Sea of Faith: In Conversation

The opportunities and challenges of teaching both science and religion in a [G]AI context'?

Paul Hopkins   Jan 19th, 2026

My Position

- Academic qualifications in Science and Theology
- Rooted in School Based Education
- Research into Technology enhanced learning
- Published on the interface between Science & Religion
- More recently interested in the place of G-AI

HI, my name is Paul **HOPKINS** - I have been working in the field of technology enhanced learning and RWE for over 30 years. I have become more and more interested in the last 3 years with the potential and pitfalls about Generative AI - some of you may have been here last year when introduced some of the ideas.

Friend or Foe?

Friend	Frenemy	Foe
Workload	Workload	
Creativity	Creativity	
Freedom	Humanity	
Assessment	Assessment	
Security	Security	
Personalisation	Environment	
Accessibility		

We need to consider the potential pros and cons for the use of G-AI (different to AI) in that classroom (or wider school situation) these are outlined about. We perhaps need to think of the tool as a "frenemy" neither good or bad and this will, of course, also be depending on the ways in which the tool is used.

AI and more recently **G-AI** is transforming many of the ways that **science is working** (as well as many other fields) - as a single example the use of **Alphafold** won the 2024 Nobel prize in Chemistry and data analysis and diagnosis in medicine is being transformed along with the growing use of AI and robotics. The development of tools to aid accessibility and assistive technologies is also like to change lives.

But there is also no doubt that the technology will also be **disruptive** (as we have seen with other technological changes) and so we do need to think about and manage the social, environmental, educational and ethical questions that gave arisen and are arising.

The key word here is **#nuance**. There are some very positive things about the use of the AI (GAI) tools and there are also some serious concerns especially around the LLMs training data (WIERD and GIGI issues) and the recursive **enshittification** (Cory Efram Doctorow) issues. The questions as about navigating pathways and looking at the nature of the discourse we are going to have in schools.

It's not what you do it's the way that you do it …

www.mmiweb.org.uk/gai

A key function of this is learning how best to use the **tool**, there are a number of key aspects to this and one if the key use of **prompt engineering**.

My own model is **PREP** but there are a wide range of frameworks for using G-AI with students (and others) but this does support the old computing adage GIGO - *Garbage In Garbage Out*

What does the Curriculum and Assessment Review say?

"The rise of artificial intelligence (AI) and trends in digital information demand heightened media literacy and critical thinking, as well as digital skills. Likewise, global social and environmental challenges require attention to scientific and cultural knowledge and skills. (p10)

… Our curriculum must equip young people for a world that is changing quickly. Rapid technological advancements, including the rise of Artificial Intelligence (AI), are likely to significantly change the way we work. (p.34)

Recent advancements in AI and generative AI have made digital literacy even more critical. While the long-term impact of AI remains uncertain, young people should understand how it works, its capabilities and its limitations. They should learn how to use AI effectively, without becoming dependent on it, and be engaged in the developing knowledge about both AI's strengths and limitations (p.38)

Generative artificial intelligence (AI) has further heightened concerns around the authenticity of some forms of non-exam assessment, making it increasingly difficult to ensure that submitted work is the student's own. It is right, therefore, that exams remain the principal form of assessment. However, AI risks must be balanced with the need for assessment methods that are most valid for a subject discipline. We encourage the DfE and Ofqual to continue working together to explore the range of assessment methods available whilst balancing the risks presented by AI (p.136)"

✓ Confirmed in the government response

The **Curriculum and Assessment Review** (Nov, 2025) issues some thoughts on the use of AI (G-AI) though interesting the final report was a little toned down compared to the draft. The government have responses and have accepted the findings - one disappointment (for me) was the lack of acknowledge of the need to consider assessment reform and the "battening down of the examination hatches"

Epistemological Questions

We need to consider some of the deeper **epistemological questions** that the use of G-AI and LLMs throws up - we can consider the definitions of knowledge that are being used by RE and Science (Ofsted models) and how these link to the use of G-AI but the undermining question is "what is the nature of knowledge in an G-AI world" this has been neglected in the information age by schools (you can just Google it!) - we do however, need to consider the impact on cognitive processes (later).

