

Professor  
Rose Luckin



# Leveraging Artificial Intelligence to Enhance Learning in International Schools

1

## AI tools:

Using AI in Education to tackle some of the big educational challenges

2

## Increasing Human Intelligence:

Changing Education so that we focus on human intelligence and prepare people for an AI world

3

## Learning about AI:

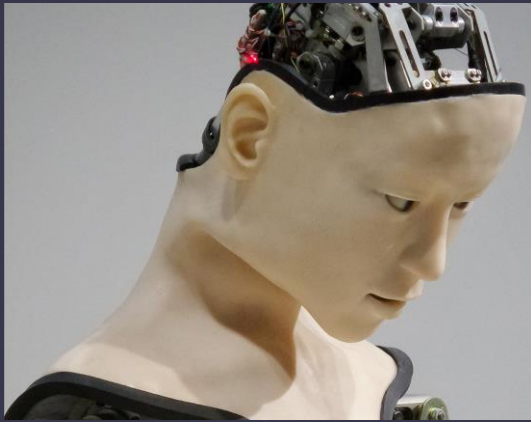
Educating People about AI so that they can use it safely and effectively

# Artificial intelligence in Education



But first..  
What is Artificial  
Intelligence (AI)?

## EC High-Level Expert Group on Artificial Intelligence definition within the European Commission's Communication on AI



[https://ec.europa.eu/futurium/en/system/files/ged/ai\\_hleg\\_definition\\_of\\_ai\\_18\\_december\\_1.pdf](https://ec.europa.eu/futurium/en/system/files/ged/ai_hleg_definition_of_ai_18_december_1.pdf)

“Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals.”

AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications).”

And AI is not  
new!

## AI Timeline - Good Old Fashioned AI (GOF AI). AI that cannot Learn

- 1950: The Turing test “Can Machines Think” and the Turing Test
- 1956: Dartmouth College meeting and statement - the birth of modern AI
- 1957: In 1957 Rosenblatt’s perceptron - the first neural network
- 1960s: The first chatbot called Eliza
- 1970s: Expert systems
- GOF AI rule-based systems and statistical methods culminating in ...
- 1997: IBM’s Deep Blue wins world chess championship
- AI Winter - we realised we had not cracked intelligence - vision is much harder than chess!

And in this  
millenium...

## AI Timeline – The Rise of Machine Learning AI that can Learn

- Early 2000s: increased interest in machine learning using neural networks and statistical methods.
- 2011: Apple integrates Siri to the iPhone
- 2012: Alex Krizhevsky, creates the first CNN, AlexNet based on Fei Fei's model
- 2014: A chatbot called Eugene passes the Turing test
- 2014: Amazon launches Alexa
- 2017: Google's AlphaGo beats world champion at board game Go – Deep Neural Networks become the trend
- 2018: First LLMs created
- 2022: ChatGPT released and commercial LLMs proliferate



Also, AI in  
Education is not  
New

Health Social Impact

# Virtual humans inspire patients to open up, USC study suggests

The research holds promise for people with mental health issues, says social psychologist



Tanya Abrams • JULY 9, 2014



## Related stories

He's a Virtual Human Who Keeps It Real

ICT Virtual Humans Change the Face of Training

Army chief of staff visits ICT

Which PTSD Symptoms Do the Most Damage?

# AI can sense behaviours based on multiple sources of data then advise/recommend

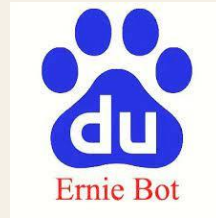
## MultiSense




## SimSense




But scaled  
technology that is  
freely available,  
such as ChatGPT,  
is new.



◀ Safari

 DINA

Design a worksheet to practice the formation of the imperfect subjunctive in Spanish, include instructions on formation rules and examples of use

 CHATGPT



Absolutely, here's a worksheet that focuses on the formation rules of the imperfect subjunctive in Spanish, along with examples of its use:

**Worksheet: Formation and Usage of the Imperfect Subjunctive**

**Part 1: Formation Rules**

**Instructions:** Complete the following sentences by conjugating the verbs in parentheses into the imperfect subjunctive tense. Follow the formation rules for each subject.

