

Critical Creativity and AI

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AI IN ACTION, UQSCHOOLSNET
22 APRIL 2026

This has always been a place of learning.

The University of Queensland acknowledges the Traditional Owners and Custodians of the lands on which we meet.

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society.



I am not here to provide answers.

I am here to ask questions,
and to give you new things to think about.

You know your own classrooms best.
Take what works and leave the rest.

We don't need to overhaul –
we can reframe.

We must be realistic about
what we can and can't do in the classroom.

Tools and access levels constantly change.
How can we maintain stability?



Revisiting computer authorship: a longitudinal perspective

Leah Henrickson¹ · Leo Leppänen²

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Abstract

Despite the proliferation of computer-generated texts, the concept of AI authorship remains ambiguous. This paper investigates evolving public perceptions of authorship pertaining to computer-generated texts through review of an international survey distributed in 2024/2025. Comparing results of this survey to those from the same survey distributed in 2017/2018, this paper offers what we believe to be the only longitudinal empirical consideration of AI authorship pre- and post-LLM boom. Even with dramatic technological advancements in natural language generation, this study suggests that societal understandings of authorship have only seen minor change since the survey's first distribution. Participants continue to hold ambivalent opinions of AI authorship, perhaps partly due to the cultural and historical weight of the term 'authorship' itself. This ambivalence raises broader questions about the persistent usage of 'authorship' as a default term for describing computational text production. Through an interdisciplinary analysis represented by humanities and computational researchers, merging both quantitative and qualitative data, this paper interrogates whether the concept of authorship remains viable in discussions of computer-generated texts via feedback from survey participants.

Keywords Authorship · Natural language generation · Artificial intelligence · Longitudinal data · Survey

1 Introduction

Artificial intelligence has always been right around the corner in more ways than one. For example, when the subfield of computer science was first identified in the mid-1950s, the—in hindsight, rather optimistic—expectation was that “significant advance [could] be made [...] if a carefully selected group of scientists work on it together for a summer” (McCarthy et al. 2006). In the following seven decades, the field has seen plenty of ups and downs, including several ‘AI winters’, wherein highly public failures to meet overly positive expectations resulted in massive funding cuts (Russell and Norvig 2003: 21–24). At the same time, as famously noted by Douglas Hofstadter in the 1970s, whenever advances in AI allow for some new task to be completed automatically, the general perception tends to shift so that the task is no longer viewed as requiring intelligence; real

‘artificial intelligence’ is always almost within reach, and whatever we can do now is mere computation (Hofstadter 1999: 601). Examples of this ‘AI Effect’ include many computational tasks classically thought of as AI problems, but which very few—especially amongst the general public—would today be characterised as ‘AI’, such as email spam filtering and spell checking.

Against these two observations, the changing discussions in the wake of recent advances in producing natural (i.e., human) language texts that appear coherent are curious. A technological method called large language models (LLMs; see, e.g., Devlin et al. 2019; Radford et al. 2019) has again brought AI into the limelight, going so far as to shift the casual parlance definition of AI into near-synonymy with ChatGPT (Schulman et al. 2022) and the names of other generative AI systems. Some go as far as claiming that these new tools will revolutionise everything in our lives, and they will—any day now—reach a level where we will view them as conscious in the same way humans are. Many of the world's largest technology companies are currently working towards such artificial general intelligence (AGI). ChatGPT's parent company OpenAI is one of the most prominent proponents of AGI, claiming that “[w]e can imagine a world in which humanity flourishes to a degree that is probably

was for many not enough to justify a claim to authorship, but contributions to text production could be recognised through different titles specific to the kind of contribution (e.g., translator). All of these points are intertwined with one another. Authorship matters because it is about more than just who produced a work. Authorship matters because it acknowledges the extensive social, political, and economic networks that producers exist within and perpetuate. Authorship matters because readers' understandings of how a text has been produced may influence those readers' interpretations of that text's content, authority, and legitimacy (Formosa et al. 2024). As our study results show, though, these understandings may also be informed by a reader's demographic profile. Perceptions of algorithmic authorship may be subjective and difficult to wholly capture, but this does not mean that they are not worth considering; these perceptions have very real consequences for the ways in which computer-generated texts are received and accepted—or not.

5.1 Limitations and future work

As any study, this one comes with limitations. For one, our population of respondents is far from being demographically representative of even any Western nation, never mind the global population. Our respondents are generally young adults (for certain values of ‘young’), female, very highly educated, and English-speaking. A psychologist might call our sample WEIRD (Western, Educated, Industrial, Rich and Democratic; Henrich et al. 2010). We also observed statistically significant differences between the population of the present survey and the 2018 survey, even if we personally do not view these as meaningful enough to significantly affect our conclusions. All told, we caution the reader from

6 Conclusion

The study documented herein makes one thing very clear: that perceptions of AI authorship are hardly clear at all. As in 2018, participants of our 2025 survey varied in their understandings of what constituted an ‘author’, and who or what might be deemed an ‘author’ of a computer-generated text. While some quantitative results were statistically significant, participants showed continued ambivalence towards attributing specific authorship to a computer-generated text. In their qualitative comments, participants revealed their concerns (or, in some cases, lack thereof) about attributing authorship to an AI system, and shared questions and comments indicating their awareness of the complexities of both computational text production and authorship more generally. Of course, qualitative comments cannot be taken as the entirely authoritative source of participants' perceptions; just because participants do not include an idea in their commentary does not mean that they are not thinking about that idea. Nevertheless, in this paper we have compared two sets of results—one from 2018 and another from 2025—that show that although sociotechnical circumstances have changed substantially, participants' perceptions of authorship of computer-generated texts have changed much less so. What this suggests is that ‘authorship’ may not—and perhaps has never been—the most appropriate word to summarise computational text production through natural language generation. ‘Authorship’ may be too evocative, too deeply enmeshed in long-standing cultural imaginaries. However, these cultural imaginaries have themselves been convoluted, with ‘authorship’ meaning different things to different people across different times. As a result of its present and historical complexity, ‘authorship’ as used in discussions of

