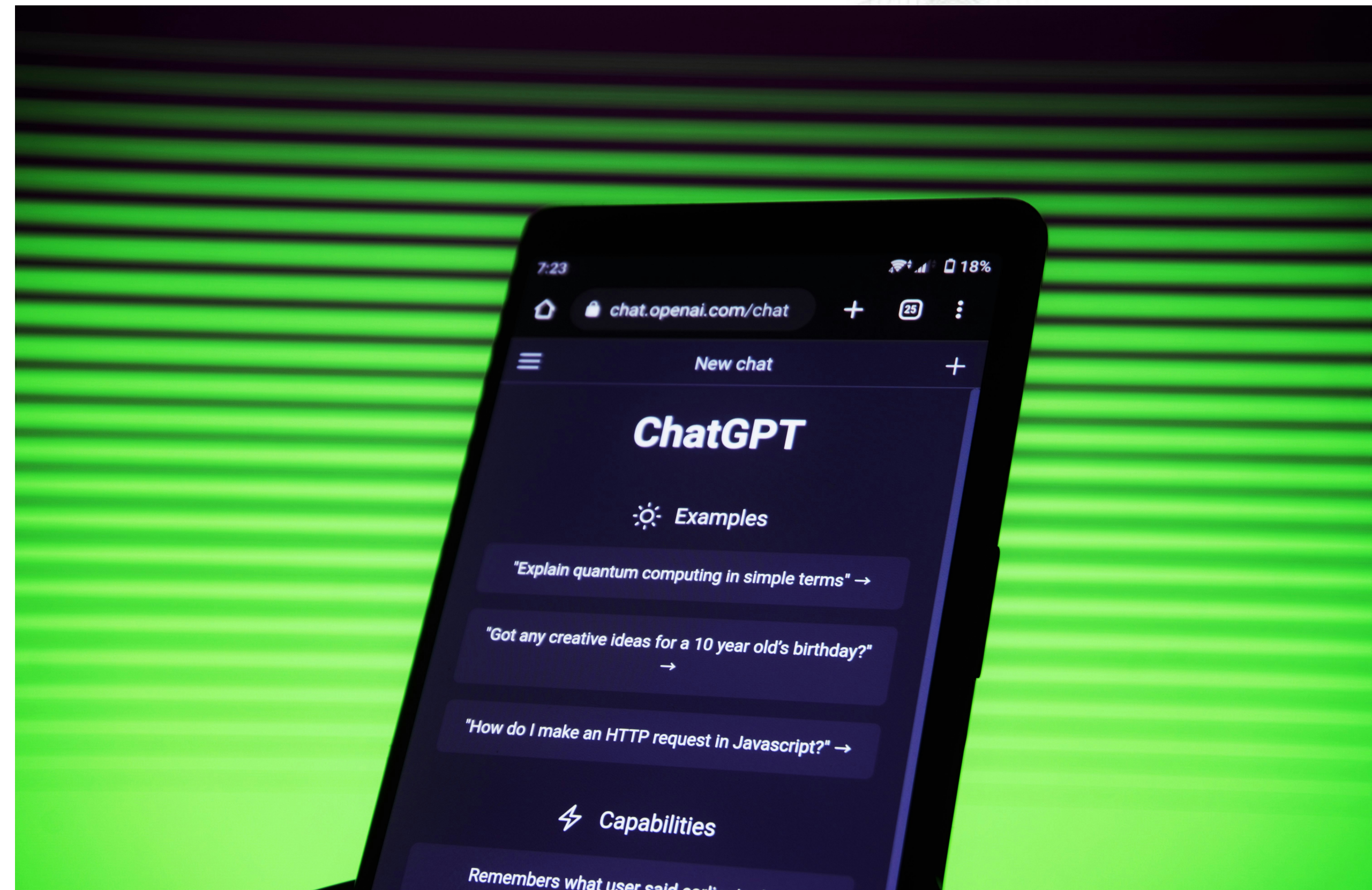
	RECOMMENDATION	AI CAPABILITIES	DISTINCTIVE HUMAN SKILLS
CREATE	Review	Suggest a range of alternatives, enumerate potential drawbacks and advantages, describe successful real-world cases	Formulate original solutions incorporating human judgement, collaborate spontaneously
EVALUATE	Review	Identify pros and cons of various courses of action, develop rubrics	Engage in metacognitive reflection, holistically appraise ethical consequences of alternative courses of action
ANALYZE	Amend	Compare and contrast data, infer trends and themes, compute, predict	Critically think and reason within the cognitive and affective domains, interpret and relate to authentic problems, decisions, & choices
APPLY	Review	Make use of a process, model, or method to illustrate how to solve a quantitative inquiry	Operate, implement, conduct, execute, experiment, and test in the real world; apply creativity and imagination to idea & solution development
UNDERSTAND	Review	Describe a concept in different words, recognize a related example, translate	Contextualize answers within emotional, moral, or ethical considerations
REMEMBER	Amend	Recall factual information, list possible answers, define a term, construct a basic chronology	Recall information in situations where technology is not readily accessible



Generative AI

What should we be *concerned* about?

