

Generative AI- What does it mean for education?

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Agenda

- Introduction to Generative AI in education
- Discussion
- Conclusions

Gen-AI refers to a set of new technologies which generate text, images, voices.



ChatGPT

Gemini Advanced ▼

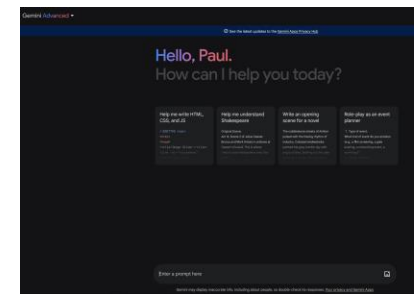
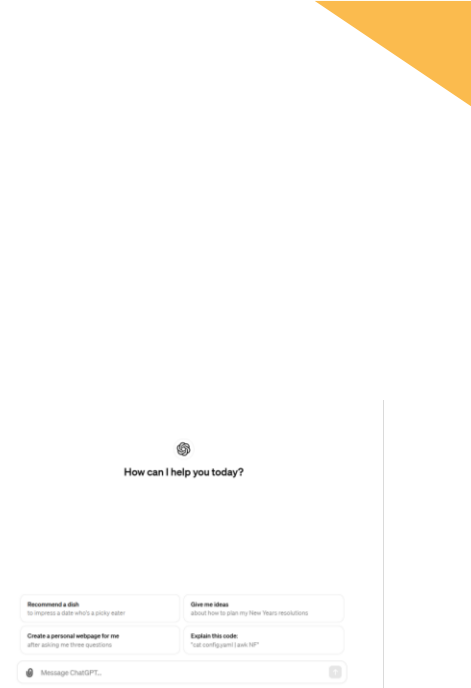
Llama 2

ANTHROPIC

Talk to
Claude

They learn **patterns** and **structures** from their *training* data and then use this to **generate** new data that is the most like what they've seen.

They've seen a lot – hence **Large** Language Models (**LLM's**)



How do they do this?

They generate by predicting – asking which of the many words has the highest probability of matching what they've seen.

They predict each dot on a photo; or words for language; or match words to soundwaves (for audio).

The most famous language models are 'tuned' to also be good at chatting (hence ChatGPT)

We use them by **"prompting"** them to give us an answer

The cat sat on the _____

So how can this help in education?

Explore many ideas for using AI across education systems on <https://ai-for-education.org>

Top Three AI Ideas

We've asked our community to tell us what's important to them – and we aim to prioritise development of the solutions that have the most potential. Here are the ideas that are most important to our community at this stage. We'd love you to make your voice heard too – browse ideas through our [Education System Diagram](#) or via the [Full List](#) and cast your vote!

Category	What is the issue?	Solution	Votes
Quality Teaching/ Learning Materials, Student Learning	In large classes, it is not possible for teachers to provide adequately differentiated tasks to all students.	AI can assess students' learning levels and then can generate tasks of appropriate challenge.	↑ 54 ↓
Quality Teaching/ Learning Materials	Not all schools have good quality resources that link learning objectives to the local cultural context.	AI can create learning resources that are relevant to the local cultural context.	↑ 35 ↓
Language of Instruction, Plan	Teachers may not be native speakers of the official language of instruction, meaning accessing planning materials is hard.	AI translation of teaching materials to improve access.	↑ 29 ↓

Gen-AI can help in many ways

Saves time

- AI lesson planning reduces the time teachers spend preparing lessons.
- Can automate marking using AI – image recognition or voice technologies to assess students as they read aloud.

Improved quality

- Adapt high quality resources to your context (languages or images).
- Can help teachers clarify concepts they may have forgotten.
- Adapt lessons/examples to children's previous answers.

Improved scalability

- Access on phones (e.g. chatbot to support teachers) enables wide adoption.
- Rapid integration of new national policies, curricula and best practices by automatically updating knowledge bases of LLMs.

But there are many challenges

The training data isn't specific to any one country

Bias in the training data means bias in outputs. Lots of work underway to integrate local information.

Costs

The best models are expensive, due to computing power.

Issues with LLMs in Education

Early stages of new technology

Most research in this area is still in its early stages, with limited large-scale deployments and studies

Ethical considerations

Issues like equitable access, algorithmic fairness, explainability, and student privacy need consideration.

Challenges for LLMs in Education

The models always give you an answer – even if they shouldn't

The models simply predict – somewhere someone has written $2+2 = 5$.

You should always fact check the outputs – especially where your situation is unique.

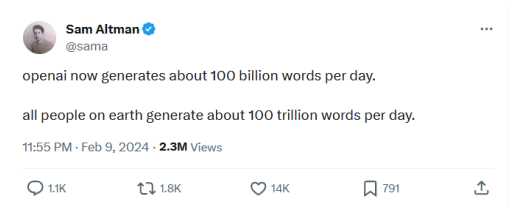
Conclusion

Gen-AI can potentially help with education tasks.

We are in the first part of the coming wave of innovation. How it will evolve is unclear.

Two key takeaways:

- AI means the costs of producing text has fallen massively. This has massive potential – but big risks if low quality.



- Never forget these models just predict – so you need good inputs to get good outputs.