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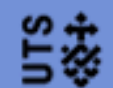
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Artificial intelligence, cognitive offloading and implications for education

March 2026

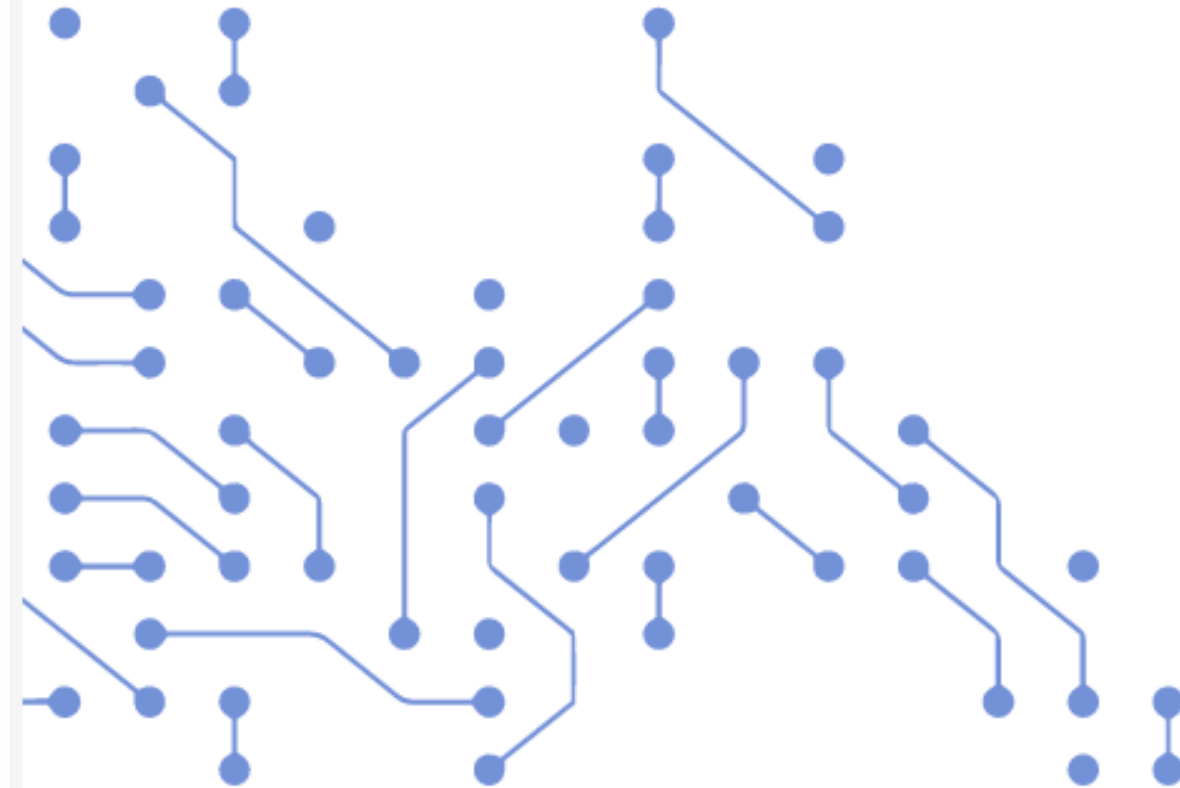
Prof Jason M. Lodge and Prof Leslie Loble AM



Centre for
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Education

The true educational risk of AI is not simply that students will use it to cheat on an essay. The far more profound risk is that AI may fundamentally interfere with the cognitive processes of knowledge construction and verification, the very processes that build the long term memory stores and subsequent skills upon which the majority of critical thinking depends.



