

SLERD 2024

9th conference on Smart Learning Ecosystems and Regional Development —
27-28 June (hybrid format)

Artificial Intelligence and (human) Learning

OPEN DEBATE - 27 June 2024

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TIDE Grupo de Investigación
en Tecnologías Interactivas
y Distribuidas para la Educación



How should AI evolve to maximise the (human) learning gains?

What are the main strengths and pitfalls of AI applications in the educational field?

Are there any peculiarities of human intelligence that should never be delegated to AI?

What competences are needed to use AI without being used by it?

A terrain of tensions

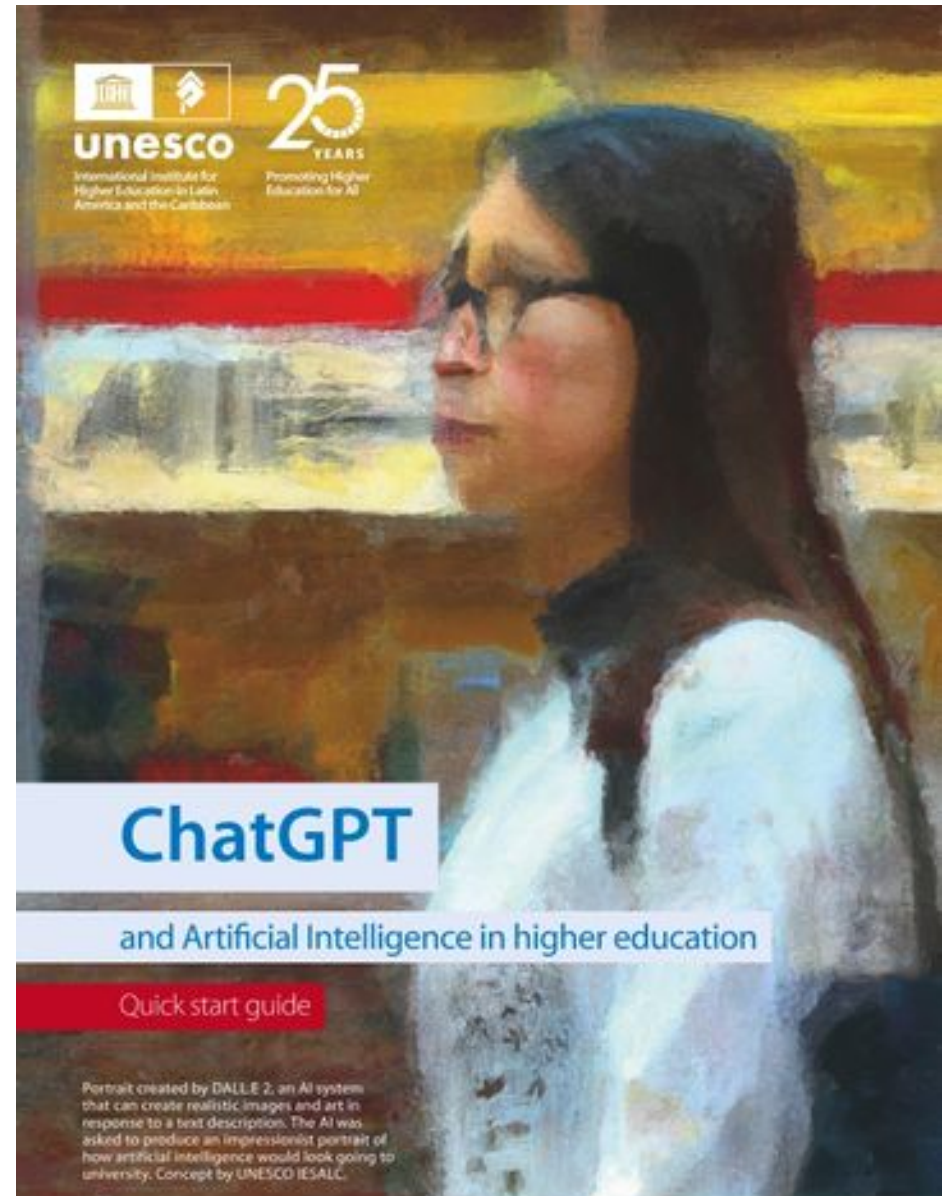
A terrain of tensions

1. Institutional responsibility
2. Difficulty of keeping up
3. Generative AI is “different”
4. The limitations of AI also depend on human limitations
5. Future of youth - rethinking skills
6. Opportunities vs. ethical implications
7. Redesign of assessment, control vs. part of the learning process
8. Human/Youth rights - provision, protection, participation