- Bias
- Normativity
- Transparency
- Human/Environment cost
- Hallucinations
- Commercialization/Access
- Privacy/Security
- Academic Integrity
- Hype





The need for ethical frameworks for AI

- Transparency
- Justice and fairness
- Non-maleficence
- Responsibility
- Privacy



< >
 Montréal Declaration
 Responsible AI_
 < / >

**MONTRÉAL
 DECLARATION
 FOR A RESPONSIBLE
 DEVELOPMENT
 OF ARTIFICIAL
 INTELLIGENCE
 2018**

Source: [Montreal Declaration](#)

Perspective | [Published: 02 September 2019](#)

The global landscape of AI ethics

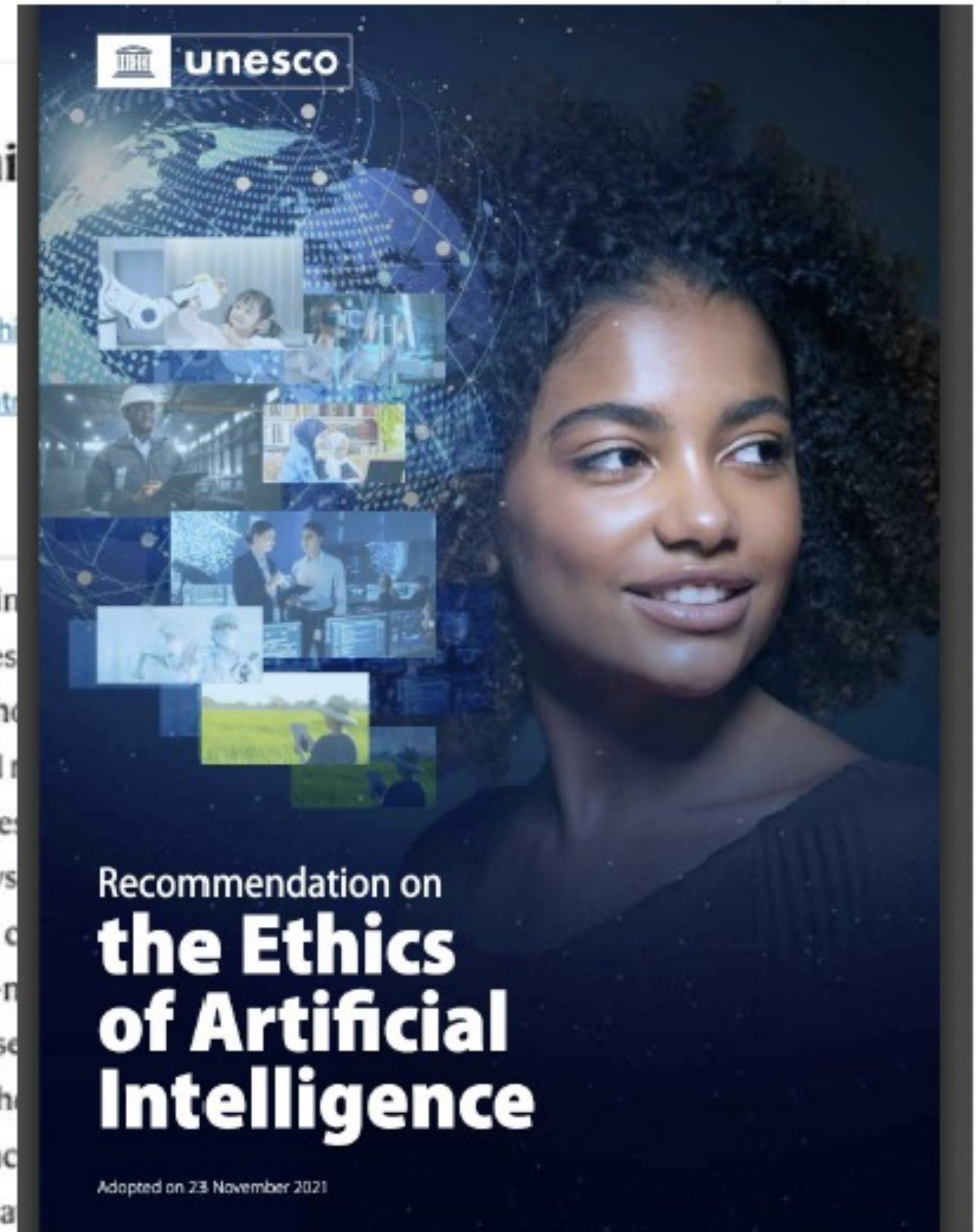
[Anna Jobin](#), [Marcello Ienca](#) & [Effy Vayena](#)

Nature Machine Intelligence 1, 389–399 (2019) | [Cite this article](#)

49k Accesses | 1030 Citations | 872 Altmetric | [Metrics](#)

Abstract

In the past five years, private companies, research institutions and governments have issued principles and guidelines for ethical AI. However, despite an apparent agreement that AI should be developed and used in a way that is both safe and beneficial to society, there is still a need to define both what constitutes 'ethical AI' and which ethical principles and best practices are needed for its realization. To investigate these questions is emerging, we mapped and analysed the global landscape of guidelines on ethical AI. Our results reveal a global consensus on the principles (transparency, justice and fairness, non-maleficence) with substantive divergence in relation to how these principles are deemed important, what issue, domain or actors they are implemented. Our findings highlight the importance of concerted efforts with substantive ethical analysis and adequate



Source: [Unesco](#)

Source: ([Jobin, Ienca & Vayenna, 2019](#))

Ethical Principles in international AIED guidelines (Senocak, 2024)

Diversity and equity

Transparency and Accountability

Privacy and data protection

Security and safety

Sustainability and societal well-being

Empowerment of teachers and teaching/of learners and learning

Democratic participation in education policy planning and AI practices

Autonomy

Ethical Design

Commercialization

Want to find out more?



AI PIONEERS
Artificial Intelligence in education & training



<https://aipioneers.org/>



**Funded by
the European Union**