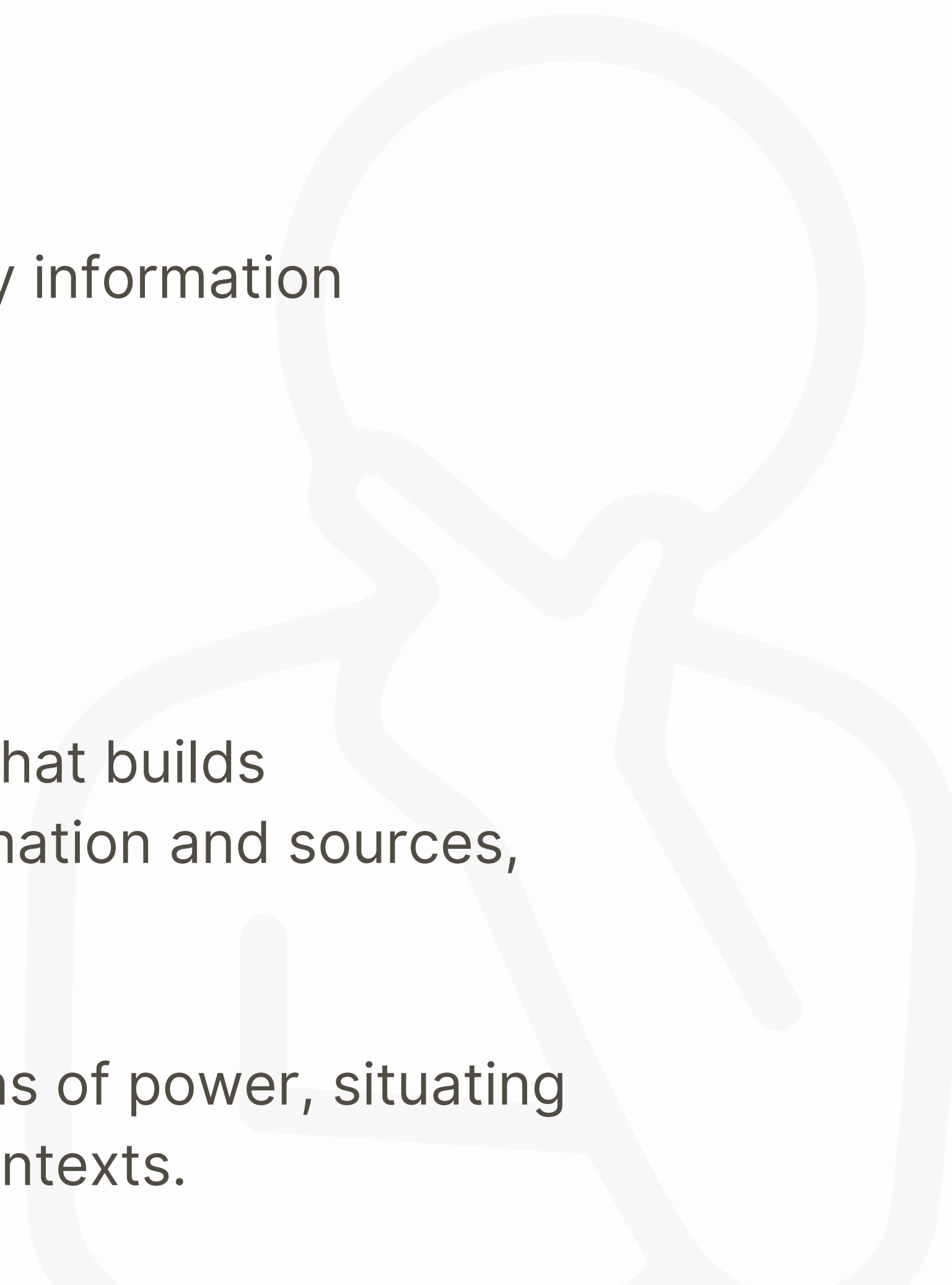
FUNCTIONAL

Being able to understand, assess, and apply information for the effective completion of tasks.

CRITICAL

Being able to undertake 'good' thinking (?) that builds arguments, reflects on and evaluates information and sources, and doesn't rush to conclusions.

But also, giving attention to *critical* questions of power, situating information and sources their respective contexts.



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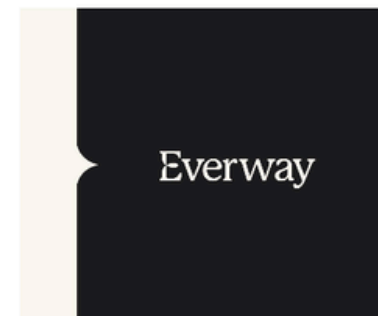


Dr Luke Zaphir

This webinar explored the practical, ethical, and creative impacts of artificial intelligence in education, examining how AI can enhance teaching and learning while also addressing its challenges, misconceptions, and responsible use in classrooms.

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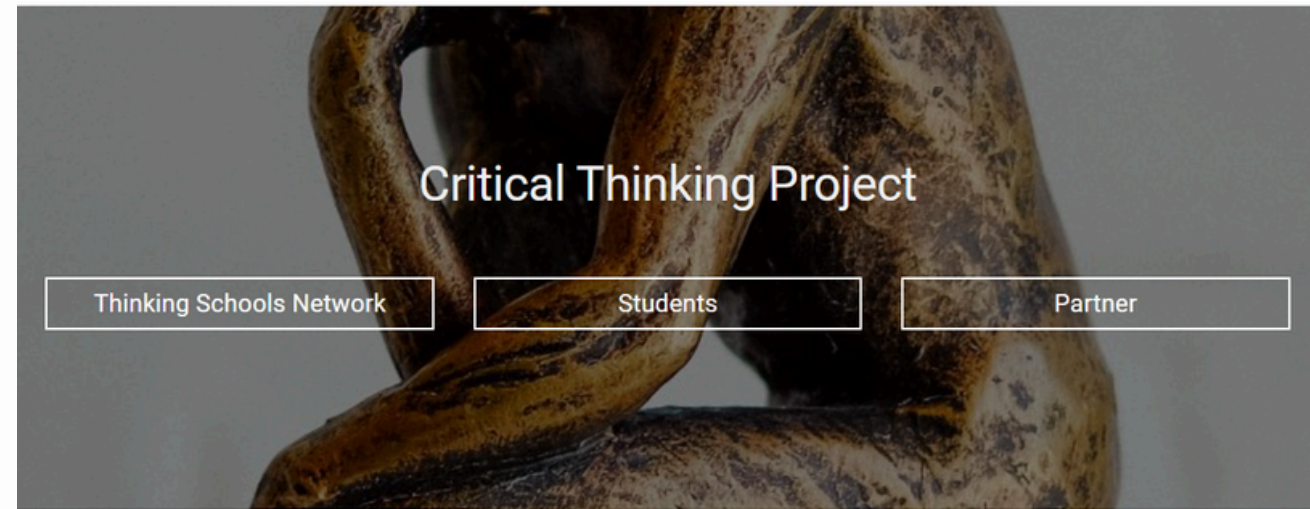
Amber Kaiwi

This webinar explored the neurodiverse nature of learning and how Everway supports diverse learners within inclusive education environments, including how the platform fits within the broader landscape of inclusive ed-tech and assistive learning support.

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WRIT1999 (2025) EOI

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News

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Welcoming 94 students onto campus for WRIT1999.

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Making outstanding contributions to student learning


19 March 2021



What happened to creativity in the classroom?

