Source: *The Straits Times,* pB3
Date: 18 May 2026

The AI risk of losing the skills you've mastered over the years

When it becomes our GPS, it dulls the mind's ability to handle complex problems. That needs attention.

Tan Eng Chye

Walk into any seminar room on Kent Ridge campus and you can feel the ground shifting. Not because the hunger to learn is waning or the embers of curiosity dimming, but because the very idea of education has been turned on its head, thanks to AI.

Learning was like scaling a peak – you researched, debated, lost your way, meandered, regained your bearings, kept climbing and finally earned the panorama.

Today, information arrives instantly, packaged in fluent paragraphs, bullet points and step-by-step solutions. The ascent takes a split second but the struggle is missing.

Clearly, AI has accelerated learning – but has it sharpened critical thinking, or is this precious ability that sets humans apart now at the risk of atrophy?

SPECTRE OF DE-SKILLING

Education is anchored by two enduring pillars: learning and thinking. When we learn something, we imbibe new facts, frameworks, vocabulary, methods and mental models – in a word, knowledge. But this process of acquiring knowledge is not complete until critical thinking takes place: when we start to question, analyse and challenge what we have learnt, and go on to make new inferences and form new ideas and theories.

Today, both pillars are not progressing in step. AI takes over the heavy lifting of information gathering and transmitting knowledge, but it does not necessarily help us sharpen the faculty that matters most: critical thinking. If anything, it nudges thinking towards atrophy.

Many of us risk treating AI like a GPS for the mind. While it offers the convenience of quick answers, it can dull our ability to build the internal map we need to navigate complex problems when technology is not there to guide us. If we only follow the prompts, we eventually lose our sense of direction.

Research already bears this out. In 2021, a study was carried out to observe the effects of AI use on endoscopists' skills before and after AI tools were introduced for the detection of precancerous growths during colonoscopy.

Three months after these tools were introduced, when endoscopists performed colonoscopies without the help of AI, there was a 6 per cent drop in the detection rate of these precancerous growths, indicating the risk of de-skilling from AI.

Similarly, MIT Media Lab researchers found in 2025 that those who used generative AI to write essays had a weaker sense of ownership over their work, and their electroencephalography tests – which measure the electrical activity of the brain – showed weaker connectivity.

Essentially, fewer parts of the brain were involved or coordinated in producing the essay. Over time, these participants underperformed across neural, linguistic and behavioural measures, raising the same concern of de-skilling.

Apart from "de-skilling", AI also poses the risk of "never-skilling", where one fails to even attain fundamental capabilities. Humans learn by asking questions – whether in the incessant "whys" of a child, or as eloquently set forth in the Socratic method still used in classrooms today. Yet AI obviates the need to ask independent questions, to follow through the process of grappling and working through layers of meaning to arrive at understanding.

This is especially the case with the paid, premium versions of AI which are more powerful, and can provide more sophisticated answers and prompts. Ironically, their higher perceived reliability could also lead to automation bias: Students are quicker to accept what they see wholesale, even where there are contradictions, without critically questioning it.

THE NEED FOR PRACTICAL GUARDRAILS

With AI here to stay, we need practical guardrails rather than walls and fences. An example is the practice of AI-free periods by the National University Health System, during which healthcare professionals do not use AI tools for clinical work or assessments.

Similarly, in the financial sector, the Monetary Authority of Singapore is proposing guidelines on AI risk management for safe and responsible use of AI. Financial institutions need to ensure AI augments, not replaces, human judgment in high-stakes settings. Human experts must review and question AI outputs before any final decisions are made.

What does this mean for educators? We must radically rethink our approach to pedagogy, but the true north of education is constant: to establish the foundations of thought. AI should not be a substitute for the basics of learning and thinking, just as calculators did not eliminate the need for mental arithmetic. Pedagogy must drive technology, not the other way round. Some return to the basics with paper-and-pen exams, viva voce assessments and restricted internet access during high-stakes tests. This pivot away from take-home assessments is not an indictment of technology, but a safeguard to ensure that learning has taken place and essential skills have not withered away.

This is part of efforts to prevent de-skilling arising from an over-reliance on technology. This is not to say AI is eschewed – AI is already widely used to improve outcomes, efficiency and decision-making in healthcare, finance, legal and many other fields. What is required is a balance that requires careful calibration.

The field of aviation provides an instructive example. Autopilot is common at cruising altitudes, but rarely used for take-off and landing; pilots are required to perform these critical manoeuvres themselves. Besides, aviation regulations mandate pilots to clock a certain number of take-offs and landings before they can fly. This keeps them sharp, well-oiled and in control.

Like pilots, we need to straddle that fine line between automation and the human, between building up our familiarity with AI, and training or working without it.

What does this mean for educators? We must radically rethink our approach to pedagogy, but the true north of education is constant: to establish the foundations of thought. AI should not be a substitute for the basics of learning and thinking, just as calculators did not eliminate the need for mental arithmetic. Pedagogy must drive technology, not the other way round.

Some return to the basics with paper-and-pen exams, viva voce assessments and restricted internet access during high-stakes tests. This pivot away from take-home assessments is not an indictment of technology, but a safeguard to ensure that learning has taken place and essential skills have not withered away.

The challenge persists when students enter the workplace – care will need to be taken to sustain and strengthen their skills throughout professional life, ensuring that practised mastery and critical judgment do not dull over time.

Beyond nurturing competent and confident AI users, we also need to build up thinkers who can lead the technology. This means developing people who understand how to build AI systems, how to steer them and, most importantly, how to question them.

From climatologists leveraging AI to accelerate discovery in global medium-range weather forecasting, to lawyers integrating AI for enhanced legal research and case analysis, to urban planners deploying AI to model sustainable cities, these are not just users of technology. They are also domain AI architects who are shapers and stewards, wielding AI shrewdly to address challenges and solve problems.

BECOMING MORE HUMAN WITH AI

AI, ironically, can help clarify what keeps us true and grounded: The "artificial" sharpens the understanding of the "human".

Our capacity for complex reasoning, deep analysis, ethical judgment, acting with empathy and sensitivity, as well as meaningful connection – all this is what makes us human, and it is this that we should focus on developing. Used well, AI does not replace our humanity, it amplifies it. We flourish and become more human.

There will be experiments that will fail, lessons we learn, moments of reckoning and "eureka" along the way. If we set our sights high and refuse to settle for the easy path, the potential for what we can achieve can be phenomenal.

Ultimately, our success will not be measured by the sophistication of our tools, but by our ability to nurture the resilience and creativity of our people. If we get it right, we will not just react to the future – we will also shape it.

• Professor Tan Eng Chye is president of the National University of Singapore.