HP FUTURES

AI and the Future of Learning:

A strategic blueprint from global education experts

HP Futures is a global multi-stakeholder and interdisciplinary knowledge network dedicated to promoting innovative thinking in education to shape a more resilient, inclusive, and sustainable future.

Overview

HP FUTURES 2025

This year, the **HP Futures initiative, developed by HP in partnership with the Global Learning Council and T4 Education,** focuses on the use of Artificial Intelligence (AI) in education today, and the role this transformative technology can play in tomorrow's schools and universities.

HP Futures 2025 **brought together 100 education, AI and policymaking experts** to explore the influence of AI on pedagogy through the eyes of the key constituents of the education ecosystem. As AI technology and adoption advance at an unprecedented speed, it is imperative that education policymakers around the globe understand its impact and potential, and for schools and universities to effectively, safely and securely implement AI-driven technologies and teaching models.

In this report, our HP Futures Council experts share insights, case studies and actionable frameworks for policymakers, education institution leaders and educators to utilise as they look to effectively and responsibly implement AI in education settings.

This publication **follows the inaugural 2024 HP Futures report *HP Futures: Closing the Global Education Gap*, whose findings garnered worldwide media attention.**

CONTENTS

David McQuarrie

Chief Commercial Officer at HP and Chair of HP Futures

01 PREFACE

Artificial Intelligence (AI) is swiftly transforming the educational landscape. By enhancing lesson planning and optimising school management, AI empowers teachers to concentrate on their core mission: engaging with students and fostering their abilities to think critically, ask meaningful questions, and grow intellectually and personally.

AI opens new avenues for delivering personalised, high-quality learning experiences to billions of students in low-income countries for the first time. However, realising this potential requires secure, responsible, and effective adoption. This is no simple task. With technology advancing at unprecedented speed, it can be difficult for policymakers and institutional leaders to keep pace and develop cohesive approaches. Students are already using AI tools, often without structure or safeguards, while educators face pressure to adapt and adopt – many without the training or support they need. Policymakers, too, are being asked to set frameworks for technologies that evolve faster than most institutions can track.

Through the **HP Futures initiative,** developed in partnership with the **Global Learning Council** and **T4 Education,** we brought together leading voices in AI, education, and policy to share practical insights, case studies, and frameworks with the pioneering policymakers, leaders and educators integrating AI in education settings today.

Our Council Members included education ministers, policy leaders, academics, EdTech entrepreneurs, NGOs, and – crucially – the teachers making a difference on the ground in schools across every region of the world. All are working to harness AI in Education responsibly and effectively.

Workplaces of the future will demand AI fluency and adaptability. Education must evolve now to prepare students for that reality. At HP, we believe it's our shared responsibility to help shape this future and ensure every learner can thrive in a digital world. That belief drives the HP Futures initiative, and we are deeply grateful to our partners and contributors for helping advance this work. We hope this report serves as a valuable resource for leaders creating the next generation of AI-powered learning environments.

02

EXECUTIVE SUMMARY

While many countries are launching AI taskforces and piloting measures, no region or institution has yet unveiled a universally effective, tried-and-tested AI in Education implementation approach. At HP, we believe now is the time for specialist voices to come together and share their expertise with a view to helping create enhanced, AI-powered schools of tomorrow.

In early 2025, the HP Futures Initiative, developed by HP in partnership with the Global Learning Council and T4 Education, convened **100 global education and policymaking experts** for a unique gathering of perspectives on how to deliver equitable education for all in the AI experience era.

The initiative **brought together three HP Futures Councils,** whose contributors included teachers and lecturers, policy leaders, academics, NGO leads and educational technology (EdTech) entrepreneurs. Our Council Members represented an equitable spread of geographies, backgrounds and genders. Over the course of many in-depth roundtable sessions and one-on-one deliberations, each Council held wide-ranging discussions with the aim of generating a report containing insights and actionable recommendations for policymakers, sector leaders and educators looking to implement AI in diverse education settings.