A new pedagogic model?
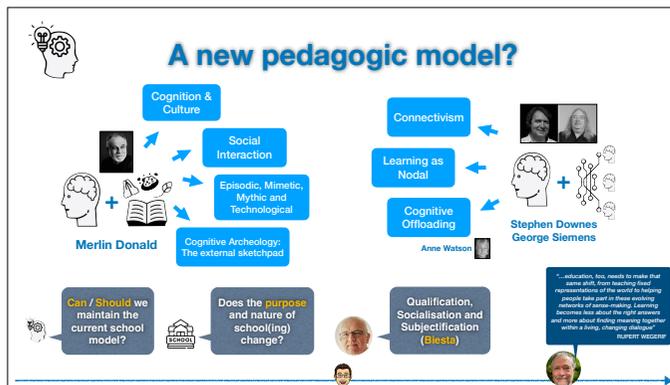
Merlin **Donald** explores the interaction between cognition and cultural artefacts and needs, cognition driven by societal needs e.g. working in groups, working with systems, working with the abstract and "unnecessary". We can think of four stage: **episodic**: characterised by a reliance on episodic memory, where information is remembered as personal experiences without much abstract or symbolic representation, **mimetic**: characterised by the evolution of the capability for mime or gesture leading to language; **mythic**: the advent of speech and language, allowing for the creation and transmission of complex narratives, myths, and cultural knowledge and **technological or theoretic**: the development of writing, scientific method and technology.

The use of externals as memory and as cognitive devices is essential in human development. **Downes** and **Siemens** see learning as a connected or nodal experience where knowledge is distributed across networks, and learning involves the ability to construct and navigate those networks, emphasising the importance of connections and digital technologies in the learning process. Anne **Watson** talks of the importance of "cognitive offloading" using external tools and strategies to reduce the cognitive load of a task, essentially outsourcing mental processes to external memory or tools - this can be as simple as pen and paper (a book offloads memory), a calculator or more complex technology.
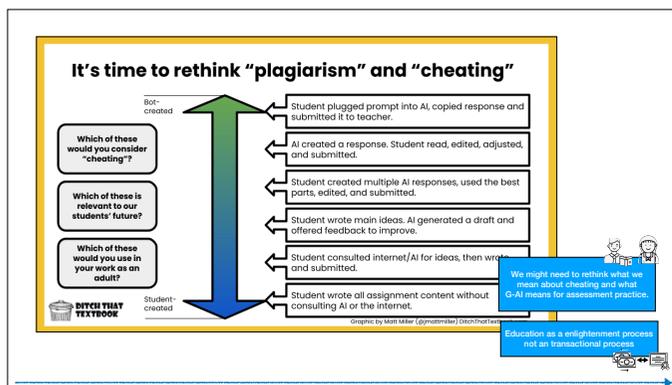
A core challenge that G-AI is offering to education / schooling is to the nature of assessment (and the metrics of success that are supported by this) and in what we might think of as cheating - again this is not new - some (still) think that using a calculator is 'cheating' or a spell-check etc… is collaboration with a colleague / friend cheating? Is looking something up in a book or on-line 'cheating' - how does G-AI change this narrative and what should be the response? It is disappointing as mentioned earlier that the CAS ignored and sidestepped this challenge.
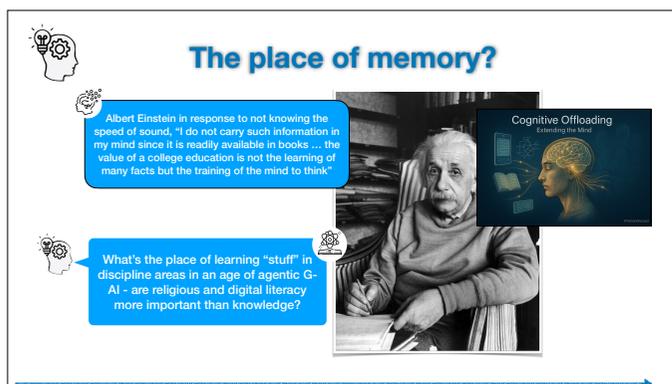

We have seen how Donald sees memory but in the last 20 years there has been an increased focus in education on the place of memory in learning. Willingham says that, *"memory is the residue of thought"* and the interrelationship between environment / stimulus, working memory and long-term memory sit at the heart of what is sometimes called the, *"science of learning"*. G-AI (as did the internet) questions these relationships and we need to consider the place of memorisation in a connected and agentic world.

