Overreliance on AI could stifle creativity and cause 'brain rot', but when used wisely, AI will boost innovation,' leading experts reveal

- **"While AI amplify human creativity, if it is used to replace thinking, it risks diminishing cognitive abilities," argues Professor Ahmed-Kristensen, from DIGIT Lab, the UK's national centre for digital innovation**

- **"Humans learn through experimentation and innovation and failure, if we skip these processes, we leave ourselves underprepared and unarmed"**

NEWS, London, [2nd February]: As LLMs like ChatGPT flood workplaces, classrooms and even our personal lives, concerns are growing around whether these AI systems are actually boosting productivity, or dulling human creativity and causing 'brain rot'. Actor and filmmaker Ben Affleck has recently weighed in, arguing that current AI can only imitate, not innovate, raising concerns about the quality of work generated by AI, but also its ability to truly emotionally resonate.

Whilst AI promises unprecedented convenience, **DIGIT Lab**, a UKRI-funded national centre for next stage digital economy research, argues that this may come with a potential hidden cost: our capacity for creative and critical thinking. Yet, DIGIT Lab asserts the risk isn't the technology itself, but rather *how* and *why* it's used.

"*Overreliance on LLMs without human expertise and critical thinking could lead to unexpected cognitive consequences for creatives,"* warns **Professor Ahmed-Kristensen**, Director of DIGIT Lab and a leading researcher in digital innovation with over 20 years' experience studying the intersection of technology, creativity, and human cognition.

"AI is a powerful tool. However, when used to replace the act of creative thinking, we risk eroding the neural and cognitive processes that enable originality, problem-solving and critical thought. The challenge isn't AI itself, but rather using it consciously and intelligently to amplify, not substitute, our thinking."

As cautioned in recent research by the MIT Media lab, individuals who purely used AI to inform academic and creative outputs *"consistently underperformed at neural, linguistic, and behavioral levels"* and that the use of LLMs could hamper learning.

Similarly, a study by the University of Toronto found that the use of LLMs and generative AI systems reduced the ability for humans to think and produce creatively when solely relying upon AI, leading to homogenous ideas and less innovative approaches.

AI generated ideas lead to homogenised content

Concerns around what prolonged dependence on AI does to human thinking is growing amongst academics and those in education. A key concern is the **anchoring effect**: when users prompt a

generative AI system, the response it produces can set a mental path that makes alternative ideas less likely to be explored. While this may feel efficient, it can quietly narrow creative and innovative thinking, including our willingness to test new ideas and experiment.

This effect helps explain why AI-assisted outputs often feel polished yet generic. As Professor Ahmed-Kristensen explains, *"AI can enhance the final stages of the creative process not by replacing imagination but by refining and accelerating it. If we use technology to make design smarter, fairer and more impactful - then it becomes a genuine partner, not a threat."*

Creativity as a capability and collaboration

Creativity itself can be defined not as a static talent or a measurable output, but as a capability: the habit of making and trying new things. It is the ability to generate work that is new and innovative to the creator, appropriate for its context and resonant with its intended audience.

Creative expertise involves understanding the problem before generating ideas, and this remains a distinctly human strength. Meanwhile, AI systems, particularly LLMs, are valuable in supporting this work by gathering information, helping to define problems and potentially reframe problems and explore broader design spaces.

At the technical level, DIGIT Lab is experimenting with large language models to support evaluation tasks. A recent study revealed that LLMs can assess novelty and usefulness and align more closely with human experts when guided.

Experimental approaches such as chain-of-thought reasoning allow AI to follow aspects of expert logic rather than simply producing surface-level outputs. However, human oversight remains essential to interpret these results, evaluate ideas and ensure that design choices align with users' lived experiences.

For DIGIT Lab, the implication is not that AI has no place in creativity, but that creativity is inherently collaborative. AI can analyse patterns, offer structured critique and expand the field of possibilities, whilst humans contribute empathy, cultural understanding and a sense of intent that turns possibility into resonance.

The fact that people tend to respond more positively to human or hybrid creative work highlights that when human judgement sets direction and AI enriches exploration, creativity becomes more rigorous, more imaginative and ultimately more human in its outcomes.

The threat to learning

DIGIT Lab warns that habitual cognitive offloading, where AI handles idea generation, reasoning or synthesis, can weaken the mental foundations that creativity depends on, including memory formation, resilience and problem-solving. This is particularly concerning for students and early-career professionals.

If foundational learning and cognitive work are skipped because AI performs these tasks instead, individuals may struggle later when tasks become less predictable and demand independent judgement.