Our Council Members were given the space to share their concerns over AI's potential impact on education, as well as their advice on how to capitalise on its enormous potential. This report shares their latest research and AI implementation case studies, and offers strategic blueprints for policymakers and education leaders to utilise.

2025 HP Futures Councils :

1

The HP Futures Council on AI & Students, co-led by former Director of Futures at the Institute of Education at University College London, Carla Aerts, and Miguel Angel Turrado, General Manager, AI Center of Excellence at HP.

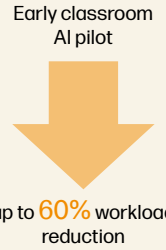
2

The HP Futures Council on AI & Educators, co-led by Tannya Jajal, Founder & CEO of EdTech AIDEN, and Rajiv Suri VP, Global Head of Enterprise AI and Machine Learning at HP.

3

The HP Futures Council on AI & Leadership, co-led by Rohit Talwar, CEO of Fast Future, and Anarkalee Perera, Director of AI & Digital Policy at HP.

The report starts by exploring how AI is already being deployed in education, from lesson planning to improving student safeguarding.



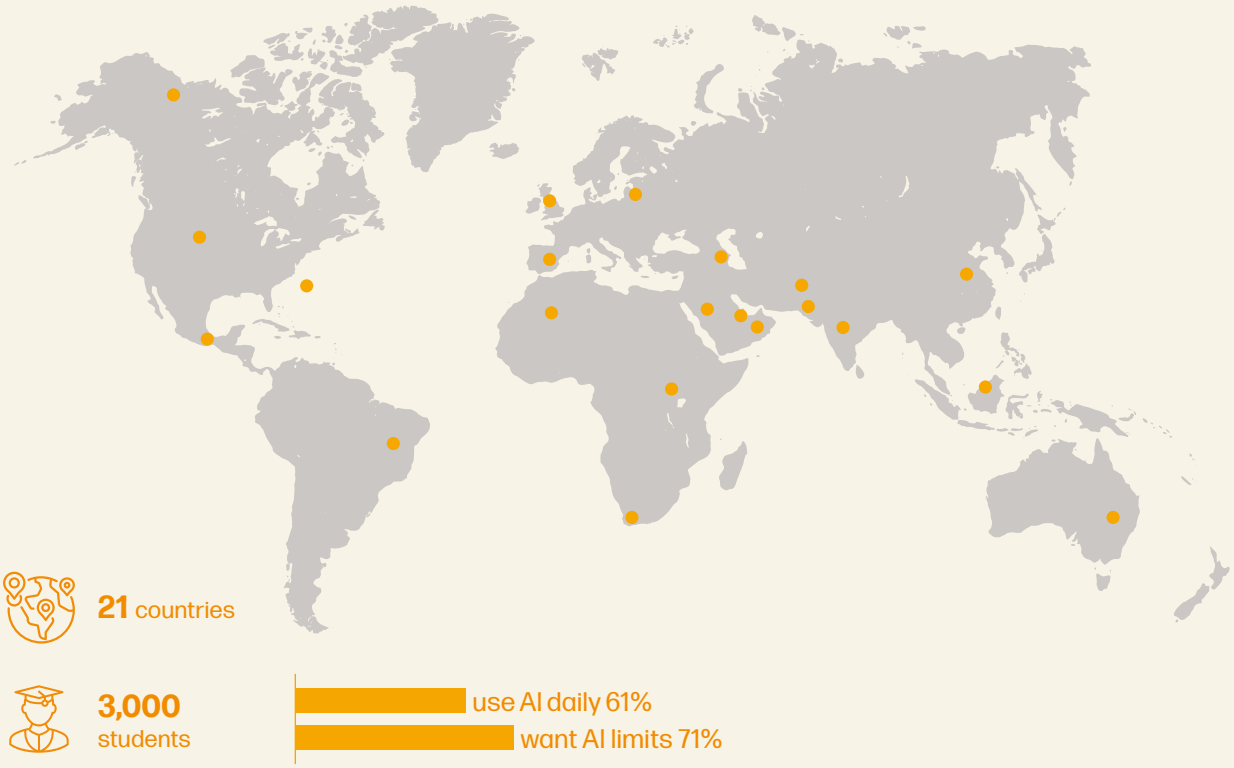
For example, Council Members shared anecdotal experiences, including of early classroom AI pilots delivering up to 60% reductions in lesson-planning and grading workloads, freeing teachers for higher-value interaction with students.