The question is what is needed in terms of remembering in a technology enabled world - most of us remember only 1 (or a tiny number) of phone numbers - we trust the contacts app on our devices. Few would do long multiplication or division using a mental or even pen and pencil method but would reach for a calculator. We do not need to memorise the capitals or the world, or the winners of the FA cup as we can "Google them". How important is this? Is this damaging or reducing our cognitive abilities? Will this cause an atrophy of the brain in way the lack of exercise causes an atrophy of muscles?
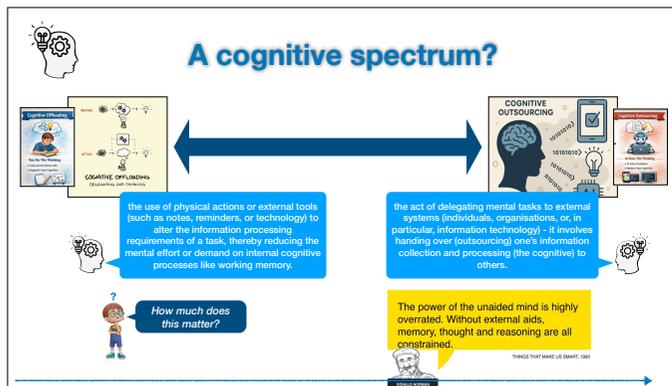
Looking at little deeper as this idea of cognitive decline or atrophy we can think of the use of G-AI (or any technology) on a spectrum of **cognitive offloading** - **cognitive outsourcing**. Discussion around this might be impacted by a range of things including purpose, tool, time, desire, ability, result etc…
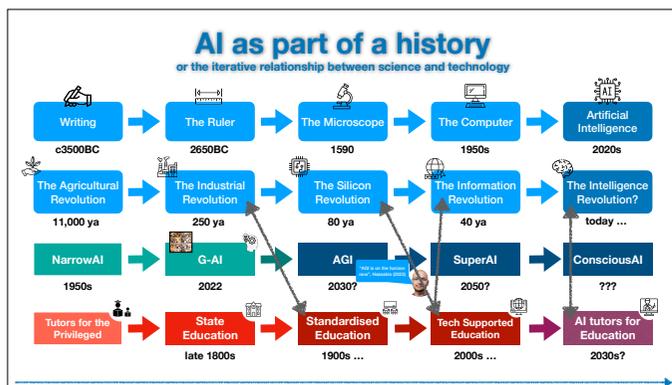
We should think of AI as a stage in the **history of the development of scientific thinking** as linked to the development of technology - science has often progressed with technological progression - each of the previous revolutions can be thought of as technology driven: the **agricultural** revolution with the pot and the plough, the **industrial** with the steam engine and electricity, the **silicon** with the semi-conductor and the **information** with the World Wide Web . We can also think of G-AI as a fifth revolution, the "**intelligence**" revolution. We should also keep in mind that G-AI is three years old (!) and we have a number of stages in the AI progression including AGI (human intelligence), SuperAI (all human intelligence) and conscious AI - at the moment only conscious AI is in serious doubt.

The pace of change
or is progress too quick for morality and reflection?

What do I *want* (G)AI to do?

What *can* (G)AI do?

What *should* (G)AI do?

The allies in liberating the death camps faced the ethical dilemma of what to do with the scientific data that had been collected.

There are concerns that the speed of (G)AI development is too fast for the legal, ethical and governance frameworks.

unesco
Artificial Intelligence & Emerging Technologies

https://www.unesco.org/en/artificial-intelligence/recommendation-ethics

There are questions to ask not just what can AI do but what we should do with it - this has been faced before in science … for example in artificial insemination, gene manipulation and "curing" of disabilities (deaf community). AI has moved so fast that the frameworks cannot keep up. **UNESCO** talks about four key values:

- Human Rights and Human Dignity,
- Living in Peaceful just and inter-connected societies,
- Ensuring diversity,
- Inclusiveness and Environmental and ecosystem flourishing.

UNESCO has ten core principles to the development of AI (Proportionality and do no harm, safety and security, right to privacy, multi-stakeholder governance, responsibility and accountability, transparency and explainability, Human Oversight and Determination, Sustainability, Awareness & Literacy and Fairness and non-discrimination).

A special place for RE in the discourse?

It's good at issues which involve controversy

There are epistemic questions around human-ness

There are values, ethics & moral questions

It's used to dealing with truth / authenticity claims

What do I *want* (G)AI to do?

What *can* (G)AI do?

What *should* (G)AI do?

Whilst the place of science seems obvious in the disclosure - not just the advantages that (G)AI is offering but also in the terms of the science of AI I would argue that the arrival of G-AI is a significant turning point in education - though maybe not as schools and HEIs have been pretty adapt at ignoring the changes of technology in a way that much of the rest of the world has not. However, I do think that RE and RWE teachers (along with PSHE / citizenship) will have some skills to help CYP navigate this new world order.