Tension 1. Professional responsibility, educators, system



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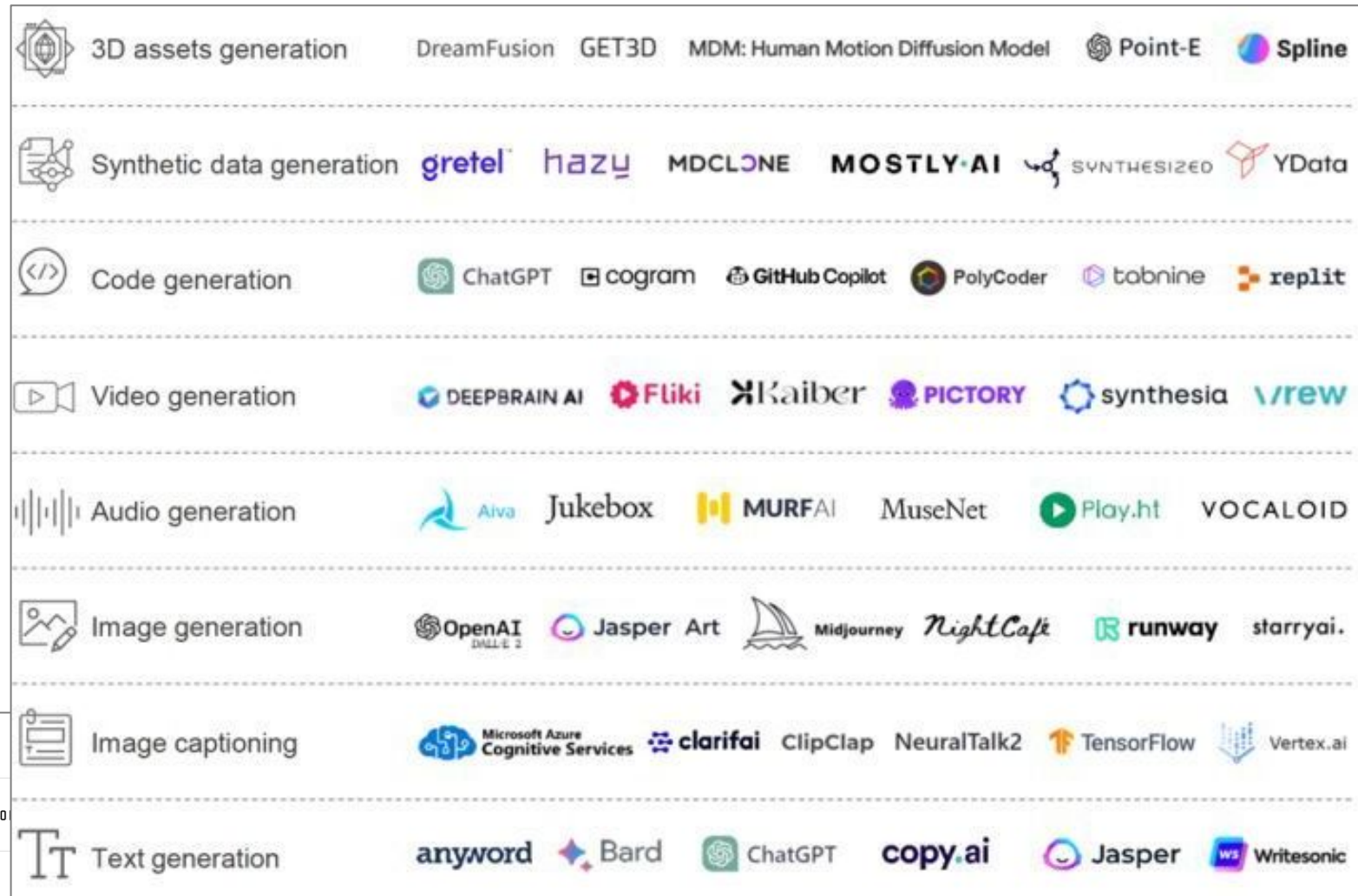
Tension 2: Difficulty (and stress) in keeping up to date

Not only ChatGPT.