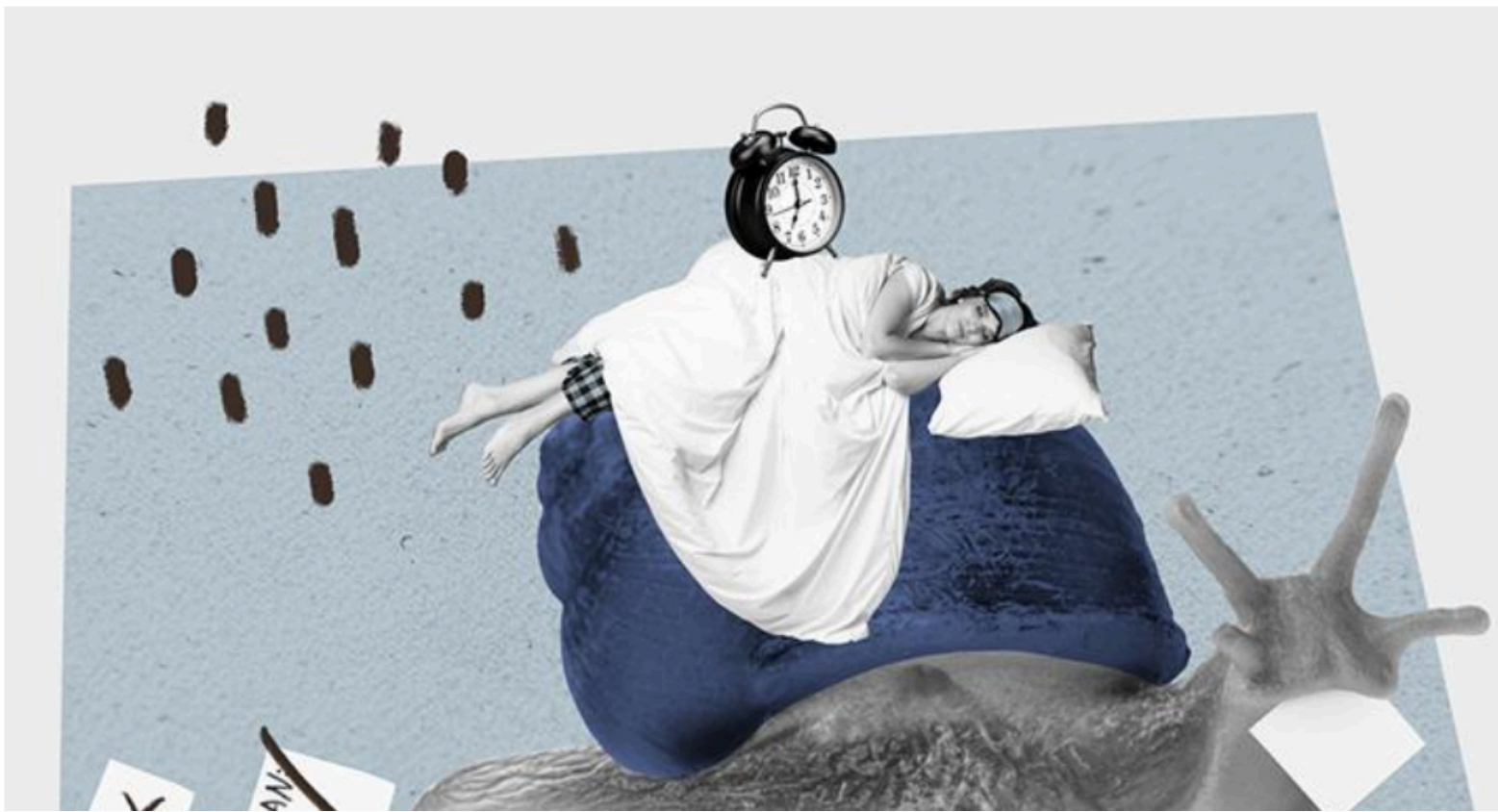
When generative AI leads 150 students to submit the same 'creative' work, something is afoot in arts and humanities education. Here, Leah Henrickson and Luke Zaphir turn insights from cognitive science into ways to use AI to boost students' creativity

Artificial intelligence in higher education Higher education pedagogy Feature article Oceania

 Leah Henrickson, Luke Zaphir
The University of Queensland

🕒 30 Oct 2025 🔗

Top of page Main text More on this topic



What do we want students to do in the classroom?

Creativity matters in the classroom because it supports the development of our students' identities. To be authentically themselves, they must own their unique imaginations and perspectives, and creativity fosters both.

If students are to reach "novel, surprising, and valuable" ideas, they **must first embrace the unknown**. And the unknown can be uncomfortable, messy and abrasive. Plus, teachers can also be uncomfortable with the unknown. But creativity can help us all **constructively explore bewilderment** together because there's a symbiotic relationship between creative thinking and critical thinking. A creative thinker considers imaginative possibilities, and the critical thinker discerns and refines them. Our **learning activities and assessments** must account for how students will use GenAI and how this use will affect their creativity. We want students to view AI as a tool that augments their creative thinking, rather than replaces it.

Here are a few ideas on how to do this, based on Boden's threefold structure for novelty. The prompts we suggest all **use GenAI as a partner** for supporting creative process over production efficiency. We see **GenAI as a catalyst of inspiration** that can help students revel in the creative process rather than merely speeding it up.

A creative idea is 'one which is novel, surprising, and valuable (interesting, useful, beautiful...')

'Novelty' comes about through:

- (1) fresh combinations of familiar ideas,
- (2) exploring and tweaking existing ideas, or
- (3) transforming one or more dimensions of those existing ideas.



1. Fresh combinations of familiar ideas (combinational novelty)

Example:

An AI system that combines **weather forecasting models** with **classical music composition** to generate soundscapes that sonify tomorrow's local forecast (e.g. rising temperatures mapped to pitch, wind speed to tempo).

Why this counts:

- Weather models and music composition are well-established domains.
- The novelty comes from *connecting* them in an unexpected way.
- AI enables the combination at scale and in real time, but does not fundamentally change either domain.

Where we see this:

- AI-generated art blending scientific data + artistic forms
- Multimodal models combining text, images, sound, and data streams

2. Exploring and tweaking existing ideas (exploratory novelty)

Example:

A large language model used by legal scholars to explore *plausible but currently untested interpretations* of existing case law by systematically varying precedents, jurisdictions, or argumentative framings.

Why this counts:

- The **conceptual space of legal reasoning already exists**.
- AI explores that space more thoroughly and rapidly than humans typically can.
- It generates *new instances* of arguments, not a new legal system.

Where we see this:

- AI-assisted scientific hypothesis generation within known theories
- Code-completion tools proposing variations on established programming patterns
- Architectural generative design constrained by known materials and rules

3. Transforming one or more dimensions of existing ideas (transformational novelty)

Example:

AI-driven **protein structure prediction** (e.g. systems like AlphaFold) that transforms biology from a primarily *experimental* process into one where **structure can be computationally predicted at scale**, reshaping how research itself is organised.