The report goes on to explore key considerations when it comes to AI in Education, including preventing cognitive atrophy as a result of AI use and retaining "friction" in learning systems to protect students' learning and job market-readiness. Our Councils explored how these goals can be achieved, including through using the latest technology such as AI agents, and discussed how to establish purpose and principles-first, dynamic and "live" AI in Education policymaking across contexts.

In the report, Council Members also stress that it is imperative today's students are given a formal seat in AI governance and policy design. Students' lives are becoming intertwined with AI technology, and Council Members were unanimous in agreeing that learners deserve a voice in how this technology is embedded into their education systems. For this reason, we conducted original HP Futures polling of nearly 3,000 students, which asked young people how they feel about AI, how they're using it today, and for their views on an AI-imbued future.

The survey found a clear majority (71%) of students polled think that there should be limits to AI capabilities – a finding that reflected the views of Council Members. This caution did not mean students said they were avoiding AI interactions, however. The survey found nearly two-thirds (61%) of this diverse student base are already using AI in their daily lives for research. The open survey, conducted between May and June 2025, had responses from students across 21 countries: the United States, Pakistan, South Africa, Spain, India, Malaysia, Lithuania, Australia, United Kingdom, Uganda, Mali, Afghanistan, China, United Arab Emirates, Azerbaijan, Saudi Arabia, Brazil, Qatar, Bermuda, Canada and Mexico.

May and June
2025



Just as student AI adoption is moving at lightning speed, AI companies and EdTechs building Large Language Model (LLM)-powered products are racing to develop and embed their products in education institutions. Our Council Members recognised the enormous value this innovation represents for students, but argued that rollout needs to happen within a framework. This is why, in this report, they call on education ministers, AI companies and EdTechs to sign up to a universal, principles-first AI in Education Charter.

The Charter's principles include transparency, data stewardship, environmental sustainability, measurable learning impact, and certification schemes before tools enter classrooms. Council Members highlighted this type of Charter is feasible, as it builds on the successful work of organisations such as Digital Promise - which offers a guide to certify companies that are socially and environmentally responsible - already working in this area. Our experts noted that signing up to an AI in Education Charter could also become a key differentiator for companies.

Crucially, the report shares multiple detailed, actionable AI policymaking frameworks and AI implementation strategies that are being successfully rolled out in K-12 and higher education settings today. Examples include guides on how to build a secure and effective state-wide approach to AI in Education policy, how to conduct AI-readiness surveys and a 13-step guide that forms a practical, step-by-step implementation framework for school leaders to utilise.

HP Futures set out to create a report that added tangible value and shared actionable insights for education stakeholders and we are extremely grateful to all our partners and HP Futures Council Members for enabling us to achieve this goal.

KEY FINDINGS AND CALLS TO ACTION:

Our HP Futures Councils call on governments, education ministers and policymakers worldwide to:

Establish a Global AI in Education Charter.

Our Councils identified a need for governments worldwide to refine and adopt a mandatory AI in Education Charter in every jurisdiction, backed by a transparent certification or ban process for tools so that only systems meeting agreed ethical, pedagogical and safety principles may enter classrooms. The Charter would require vendors to prove data privacy, learner-data ownership and environmental sustainability, with explicit safeguards for minors and bans on exploitative business models.