1. Yo quería que ella \_\_\_\_\_  
(estar) feliz.
2. Ellos deseaban que tú \_\_\_\_\_  
(venir) con nosotros.
3. Ella prefería que yo no \_\_\_\_\_  
(decir) nada.

Message  

# What is Generative AI?

**AI that creates new content  
of human like quality**



Let's look at AI  
more generally



Am I using AI  
already?



# Examples of AI in use

now:

Predictive text,

Grammarly, Otter.ai

Email assistants

Image search (e.g. google  
lens)

ChatGPT

Digital voice assistants

e.g. Google or Alexa

Text to speech tools

Translation tools





# How can AI be used in Education?



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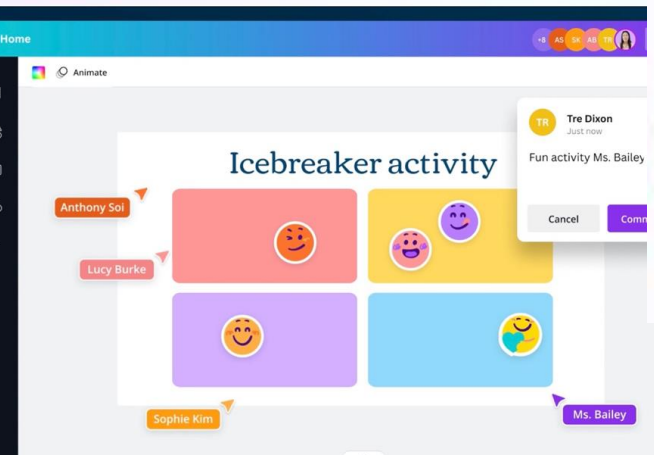
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# Artificial intelligence in Education

# AI tools

Using AI in Education to tackle some of the big educational challenges





# Using the magic of AI to help educators with saving time.

It's **burnout** and join thousands of teachers saving **hours of time** using MagicSchool to help lesson plan, differentiate, write assessments, write IEPs, communicate clearly, and more.

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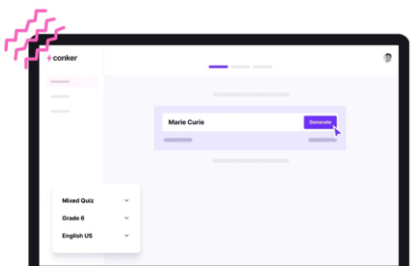
As seen on:



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# Examples of AI tool functionality

01	Personalisation	Learning paths Next steps Feedback
02	Adaptive	Learning Assessment
03	Generation	Teaching content Student content Video, image, audio, text
04	Virtual	Classrooms VR, AR
05	Assistants	Automated marking Chatbots, Virtual tutors Learner analytics



How can these  
tools be used?



# Educational challenges

Equity in education

Student and staff wellbeing

Student engagement

Staff recruitment and retention

Access to quality education for all

Time restraints on educators

Funding and resources pressures

Differential attainment

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# increasing Human Intelligence

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# Learning is Complex

Our ability to learn must continue  
to evolve to be ever more  
sophisticated

[https://www.educateventures.com/files/ugd/c43582\\_3950bb11755d4306ba9dc33811bbfc25.pdf](https://www.educateventures.com/files/ugd/c43582_3950bb11755d4306ba9dc33811bbfc25.pdf)