Why this counts:

- The *rules of the creative space* are altered, not just explored.
- What was once slow, costly, and uncertain becomes computational and routine.
- Entire research workflows, funding priorities, and epistemic assumptions shift.

Where we see this:

- Generative AI changing what "writing" or "illustration" means
- Automated discovery systems redefining scientific practice
- AI agents that act autonomously rather than merely responding to prompts

A **critical creativity** studies then would raise issues of how power-structures affect creativity; would celebrate the creativity of marginalized individuals and unsuitable or illicit creativity; would continuously stay alert to the possibility of alternative forms of creativity; would expose the propagandistic and ideological uses of creativity; would critique managerialist uses and corporate misuses of creativity, just to mention a few new openings.

By doing so, a critical creativity studies could develop our understanding of how creativity affects contemporary society both through its own functioning and in being marshalled by other societal forces (such as institutional, political, or corporate ones).



PERSPECTIVE

Critical Making: Conceptual and Material Studies in Technology and Social Life

Matt Ratto

Faculty of Information, University of Toronto, Toronto, Ontario, Canada

This article provides an overview of a series of experiments in what the author calls *critical making*, a mode of materially productive engagement that is intended to bridge the gap between creative physical and conceptual exploration. Although they share much in common with forms of design and art practice, the goal of these events is primarily focused on using material production—making things—as part of an explicit practice of concept elaboration within the social study of technology.

Keywords information technology, innovation, making, social theory

The article is organized into three sections. In the first section I describe the origins of the project and its connections to similar modes of material/conceptual engagement, including critical design and constructivist pedagogies. Ultimately, while noting similarities to these modes of practice, I see the intention of critical making projects as somewhat different in its explicit mappings between scholarly research on critical social issues and design methodologies and its intention of furthering critical knowledge

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This article and the events that it summarizes would not have happened without the help of a number of people. The author thanks Bronac Ferran and the RCA/Imperial “Systems of Learning” colloquia series for their invitation to present and willingness to entertain a nonstandard and untried format. He would also like to thank Virtuel Platform, director Floor de Spaendonck, program manager Annet Dekker, and project manager Annette Wolfsberger for their support of the Flwr Pwr workshop. Finally, Stephen Hockema’s conceptual insights and technical work have been invaluable for this project. Without the author’s ongoing conversations with him, critical making would not be possible.

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through joint material production. In the second section, I provide more details about critical making as a specific research and pedagogical strategy, examining its origins in a series of conference workshops that I held in Amsterdam and London. Through these empirical examples I describe some of the challenges and successes that I have had, and, in particular, the role of experience and investment in making critical knowledge relevant. In the third section, I describe more generally some of the reasons critical making provides a necessary adjunct to current and future critical research on computing technologies and lay out a tentative theoretical framework for organizing and relating its results to wider scholarly work. Finally, I end by reflecting on the connections between criticality and innovation, tentatively suggesting that these modes of engagement are more similar than have traditionally been thought.







ORIGINS OF CRITICAL MAKING


“Go and look again at the roses. You will understand now that yours is unique in all the world. Then come back to say goodbye to me, and I will make you a present of a secret.”



The little prince went away, to look again at the roses. (Saint Exupery 1971, 86)

Studying the relationship between technologies and social life has proven to be a somewhat difficult task. On the one hand, critical social scholars have long argued that technological developments inhibit human action, “technicizing the life-world” and causing the diversity of human behaviors to be reduced to the ordered circuits and pathways of some sort of gigantic machine. (Marcuse 1941, 1964; Ellul 1964). On the other hand, other theorists have described technologies as essentially liberating, using, in particular, developments in information technology to support their arguments (Gilder 1989; Mitchell 1996). Recent scholarship in interdisciplinary fields such as science and

On constructive bewilderment: Using special collections material for teaching digital practices

Leah Henrickson ^a  , Benjamin Hall ^b  , Timothy Procter ^c  


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Abstract

This paper outlines an example of Special Collections materials being used to support master's-level students' data and digital skills development. It evidences positive student learning outcomes through an unconventional interdepartmental collaboration between a digital media teaching team and Special Collections staff, which combined digital practices and tangible Special Collections material. This paper outlines the readings used for the course under review, the assignments used to evaluate students, student experiences of those assignments, and staff observations of student success and the logistics of course delivery. Findings show that in completing their assignments students (a) negotiated uncertainty; (b) increased understandings of data and digital methods; (c) embraced the lifeworlds of data; and (d) blurred the boundaries of analog and digital. More generally, this work finds that Special Collections material can be effectively used to support data and digital skills development, as well as help students gain broader understandings of digital contexts and media. Value is, however, dependent upon embracing uncertainty: something that universities tend to avoid. But, as is shown, staff and students alike can thrive in states of bewilderment.

You are an old man in a cave: The authenticity of vagueness

Leah Henrickson 

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ABSTRACT

As digital cultures and technologies transform rapidly, educators need to consider how to enable students to confront uncertain futures. The pedagogical approach championed in this paper embraces “not-knowing” and is exemplified by an intentionally vague assessment given to digital storytelling students. The assignment asks students to create digital stories in any format, fostering exploration and self-directed learning. Assessments such as this can help equip students with critical thinking and communication skills by allowing them to develop their own personal voices and tackle unstructured, real-world problems. Reflecting on the benefits of uncertainty in pedagogy, the paper critiques conventional “authentic assessments” as overly focused on professional preparation. It proposes that true “authenticity” lies in cultivating curiosity, self-reliance, and adaptability to future challenges.