Adopt a "principles/policy-first, tools second" approach to AI in Education policy.

Council Members urged ministers to first agree what kind of society, workforce and teaching profession your country wants, then pick the AI tools, not the other way around. Ministries and districts should set ethical, pedagogical and data-use baselines upfront so vendors serve learning goals rather than shape them.

Ensure all AI in Education policy is:

Agile - subject to scheduled review cycles.

Inclusive - co-developed with educators, students and tech experts.

Purpose-driven - focused on core educational outcomes.

Our experts urged policymakers to immediately create policy that ensures educators are consulted in the development of any widely deployed AI tools, and that technologies rolled out in schools have clearly defined educational objectives.

Urgently commission national "AI-readiness baseline" surveys before honing AI in Education policy or procurement.

Every ministry should audit leadership confidence, infrastructure, security and equity gaps to inform roll-out priorities.with explicit safeguards for minors and bans on exploitative business models.

Ensure education policy is "live" and reactive, with mandatory annual policy refresh cycles to ensure that state school systems and policies keep pace with AI.

With major LLM model updates every few months, static policies become obsolete. Policymakers should schedule systematic reviews and crowd-share new resources through global summits. Policymakers must be ready to future-proof policy by accounting for multiple AI / AGI development scenarios.

Invest in in-house Education Ministry tech teams that co-design policy, not outsource to tech companies.

Ministries should recruit and retain engineers, UX designers and data scientists as permanent "thought-partners", safeguarding institutional memory and reducing vendor lock-in. Our Council Members shared case studies of where this works in action (see AI & Leadership and AI in Education Frameworks sections).

Urgently ensure inclusive AI adoption strategies are created to prevent the AI era deepening educational divides and guarantee baseline, equitable access to core LLM-based services for schools.

Recommendations include deploying minority-language and low-bandwidth variants through pooled procurement, open-source collaborations and zero-rating schemes.

Overhaul traditional curricula to ensure they centre on lifelong skill-building and analytical, creative, and human-centred skills, rather than age-based knowledge milestones.

Council Members pushed for greater emphasis on philosophy, ethics, history and interdisciplinary problem-solving throughout K-12 and higher education, in addition to coding and tech elements.

Give students a formal seat in AI governance and policy design.

Youth insight will be essential in ensuring supportive, realistic AI adoption going forward.

Ensure that "friction" remains in the learning system to protect students' learning and job market-readiness.

Our Councils stressed that we must teach students how to think, avoid cognitive atrophy and help students learn with AI rather than outsourcing thinking and falling into the "yes trap". AI is frictionless (saying "yes, I'll give you whatever you want" to students), so educators must add friction back in through challenges that prompt student reflection, not just automation. Friction is what real life, real jobs and real tests involve - we cannot let students leave school without this. Our Council Members presented a powerful case for agentic AI learning and adding friction back into learning in this context. AI agents can support deep metacognition if well-designed-see case studies in the AI & Students section.

Create institution-level policies that reflect how student–AI emotional attachment is a growing safeguarding issue.

Require all student-facing AI to
a) disclose synthetic nature,
b) embed "breadcrumb" prompts that nudge users offline and
c) undergo impact reviews on mental-health risk.
Our experts highlighted the risk of AI companions replacing human bonds and called for design rules - clear machine labelling, "breadcrumb exits", mental health reviews to keep relationships healthy.

AI should fundamentally augment and not replace teachers. It is essential that teachers know this, so be transparent with educators about the changes taking place to help secure their buy-in.

The report shares examples of AI implementation with educators that are working in terms of
a) securing buy-in,
b) reducing workload and
c) making educators' working lives better.
See AI & Educators and AI in Education Frameworks section.

Urgently ensure that all policymakers, school and university leaders involved in setting AI policy go through rapid "AI literacy training" that undergoes continuous review.