## Machine Learning and Human Intelligence

The future of education for the 21st century

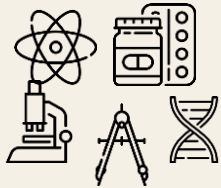
Rosemary Luckin



3. Social intelligence

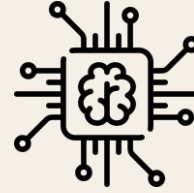


2. Meta-knowing intelligence



1. Interdisciplinary Academic intelligence

4. Meta-cognitive intelligence



5. Meta-subjective intelligence



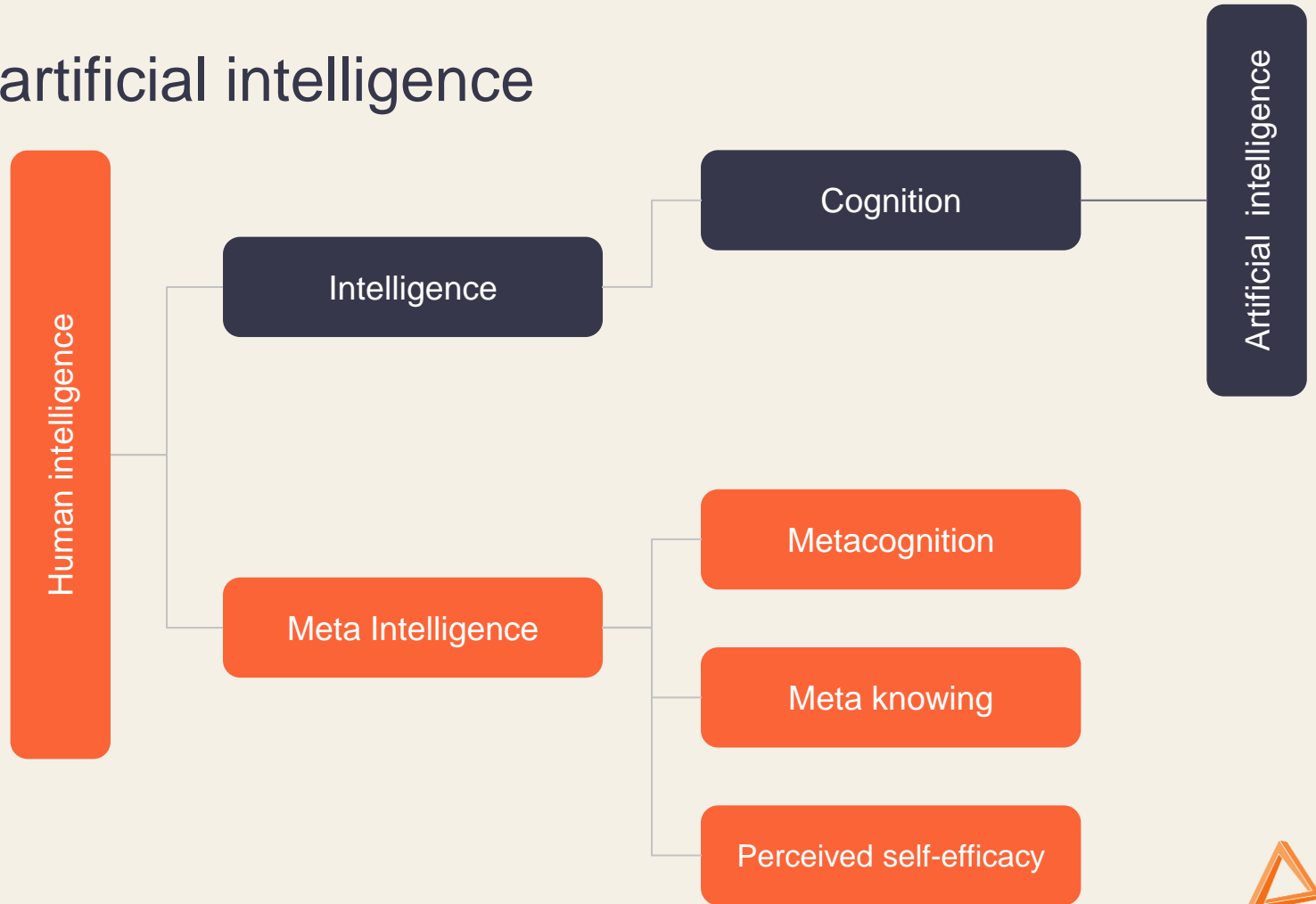
6. Meta-contextual intelligence



7. Perceived self-efficacy



# Human vs artificial intelligence



The future is  
uncertain



# Caution

*“Unlike most non-human biological cognition, human cognition is changing: the average IQ in many countries is increasing (the **Flynn effect**), **our memory** (Sparrow et al. 2011) **is changing** due to the **Google effect** (digital amnesia), **navigation abilities** (McKinlay 2016; Milner 2016) **atrophied** because satnavs, cognitive rewards mechanisms are changing because of gamification, etc. This is a process that is **accelerated by technology**, and will be **magnified by the use of cognitive assistants and cognitive prosthetics**, especially for the elderly. AI itself and human-machine hybrids (either as individual cyborgs or as mixed collectives) are progressing in directions that we are not able to compare with the past or extrapolate, in order to understand where all this is leading, and the associated opportunities and risks (research priorities and safety concerns).”*

Bhatnaga et al., 2018



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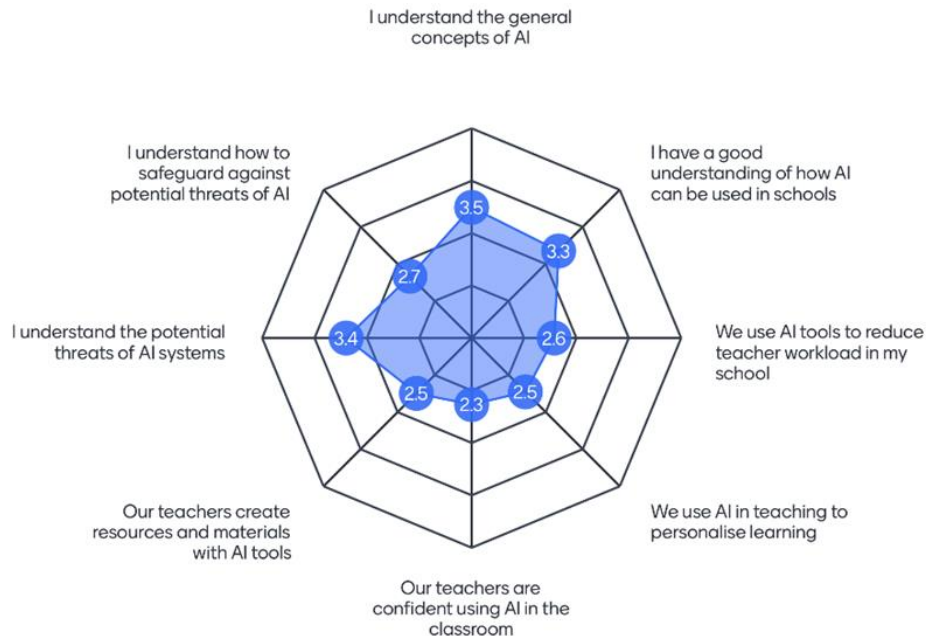