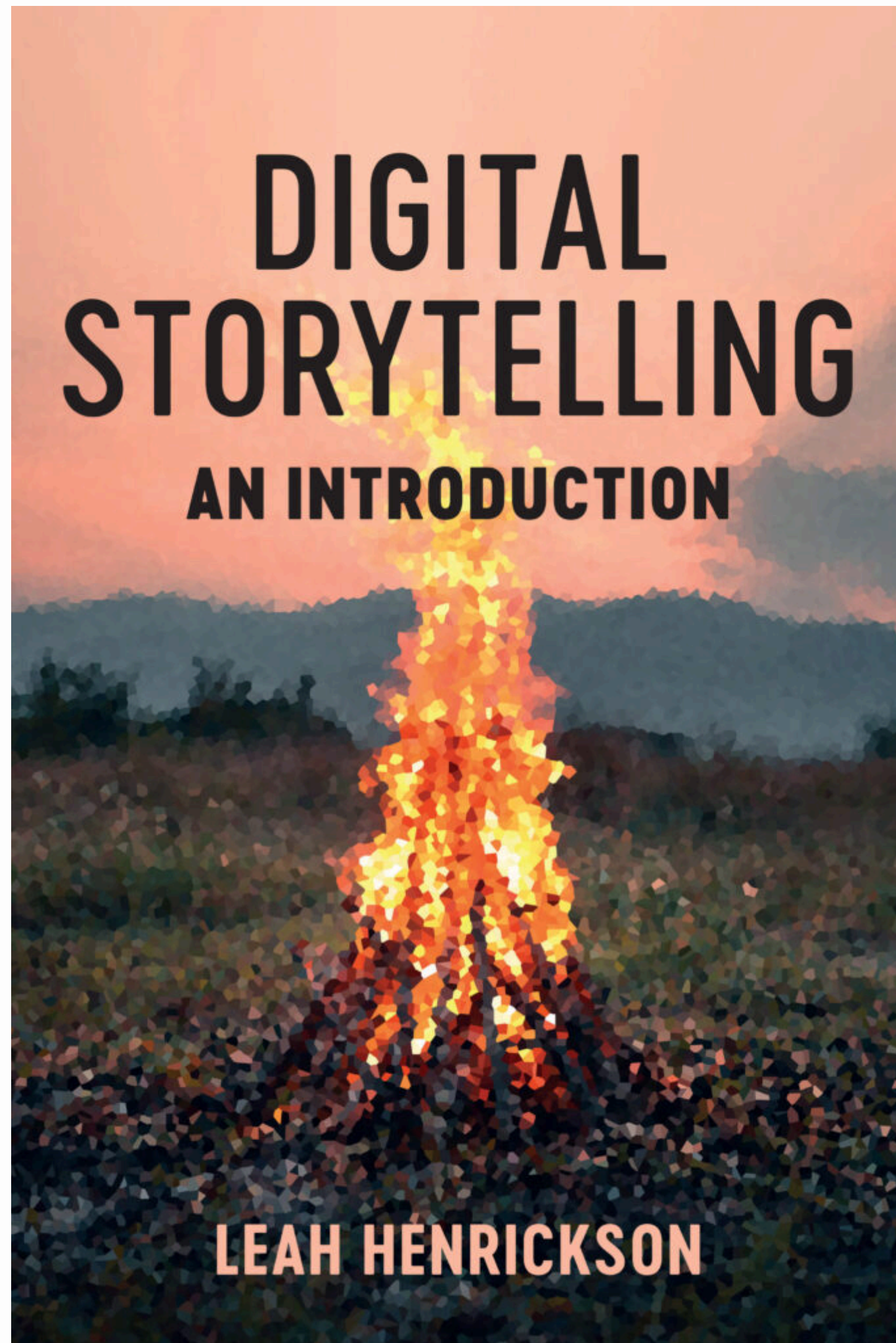
ARTICLE HISTORY

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Introduction

The popular 1986 video game *The Legend of Zelda* begins in a cave. An old man stands between two flames and behind a sword. He, the flames, and the sword are all that is in the room when protagonist Link enters. “IT’S DANGEROUS TO GO ALONE! TAKE THIS,” the old man insists, with no further explanation. When the player moves Link forward, Link picks up the sword and triumphantly raises it above his head. The old man disappears, but the flames remain. Link leaves the room and almost immediately starts using the sword to defeat any enemies that stand in his way of restoring peace to the land of Hyrule, which has been overrun by chaos.

The old man is necessary for Link to succeed in, and even start, his quest. Without the sword that the old man provides, Link would be quickly defeated. Later in the game, Link upgrades his sword to a better model, which is likewise given to him by an old man (presumably the same as the first), in another flame-lit cave. “MASTER USING IT AND YOU CAN HAVE THIS,” ambiguously declares the old man, who again disappears as soon as Link grabs the sword. The old man is pivotal for Link’s progression, but he imparts limited wisdom, instead leaving Link to determine what to do next. We don’t



1. Fresh combinations of familiar ideas

Suggested prompt: Suggest two random things that don't seem to have anything to do with [insert topic here].

The goal is to rethink the topic using metaphor or juxtaposition. When we prompted Microsoft's Copilot to suggest things that were seemingly irrelevant to media studies, for example, it gave us "snail hibernation" and "the physics of knitting". These kinds of output support wild combinations that allow for new ways of imagining topics – though we still need to alter, adapt and refine these ideas. Our possibilities grow larger as a result of thinking differently about what we think we already know.