"Skipping difficult tasks and thinking doesn't remove the difficulty of the process," Ahmed-Kristensen adds. *"It just postpones it to a point where the cognitive scaffolding may not be there. Ultimately humans learn through experimentation, innovation and failure, and if we skip these processes, we leave ourselves underprepared and unarmed."*

Why cheaper AI content doesn't mean better

DIGIT Lab asserts that the idea of AI as a direct creative threat to human creativity is misplaced. Creativity has never been a finite resource; artists, thinkers, designers have always drawn inspiration from one another. In this sense, AI is simply another participant in that long tradition. When used critically, it can act as a source of inspiration, helping creatives explore alternatives, reflect on precedents and extend their thinking rather than replace it.

The more significant shift is economic and structural. As AI-generated content becomes cheaper and increasingly viable for commercial purposes, systems may favour machine output for reasons of efficiency. Here, people are not made less creative by AI itself, but rather it reshapes how creative work is practised and rewarded.

The challenge is to ensure that opportunities for human creativity continue to exist, particularly in contexts where meaning, judgement and cultural value matter most.

The human-AI creativity guidelines

In response, **DIGIT Lab UK is calling for the development of cross-industry guidelines for the responsible use of AI**, particularly in design and creative processes: the **human-AI creativity guidelines**. The framework argues for disciplined, human-centred AI adoption that strengthens creativity and innovative thinking rather than supplementing human thinking and processes.

DIGIT Lab emphasises four core principles:

- **AI as accelerant, not originator**
    - LLMs should be used to refine, extend, stress-test or evaluate ideas after human creativity has been engaged, not as a replacement for the blank page. Early-stage reliance risks anchoring thought and producing homogenised outcomes.
- **Protecting cognitive foundations**
    - Learning and work practices should preserve critical and conscious thinking, experiential learning and problem-solving. These processes build the mental resilience and ability to accurately judge that creative work depends on.
- **A humanity-first approach**
    - Creativity involves meaning, context, emotional depth and ethical judgement. Current AI systems can simulate these qualities but not possess them nor truly understand the lived and real human experience. This 'humanity' must be explicitly protected and preserved, even when they are harder to quantify or monetise.
- **Ethical and sustainable integration**
    - AI adoption should align with human well-being and long-term cultural value, rather than the commoditisation of creative labour or short-term cost savings.

AI should not be the originator or thought of as a true communicator of human experience. In a new paper, titled ***Multi-agent LLM with the Chain-of-Thought for Design Creativity Evaluation*****,** Professor Saeema Ahmed-Kirstensen and Ji Han at DIGIT Lab found that multi-agent LLM systems, enhanced with structured reasoning, can reliably assist in evaluating creativity, assessing novelty and usefulness in ways comparable to human experts. This points to a future where AI strengthens creative practice through evaluation and reflection, without replacing imagination and creativity itself.

DIGIT Lab is also exploring the use of conversational agents to gather organisations' digital-transformation requirements, showing how chatbots can be used to run structured interviews. Alongside research into incorporating human data into design processes, the work signals a future in which AI plays a practical role in preserving expertise, improving decision-making and supporting ethical user engagement.

Whilst AI can accelerate production and expand creative capacity, true creativity still depends on three uniquely human forces; imagination, inspiration and intention.

Professor Saeema Ahmed-Kristensen comments: "*The real danger isn't super-intelligent machines, but our willingness to hand over thinking to systems that are merely competent and convenient. The challenge now is not whether we use AI, but whether we use it in ways that preserve the cognitive and creative capacities that make human innovation possible.*"

<< ENDS >>

About DIGIT Lab:
DIGIT Lab is an EPSRC Next Stage Digital Economy Research Centre, based in London, with the University of Exeter. It brings together researchers and industry partners to explore the future of work, design and creativity in an AI-driven world. Led by Professor Saeema Ahmed-Kristensen, DIGIT Lab studies how technology can enhance human capability and create more sustainable, inclusive and emotionally intelligent design systems.

Notes to editors:
Professor Saeema Ahmed-Kristensen, Head of DIGIT Lab, and Melisa Leñero, Global Programs Director at International Development Enterprises, launched dcoded on 10th December 2025, a podcast that decodes design, technology, and the experiences shaping our world. As hosts, Saeema and Melisa will explore how these influence how we live, work, and connect. The podcast is available on TikTok, Instagram, Spotify, Amazon Music , and YouTube.


.coded
PODCAST
decoding the design, technology, and
experiences shaping our world and planet
@dcoded.podcast
@dcoded-podcast
@dcoded.podcast
@d.coded-podcast