



UNIVERSITÉ DE NANTES



Organisation
des Nations Unies
pour l'éducation,
la science et la culture



Chaire UNESCO en technologies
pour la formation des enseignants
par les ressources éducatives libres,
Université de Nantes, France



UNIVERSITÉ DE NANTES

AI as a Key Competence for Teachers

Colin de la Higuera, *Université de Nantes*

**INTERNATIONAL WORKSHOP ON
EDUCATION IN ARTIFICIAL INTELLIGENCE
K-12 (EDUAI-20)**

held in conjunction with International Conference on Artificial Intelligence in Education ([AIED-20](#))

1

Outline

1. Why Unesco matters on these questions
2. What should we teach?
3. What has been done so far and what happens next?

1. The role of Unesco

- Unesco has taken steps in
 - AI and Ethics
 - Open Educational Resources
 - Digital Literacy
- Now an initiative towards AI being (somehow) part of the digital literacy

UNESCO is the United Nations Educational, Scientific and Cultural Organization. It seeks to build peace through international cooperation in Education, the Sciences and Culture. UNESCO's programmes contribute to the achievement of the Sustainable Development Goals defined in Agenda 2030, adopted by the UN General Assembly in 2015.

2. What should we teach?

A number of ~~biases~~ choices

- This is not about doing something now, next term
- This is not with just one country in mind
- This is not about understanding how to teach things
- This is not even about being pragmatic

- This is about rethinking the core: what ~~matters~~ will matter in an AI enhanced world?

2.1 Data



(Just one issue here)

Data is not consistent!

- If we study a dataset expressing **#hours studied** against **obtaining an exam**, we will get things like
 - Joe studied 2 hours and failed
 - Emily studied 3 hours and passed
 - Fred studied 4 hours and failed
 - Hamid studied 4 hours and passed
- So Data is a source of uncertainty

2.2 Randomness



The world is becoming more and more deterministic through better controlling randomness

- People expect machine made predictions to be correct... all the time
- Fairness means eliminating “bad luck”
- Computing is the technology where randomness is an ally, not an enemy



2.3 Coding and computational thinking

- This is problem solving
- This is about **being able to implement your ideas**
- This is about being able to use data, test things, invent

- And **NO**, you cannot teach AI without knowing how to code

2.4 (Computer assisted) Critical thinking

- Before
 - Nobody can offer you \$100000 just like that!
 - You can see that this webpage doesn't have a proper address!
- Now
 - Deep fake
 - Truth is no longer 0/1

- Man+Machine vs. Machine



2.5 Post AI Humanism

Our own understanding of the world is changing



- **Intelligence**

- Our definition of what is intelligence is being modified by the progress of AI

- **Experience**

- David Silver, (DeepMind about alpha zero): *It's more powerful than previous approaches because by not using human data, or human expertise in any fashion, we've removed the constraints of human knowledge and it is able to create knowledge itself.*

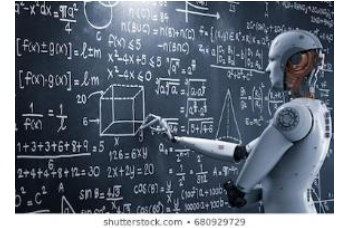
- **Creativity**

- The moves by Alphazero impress the best players
- *Creation of music, stories, publicity by AI...*

- **The truth**

- Libratus beat top poker players by learning. It was not explicitly taught to bluff. But it did learn to bluff/lie. Without any consciousness of this.

3. Where are we and what happens next?



What implications AI may have on education: what do we have to rethink in our curricula to prepare people for a world in which AI will play a part?

A report:

<https://www.k4all.org/project/report-education-ai/>

The questions building up inside Unesco

- What should teachers know (and teach) in a near future, in which AI takes a prominent part?
- Unesco has decided to add specific AI skills to its digital literacy program
- In March 2019 cdih was asked to submit a report <https://www.k4all.org/project/report-education-ai/>
- In November 2019 a multipartite workshop took place in Paris to transform this report into recommendations. <https://en.unesco.org/events/workshop-teaching-and-learning-competencies-artificial-intelligence-ai-information-access>
- In March 2020...

Some talks

- Switzerland (April 19),
- Slovenia (Ljubljana, June 2019),
- France (Nantes, MayJune 2019, Paris, July 2019, Saint-Nazaire, Dec 2019),
- India (Amritapuri, August 2019),
- Belgium (Brussels September 2019),
- Spain (Alicante, October 2019),
- Japan (Tokyo, Nov 2019),
- The Netherlands (Nijmegen, Dec 2019)...

Thank you!