2. Explore and tweak ideas

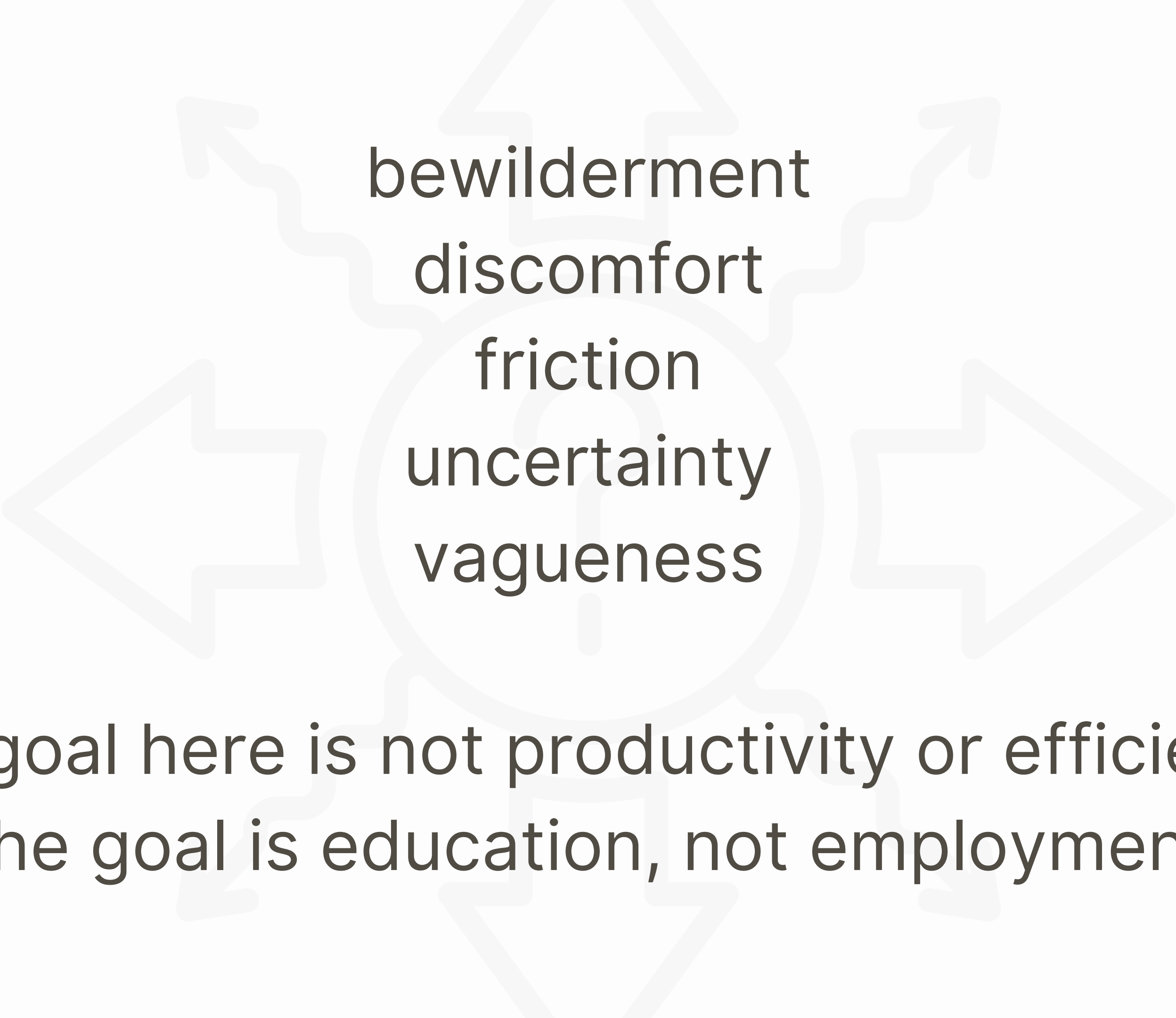
Suggested prompt: Ask me a series of unhinged "what if" questions about [insert topic here].

When released from conventional behaviour or thinking patterns, true novelty can emerge. We prompted OpenAI's ChatGPT to generate a series of "unhinged" questions about human nature. The response included dark, humorous and thought-provoking questions like: "What if humans had to duel to the death over who gets to keep a memory and forgetting wasn't decay, but theft?" These possibilities wouldn't be directly useful for writing an essay, but they could create spaces for us to think more imaginatively and creatively about how we might explain and apply concepts. They could encourage us to more deeply understand the nuances of our topic or evaluate which alternatives are plausible and which are not.

3. Transform one or more dimensions of those ideas

Suggested prompt: Provide five absurd constraints that should not be applied to [insert topic here].

GenAI works via a predictive algorithm; output is generated according to its likelihood of relevance to the input. By providing an absurd response but also a negative "should not" constraint, output shows ideas that would usually be excluded. We used this prompt with Google's Gemini, asking for constraints related to universal basic income (UBI). Indeed, "mandating that UBI recipients only spend the money on artisanal mustard" should not be applied, but the suggestion got us thinking about whether or not there should be conditions on UBI spending, and what such conditions would be if governments were to implement them. This was a fresh opportunity to examine and transform our own values by using this bizarre context.



bewilderment
discomfort
friction
uncertainty
vagueness

The goal here is not productivity or efficiency.
The goal is education, not employment.

The performance paradox is also aligned with the ongoing discussion since the emergence of ChatGPT that learning is both a process and the outcome of that process (as per Soderstrom & Bjork 2015). Determining the quality of student learning based on the outputs alone is a significant reason why AI has created a fundamental risk to many of the most common assessment tasks assigned to students (Lodge et al. 2023a). The performance paradox is therefore a critical consideration for learning, curriculum and assessment.

Unpacking the paradox: Bypassing “desirable difficulties”

The performance paradox is explained by the cognitive mechanism of desirable difficulties (Bjork & Bjork 2015). Learning is not meant to be effortless. Durable, long-term learning requires a degree of cognitive effort or desirable difficulty (de Bruin et al. 2023). Difficulties and challenges are fundamental to high-quality learning in many contexts (for review, see Lodge et al. 2018). The Start and Stick to Desirable Difficulties (S2D2) framework provides the theoretical basis for *why* students must invest this effort, which AI may encourage students to bypass, to the detriment of their long-term learning (de Bruin et al. 2023).

The temptation to cut corners in learning is not new. Research on academic integrity, mainly in the higher education context (e.g. Ellis & Murdoch 2024), demonstrates that many students have the best of intentions for their studies. However, when put under pressure or when other activities are prioritised, the temptation to outsource becomes too much for many students. This temptation is further exacerbated by the previously mentioned finding that humans generally find the work of learning or thinking to be a negative experience (David et al. 2024).