Policymakers and leaders need to know what they are implementing, and how to use it or an entire generation may miss out on the broader transformational opportunities the technology presents or suffer as a result of bad implementation efforts.

Deliver AI upskilling and professional development services for all educators across K-12 and higher education.

AI requires a redefinition of teaching roles, including from content delivery to facilitation and skill-building.

Ensure that students are taught about the policy regulation of AI and how regulation is slow to catch up with technological developments. This will enable students to make informed decisions about their data sharing and use of AI.

Our Councils recommended traceability and opt-out for student AI interactions and log prompt histories, allow data-ownership opt-outs and favour smaller, locally hosted models when feasible.

Reshape assessment to be more listening and public speaking-focused (viva-like) in classroom, while taking into account the use of AI outside the classroom and in jobs.

Our Councils stressed that education systems need to urgently overhaul assessment measures across K-12 and higher education settings. Their recommendations included moving towards assessment that includes co-authorship with AI disclosure, and to oracy-centric assessment models. This is vital because face-to-face human engagement cannot be replicated by AI and is likely to be prioritised by employers.

Ensure K-12 and higher education institutions communicate well and work together on AI and assessment updates.

Otherwise, students risk graduating school/university unequipped for AI-powered workplaces of the future.

Track and publish reports on the impact of AI on educator workload, wellbeing and recruitment through real-time dashboards and common metrics.

This approach will help to ensure that past mistakes with tech implementation are not repeated, and educators are centred in AI rollout.

Create policies and supportive frameworks for education institution leaders to support them through the AI transition.

This is a pivotal and potentially overwhelming moment for education institution leaders around the world. Our Councils recommended creating networks and sharing materials with leaders to help on the journey.

03

HP Futures Council on AI & Students

Metacognition, friction and active input in policymaking: How to ensure students thrive across contexts as AI reshapes what it means to learn

CONTENTS

FOREWORD

Generative AI-powered tools offer the chance for billions of students to access higher-quality human-led and AI-augmented personalised education.

On-hand AI tutors can support students with diverse learning needs, offer writing assistance, transform language learning and more. These innovations represent an exciting opportunity, but their implementation must be handled carefully. Get it wrong, and students could end up more isolated, screen-addicted, and with cognitive atrophy due to offloading deep-thinking responsibilities to a machine.

Put simply, we stand at a juncture in terms of what it means to be a student, and what students everywhere need to learn. As a Council, we agreed to explore: What kind of learner and what kind of learning do we need to cultivate in the AI era?

We started by establishing a baseline around AI and students, including appropriate ages for interactions to begin. We touched on the importance of opt-out rights with LLMs and EdTech tools, and building student awareness around the valuable data they give to big AI companies in using their platforms and AI tooling. We discussed the importance of emphasising continued attention to data privacy, bias, and transparency as AI adoption grows, and of utilising mechanisms for monitoring and evaluating the impact of AI integration in schools over time.

We also agreed on the immediate need to refocus traditional curricula for the AI era, to pivot towards lifelong skills-building – metacognition, critical thinking and interdisciplinary problem-solving – rather than attainment of age-based knowledge milestones. In the age of AI, being able to adapt rapidly, question the world around you, and challenge materials presented to you will be essential skills. As one Council Member put it: "We must teach students to interrogate the machines, not just use them."

Later, we raised retaining "friction" in learning systems as AI is rolled out in schools as a key consideration. AI is frictionless, with tools like ChatGPT and Claude responding: "yes, I'll give you whatever you want" to students, so systems must add friction back in through challenges that prompt student reflection. Educators across the Council shared how they are already experimenting with or plan to buy or build custom-built / AI Agent-led tools for this purpose, which are scripted to ask clarifying questions, raise counterarguments and flag over-reliance on surface-level reasoning.

We also agreed to call in this report for education systems to invest in "connection-first" personalisation for students. This means a commitment from policymakers and school leaders to use AI to actively strengthen peer, teacher and community links, which we believe will help avoid hyper-individualised learning paths that erode social fabric and workplace readiness.

