

## KEYNOTE by Prof. Rose Luckin

UCL

# Artificial Intelligence and Education: What are the implications for teaching and learning?

## A Review by Paul Tyack

I had a strange mixture of feelings as I sat and listened to Prof. Rose Luckin's keynote on the morning of Day 2 of the Thinking Matters Annual conference.

I felt *anticipation* and *excitement* as Rose explained that now is a really important time for rapid development in the realm of Artificial Intelligence. The amount of big data we are able to collect due to more sophisticated technology allied to hugely increased data processing speeds and memory leaves us in the midst of a 'perfect storm'. The fourth industrial revolution is upon us.

I felt *challenged* and *determined* as she outlined three key issues regarding the relationship between AI and Education;

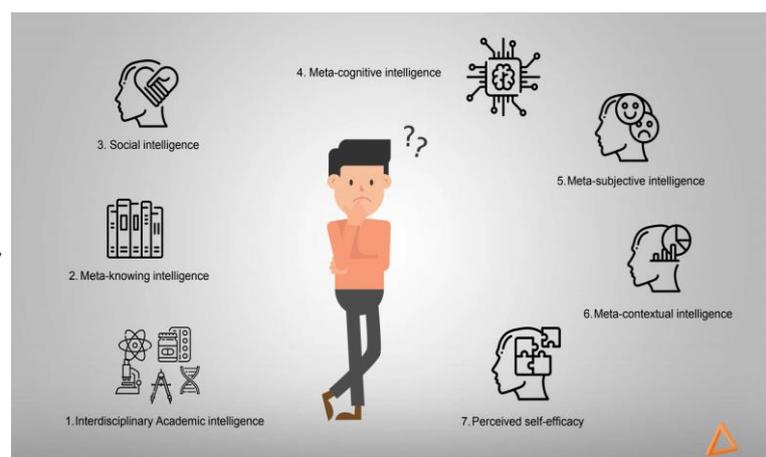
- 1) **Using AI to tackle educational challenges:** The realms of AI and Teaching & Learning need to come together. Rather we need to have those developing AI working more closely with teachers and other education professionals.
- 2) **Understanding AI and using it safely and effectively:** This can be split into 3 subsections; a) Understanding of developments in AI; b) Ethical and responsible use of AI; c) Technical AI understanding. The technical tends to receive a bit of focus in schools through the teaching of coding. Prof. Luckin questioned the use of teaching coding as it is the easiest bit of this to automate. She sees knowing the principles and *why* coding is important as more important than detailed knowledge of technical aspects of coding.
- 3) **Changing Education to focus more on uniquely human intelligence and abilities:** AI systems and technology development now mean that just about everyone can receive a high quality education. PwC published a report in 2018 on 'Will robots really steal our jobs?'



Prof. Rose Luckin, UCL

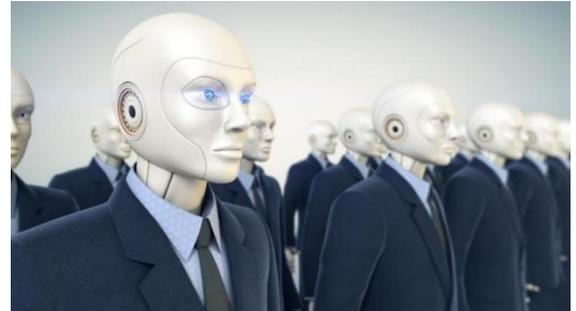
I felt *engaged* and *curious* as Rose introduced 7 types of knowledge/intelligence.

- Interdisciplinary Academic knowledge
- Meta-knowing knowledge (critical thinking)
- Social Intelligence
- Metacognitive intelligence
- Meta-subjective intelligence (beyond emotional intelligence)
- Meta-contextual intelligence (what is situationally appropriate?)
- Perceived self-efficacy (mindset, drive, self-assessment)



I felt *concerned* and *frustrated* as she explained her firm belief that we need to increase our focus on nurturing very human qualities such as kindness, compassion and empathy – things AI cannot do. Yet we also need to get ‘people who understand learning’ into the AI conversation. While AI can store much more factual knowledge than any human will ever be able to, can we use ‘knowledgeable systems’ to help students to *understand* the connections between and structures of knowledge?

Now I was haunted by articles I have read by Dr. Dave Walters <https://www.trainingjournal.com/articles/features/automation-how-thinking-skills-can-prepare-young-people-march-robots> and Alisdair Wade <https://www.thinkingmatters.com/assets/uploads/Pdfs/Training-Journal-Adaptability.pdf> when placed against the background of our continued focus on knowledge acquisition and recall as benchmarks of academic success.



However I ended up feeling *inspired* and *optimistic* as Rose outlined a vision of the partnerships between AI and Education required for progress. We need to form a golden triangle between Ed Tech developers, Academic researchers and Teachers & Learners. We need to train educators & trainers, train AI developers and engage with educators/ trainers to develop the synergy required.

There you go. My feelings laid bare. My wife may tell you I behave like a robot from time to time, but I can assure you I’m not.

*Written by Paul Tyack, Thinking Matters Consultant*

## AI and Education: the Reality and the Potential

- AI is smart, but humans are and can be way smarter
- 3 ways AI can enhance Learning and Teaching
  - Tackle Educational Challenges using AI
  - Prioritize Human Intelligence
  - Educate people about AI: Attention to Ethical AI for Education is essential
- Partnerships are the only way we can achieve this