A 2025 classroom study by Duplice provides a perfect non-AI baseline: the generation effect. Students who were forced to *generate* a vocabulary word from a cue (a desirable difficulty) had significantly better long-term vocabulary retention than those who simply passively reviewed the word (Duplice 2025). This provides a direct, mechanistic explanation for the harm observed by Bastani et al. (2025).

AI, when used as an answer oracle, is the ultimate *passive review* tool. It allows the learner to bypass the generation effect entirely. **By providing the answer, the solution, or the essay, it robs the learner of the very cognitive struggle that is necessary to build lasting knowledge.** For novice learners, this tendency can lead to an exacerbation of the well-known Dunning-Kruger effect, where people tend to vastly overestimate their level of knowledge, particularly in new, unfamiliar domains (Kruger & Dunning 1999).

The link from this detrimental offloading to the erosion of critical thinking has been empirically demonstrated. A 2025 quantitative study by Ejaz et al. (n=350) found a significant *negative* correlation between frequent AI use and critical thinking skills. Furthermore, this research team found a strong *positive* correlation between *higher* cognitive load and *better* critical thinking skills, providing direct empirical support for the desirable difficulties framework and its application to learning with AI (Ejaz et al. 2025).

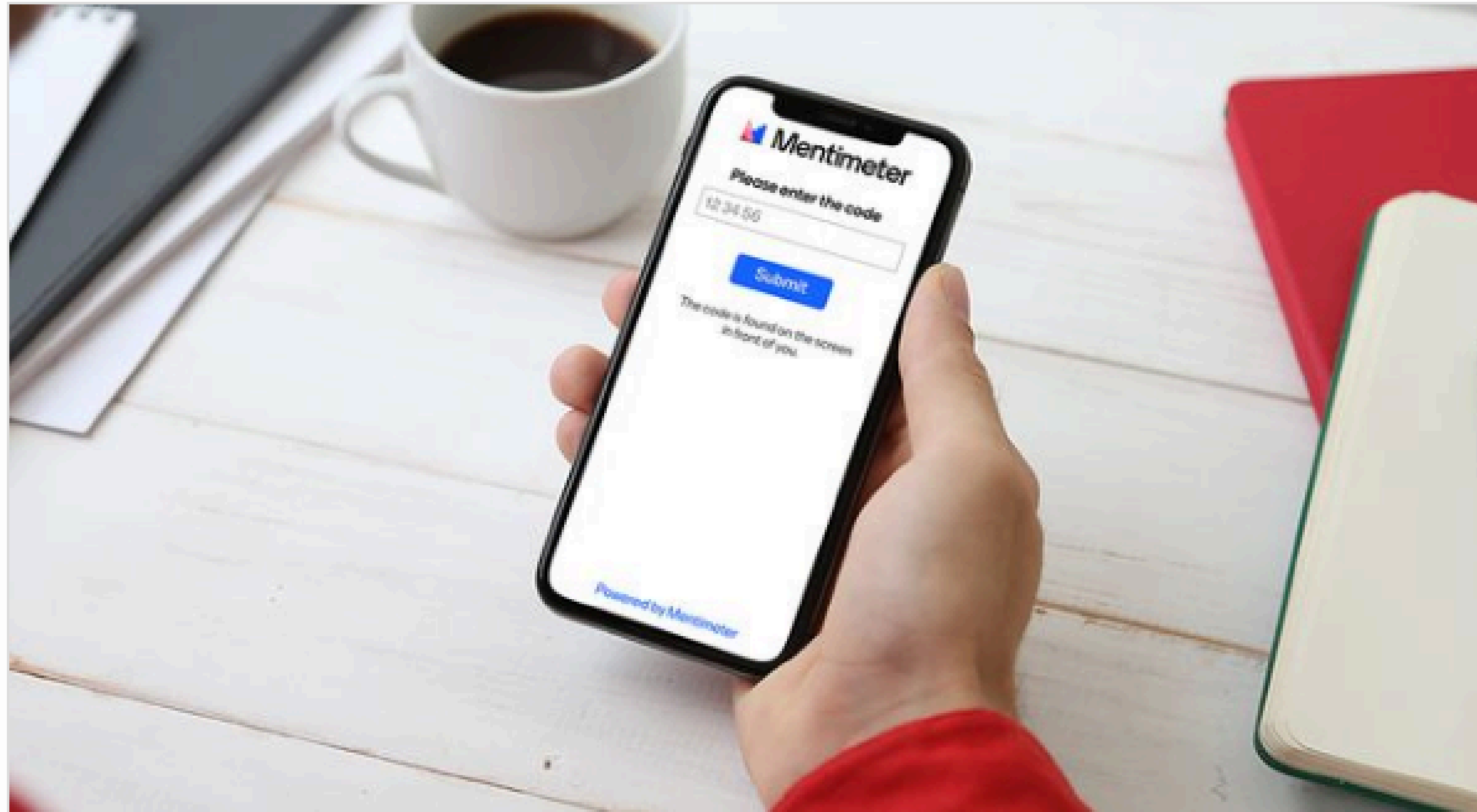
The lower cognitive load reported by frequent AI users (Ejaz et al. 2025) is not beneficial; it is *detrimental*, as it likely signals that the essential intrinsic processing has been bypassed. This was predicted by pre-2022 research, which found that cognitive offloading was boosting immediate performance but diminishing longer-term learning and memory (Grinschgl et al. 2021).

AI, when used as an answer oracle, is the ultimate *passive review* tool. It allows the learner to bypass the generation effect entirely. **By providing the answer, the solution, or the essay, it robs the learner of the very cognitive struggle that is necessary to build lasting knowledge.** For novice learners, this tendency can lead to an exacerbation of the well-known Dunning-Kruger effect, where people tend to vastly overestimate their level of knowledge, particularly in new, unfamiliar domains (Kruger & Dunning 1999).

Is use of AI the best way to
(safely) induce cognitive struggle?

How can we critically create with AI?
How can we critically create *about* AI?

We have limited time, but time is what we need.
How can we ensure sure that
we're using our time well?



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Critical Creativity and AI

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