Ultimately, our Council concluded it is vital that AI companies, governments and education institutions treat students not merely as end-users of AI, but as co-creators of its role in their education. Students must be given a say in how their learning is changed by AI, as well as being taught to understand and use it effectively.

Our HP Futures Student Survey, the case studies our Council Members shared, and our wider research all suggest that students are both excited by and scared of AI and the future they're graduating into and they want to input.

We hope this report both acts as a call to action and provides a helpful resource to those building and experiencing the education systems of the future.

With many thanks,

Carla Aerts
Future of Education expert and former Director of Futures at the Institute of Education, UCL

Miguel Angel Turrado
General Manager, AI Center of Excellence at HP
Co-leads, HP Futures Council on AI & Students

Chapter 1

How AI is radically transforming what and how students learn

We dedicated time to establishing a shared baseline for our discussions, before exploring key concepts and principles surrounding AI & Students in depth.

These included:

1 Examining the appropriate age of integration of AI in Education

Broad consensus emerged that the age question may be secondary to developing critical thinking skills from early childhood. It was suggested that structured exposure to generative AI might begin around age 10, given cognitive development milestones. Concerns were raised about varying maturity and readiness levels across socioeconomic contexts, and the need for tailored approaches.

We concluded: ***"Children will interact with AI one step removed from a very early age, regardless.*** So it's about asking: ***how do we optimise the education process for this new world of GenAI?"***

2 The essential need to push for equitable access to AI-powered learning for students across contexts

We discussed the significant disparities in AI literacy across socioeconomic divides, and agreed to use our report to call for proactive education on AI for students, parents and teachers to prevent exacerbating existing inequalities.

We also agreed on the importance of addressing algorithmic bias, language exclusion in current English Language-dominated LLMs and ensuring equitable AI model data representation for diverse global populations. The majority of AI models remain WEIRD-biased (Western, Educated, Industrialised, Rich, Democratic) and often neglect minority languages and cultures.

As Council Member Diego García Saiz, Professor and Researcher in Software Engineering, Data Science and AI Universidad de Cantabria Spain, said: ***"We need to address what language models (cultural relevance and language) are available for minority language and culture -underserved by AI and not sufficiently recognised."***

3 Discussing how AI is set to change the way students learn forever

We discussed the gradual shift in education from teacher-centered to student-centered models due to AI and later Agentic AI and at some point down the line Artificial General Intelligence. (AGI possesses human-like intelligence and can perform any intellectual task that a human can. It is capable of learning, reasoning and adapting to new situations).

We explored how AI can be seen as a transformative force, redefining teacher roles from primarily being knowledge providers to being expert facilitators guiding critical and ethical thinking. We also discussed an initial case study shared from China, where AI policy is starting to see integration of AI applications in lesson planning and instructional support, shifting from teacher-centered to student-driven inquiry and helping students develop those skills.

As Lucia Dellagnello, Expert STC EdTech Team at the World Bank Brazil, said: ***"The main impact of AI in Education is that we have to stop thinking about the curriculum as a pile of skills and knowledge separated by school year, but as a means to learn and deliver key human skills. So, what should we be teaching kids from the moment they are born? Critical thinking? How to resolve cognitive and ethical choices when confronted with different choices?"***

A fundamental risk: As a Council, we also acknowledged that we are in a scenario where many learners currently have more knowledge and experience with AI than their teachers. The last time this happened was around the rise of social media in the early 2010s. That transition to mobile screens and widely unrestricted social media use is widely regarded to have been a disaster for student mental health and development, as Jonathan Haidt's seminal work ***The Anxious Generation*** outlines. We discussed how it is essential that education policymakers and K-12 leaders get access and their approach right when it comes to AI implementation, using mistakes made in the early 2010s with the advent of social media as a warning case.