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# AI awareness check



# How might we go about that?

## Training for staff

What is AI? What tools are available?  
How might you use it in your teaching?  
What are the risks?

## Awareness for students

What is AI? What tools are available?  
How should you consider using it?  
Will this impact my future?

## Policy

What is our AI policy as an institution?  
How can we ensure equal access?



How should we  
consider ethics  
when using AI?



# IOE professor co-founds the UK's first Institute for Ethical Artificial Intelligence in Education

18 October 2018



conceived by Sir Anthony Seldon, Priya Lakhani OBE, and Professor Rose Luckin

**The Institute for  
Ethical AI in  
Education**

**The Ethical Framework  
for AI in Education**

The Institute for Ethical AI in Education has been kindly funded by:



**FREE TO DOWNLOAD** <https://www.buckingham.ac.uk/wp-content/uploads/2021/03/The-Institute-for-Ethical-AI-in-Education-The-Ethical-Framework-for-AI-in-Education.pdf>

Find out more  
about our AI  
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AI in Schools



# Host of the EdTech Podcast

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# Some useful resources



Book

<https://www.routledge.com/AI-for-School-Teachers/Luckin-George-Cukurova/p/book/9781032037714>

Free audio chapters <https://www.educateventures.com/all-other-downloads>

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# Thank You