Multiple IAs and tools.

Fast evolution in versions.

Integration of tools.



Source: Everest Group (2023)

WIRED

FEATURED EARLY BLACK FRIDAY DEALS BEST USB-C ACCESSORIES FOR

REECE ROGERS GEAR OCT 25, 2023 8:00 AM

How to Use ChatGPT's 'Browse With Bing' Tool—Plus 6 Starter Prompts

OpenAI's chatbot has two new tricks. Here's some advice and example prompts to help you try out the internet-connected feature.

Madeline Will, "What's Happening to Teacher Stress Levels," Education Week, June 21, 2023
<https://www.edweek.org/teaching-learning/what-s-happening-to-teacher-stress-levels/2023/06>

Tension 3: GenAI is “different”

Generative Artificial Intelligence:

Create new content ... including images, text, audio, and more.

Easy-to-access (and with a record in number of users!) tools.

We don't know if the content we see has been created by a human (a.k.a. student) or a machine.



**You**

Read the following specific case study carefully and identify two ethical principles that were applied in the specific case, and one that you believe was not considered. Briefly justify your answer.

CASE STUDY

Using the Code: Medical Implant Risk Analysis

Corazón is a medical technology startup that builds an implantable heart health monitoring device. The device comes with a smart phone app that can monitor and control the device wirelessly, as well as storing a persistent record that can be shared with medical providers. After being approved by multiple countries' medical device regulation agencies, Corazón quickly gained market share based on the ease of use of the app and the company's vocal commitment to securing patients' information. To further expand their impact, Corazón worked with several charities to provide free or reduced access to patients living below the poverty line.

As a basic security mechanism, Corazón's implant could only be accessible through short-range wireless connections, requiring the phone and implant to be in close



The 10 principles of the ACM code to consider in the activity are:

Principle 1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.

Principle 1.6 Respect privacy

Principle 1.7 Honor confidentiality

Principle 2.2 Maintain high standards of professional competence, conduct, and ethical practice.

Principle 2.3 Know and respect existing rules pertaining to professional work.

Principle 2.4 Accept and provide appropriate professional review.

Principle 2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.

Principle 2.6 Perform work only in areas of competence.

Principle 2.9 Design and implement systems that are robustly and useably secure.

Principle 3.7 Recognize and take special care of systems that become integrated into the infrastructure of society.



ChatGPT

In the case of Corazón, a medical technology startup, two ethical principles from the ACM code that were clearly applied are:

1. **Principle 1.6: Respect Privacy** - Corazón's commitment to securing patients' information is evident. They implemented standard cryptographic algorithms for data transfer and encrypted data stored locally on phones. This demonstrates a strong adherence to the principle of respecting the privacy of the users of their heart health monitoring device.
2. **Principle 2.4: Accept and Provide Appropriate Professional Review** - The company's open bug bounty program and their collaboration with an independent researcher at the security conference to assess a vulnerability demonstrates their willingness to accept and provide professional review. This approach is essential for maintaining the integrity and security of their system.

However, one principle that seems to have been not fully considered is:

- **Principle 2.5: Give Comprehensive and Thorough Evaluations of Computer**



You

Write the text as if you were a first-year engineering student. The text should be less structured.



ChatGPT

Okay, so looking at this case study about Corazón, the medical tech startup, I think they did some stuff right and maybe missed something important. First off, they totally respected privacy, which is super important, right? They used all these cool encryption methods to keep the patient data safe, which is exactly what you want when dealing with personal health stuff.

Then, there's this other point about accepting and providing professional reviews. They were open to feedback, even had a bug bounty program, and worked with that researcher who found a flaw. That's pretty cool because it shows they're open to

Tension 4:

The limitations of (Gen)AI also depend on human ones

E.g. GenAI

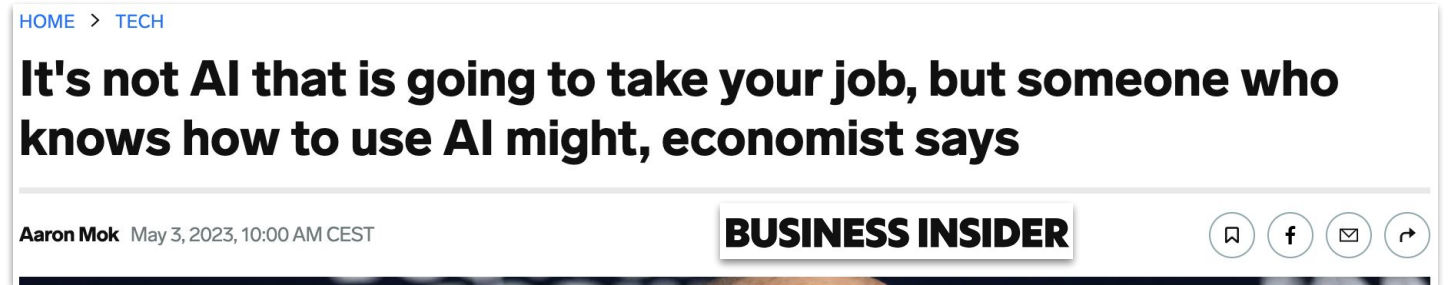
Infer correlations between data points (created by humans). Reinforced by humans.

They do not 'understand' what they generate ('**stochastic parrots**') nor operate with models of how the world works.

Predict the outcome (e.g., word), paying attention to the 'many' previous words (**context, prompts**).



Tension 5: Future of the youth. Rethink skills.



Markauskaite, L., Marrone, R., Poquet, O., Knight, S.,
Martinez-Maldonado, R., Howard, S., Tondeur, J., De Laat, M.,
Buckingham Shum, S., Gašević, D., & Siemens, G. (2022).
**Rethinking the entwinement between artificial intelligence and
human learning: *What capabilities do learners need for a world
with AI?* *Computers and Education: Artificial Intelligence*, 3, 100056.**

Tension 5:

Future of the youth. Rethink skills.

Ability to interact with AI to 'extend' human performance.

Strengthening of 'distinctive' human skills.

Tension_(s) 6:

Opportunities for improvement vs. (Ethical) implications



Opportunities to improve learning activities in:

effectiveness (learning more)

efficiency (learning the same in less time)

authenticity (learning real-world skills)

enjoyment (curiosity, interest, enthusiasm)

Focus on higher-level aspects of thinking

AI-assisted writing assignments could focus on skills of critical reading, accuracy, argumentation and structure.

(Sharpley, 2023)

Tension_(s) 6:

Opportunities for improvement vs. (Ethical) implications



Accountability, transparency, trustworthiness (reliability, bias ...),
privacy, ...

Academic Integrity

Substitute for learning

Cognitive dependency

Interest behind organizations

Environmental sustainability

Inequality (need of knowledge and resources)

Tension 7, re-design of assessment: control vs. part of the learning process

The “illusion” of detection...

Learning-assessment paradoxes

We need to find ways to
assess how students **have**
engaged and benefited from
their participation in learning
processes.



Tension 8, Human/Youth rights

- provision, protection, participation



JRC SCIENCE FOR POLICY REPORT

Artificial Intelligence and the Rights of the Child

Towards an Integrated Agenda for Research and Policy

Hernández-Leo, D., (2022) **Directions for the responsible design and use of AI by children and their communities: Examples in the field of Education**, In **Artificial Intelligence and the Rights of the Child : Towards an Integrated Agenda for Research and Policy**, EUR 31048 EN, Publications Office of the EU JRC127564, pp. 73-74.
<https://repositori.upf.edu/handle/10230/58975>

Marc Beardsley, Ishari Amarasinghe, Davinia Hernández-Leo (2024) [Toward a Learning Agreement for Generative AI Use: First-Year University Student Perspectives](#), Proceedings of the 17th International Conference on Computer-Supported Collaborative Learning (CSCL), 401-402, Buffalo, USA

How should AI evolve to maximise the (human) learning gains?

What are the main strengths and pitfalls of AI applications in the educational field?

Responsible design and use

Maximize benefits

Minimize challenges and ethical implications

Support structures (teachers, learners)

AI literacy

Are there any peculiarities of human intelligence that should never be delegated to AI?

What competences are needed to use AI without being used by it?

Support rather delegation. Support (education) rather than banning.

Human performance vs. human intelligence.

Ability to interact with AI to 'extend' human performance.

Strengthening of 'distinctive' human skills.

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Our related work

<http://tiny.cc/Alslerd>



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