(1) RWE has a skill set to deal with issues of controversy

(2) RWE at its heart deals with the question "what does it mean to be human" (Turing Test) - nature of being - cognitive is not the only state of being.

(3) RWE has experience at dealing with questions of values, morality and ethicality (all subjects *should* but many do not)

(4) RWE deals with truth claims and aberrations / distortions from truth claims recognising the nuance in these - vital in a post G-AI world (Finland - fact checking: mis- information, dis- information and mal- information)

(5) RWE links to the idea of the mythic or truth not being simply factual but narrative or rooting in faith, belief and experience as well as the power of
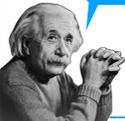
The **Einstein and Jay-Gould** quotes are important as they indicate that whilst the do not overlap - the "job" of science is to explore the possible and to measure and understand that possible - however without the temperance of 'religion' (and here I think we need to use the term to mean all systems of morality and ethics including those of secular morality) there is the danger of harm, cruelty, inhumanity that we have seen throughout history - there is some truth in the statement "guns do not kill people, people kill people".

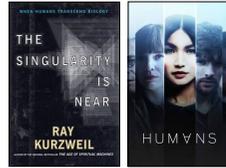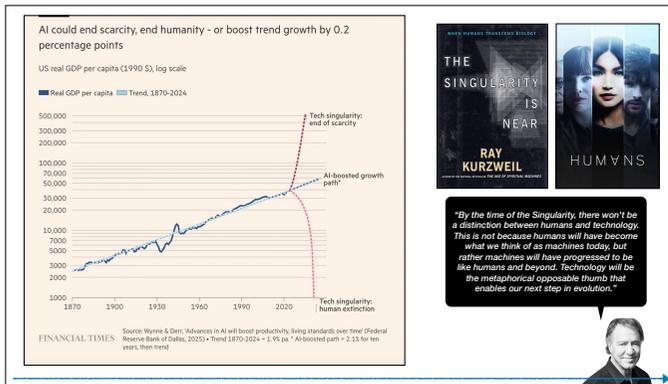So, where are we headed in tears of schooling? The industrial revolution was responsible for the school model we have today (some would argue that this is a very industrialised model) the silicon and information revolutions have had little impact on school structures or processes - will the intelligence revolution?

Ray **Kurweil** published the singularity is near in 2005 (and the singularity is nearer in 2024. There are still many questions about the place of AI some utopian, some dystopian - and Science Fiction has been full of such questions for a while.

Stuart **Russell** - professor of AI at Berkley (California).

The **first principle** says that the machine's only purpose is the realisation of human preferences, so this principle would include the fact that human beings in the long run do not want to be enfeebled. They don't want to be overly dependent on machines to the extent that they lose their own capabilities and their own autonomy and so on. A properly designed machine would only intervene to the extent that human autonomy is preserved. And so sometimes it would say, "No, I'm not going to help you tie your shoelaces. You have to tie your shoelaces yourself" just as parents do at some point with the child.

The **second principle** there as is if machines are certain about the objective, then you get all these undesirable consequences: the paperclip optimiser, et cetera. Where the machine pursues its objective in an optimal fashion, regardless of anything we might say. So we can say, you know, "Stop, you're destroying the world"! And the machine says, "But I'm just carrying out the optimal plan for the objective that's put in me". And the machine doesn't have to be thinking, "Okay, well the human put these orders into me; what are they"? It's just the objective is the constitution of the machine.

The **third principle** is that It's just absolutely completely natural for human beings to interpret our perceptions in terms of purpose. In conversation, you're always trying to figure out "Why is someone saying that"? Are they asking me a question? Is it a rhetorical question? (***Stop the world I want to get off!***) It's so natural, it's subconscious a lot of the time. So there are many different forms of interaction that could take place that would provide information to machines about human preferences.

https://80000hours.org/podcast/episodes/stuart-russell-human-compatible-ai/#:~:text= The principle says that the,standard model doesn't care

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Questions / Reflections?

"Any teacher who can be replaced by a machine should be"

So, where does this leave (i) you, (ii) your institution (iii) the Science and RWE communities (iv) all of us?

You can find more (school-based) at this link including some case studies of usage in more details and some further links for reading and support. If you would like to have me come and talk at your institution about this then please contact me.