4 Examining the changing relevance of skills currently being taught in schools due to AI advancements, the need for curriculum overhaul and associated challenges and possibilities

We talked about the need to overhaul traditional curricula for the AI experience era, focusing on lifelong skill-building rather than focusing largely on achievement of age-based knowledge milestones.

We then explored the skills students will need to develop to be equipped for an AI-powered future, and decided to collectively share methods currently working on the ground to help students gain these skills alongside AI proficiency.

Key skills highlighted included:

- Human development / Social and Emotional Learning (SEL) skills
- Metacognition critical thinking and problem solving skills must be a mission of education, not just an SEL add-on as often viewed in education settings today
- Adaptability the ability to adapt to new tasks, environments, tools and ways of thinking

In this conversation, we explored concerns regarding the diminishing opportunities for students to gain early career experience as entry-level tasks become automated. Entry-level knowledge economy jobs are already disappearing and the phenomenon is only set to worsen. However, we also explored how prompting and use of AI agents can be seen as a positive, as students can develop skills around this in schools and accelerate the development of workplace-ready skills that will be essential to economies of the future.

We also explored how these types of metacognitive (critical/adaptability) skills will be crucial in a world of cyclical, multi-career lives that today's students likely face. If these skills are not embedded early, students will exit education underprepared for change.

Case Study:

Tokyo Metropolitan Government and ZEN University – embedding AI policy and practice in education (Japan)

Our Council also agreed that curricula of the future must equip students on how to use AI in real society. We explored how this means Higher Education students in particular need to learn how to use AI in their vocations.

Council Member Shinichi Yamanaka, CEO of N-High School in Japan, shared a case study on how this approach is already being implemented in school and university systems in Tokyo.

This is a compelling example of how coherent AI policy frameworks can support responsible AI adoption and promote student agency and AI fluency.

The Japanese Ministry of Education issued national guidelines for integrating AI into school education. The guidelines reflect a human-centred philosophy and emphasise the need for both teachers and students to develop the skills necessary to use AI effectively. The policy explicitly addresses the appropriate use of AI by students, recognising that their future success depends on the ability to navigate a world where AI is embedded in daily life and work.

In K-12

Building on the national vision, the Tokyo Metropolitan Government has developed and disseminated detailed AI usage guidelines for schools under its jurisdiction and deployed a free to use AI platform, accessible across all government supported schools in the city. The platform allows both teachers and students to start experimenting with AI tools in the classroom within a secure environment. The project has been a great success to date.

In higher education settings

ZEN University is a fully online undergraduate university based in Japan and is at the forefront of experimenting with AI in Higher Education. ZEN has already implemented **a broad AI curriculum** aimed at preparing students across disciplines to engage with AI critically and constructively and offers interdisciplinary AI-focused degrees, including coursework in ethics, LLM theory, and human machine collaboration.

The university's curriculum reflects the dual imperative we are calling for as a Council: to see AI both as a tool and a subject of study.

See Chapter 2 for a deep dive into how to develop essential metacognition and critical thinking skills in an AI-powered world.

5 Discussing the risks to students and their development associated with AI over-reliance and how to combat this issue

Our conversation highlighted the potential dangers of students becoming overly dependent on AI tools, leading to cognitive atrophy and other negative impacts due to AI tools reducing the "friction" in learning experiences.

See Chapter 2 for an exploration of cognitive atrophy, friction and AI in education settings.

6 Discussing the urgent need for regulatory oversight of AI educational tools and to teach students about the lag between technological innovation and global regulation

We were conscious that it was important to use this report to stress the need for the development of clear regulations and transparent, safe AI models for educational use.

We agreed that:

- Student data must be protected as much as possible when it comes to student interaction with LLMs and GenAI-powered tooling.
- Students must be informed of what happens to their data when they engage with AI, and what they can do to opt-out of data-sharing practices. Council Members shared how some schools are already exploring opt-out clauses and limits on AI usage to prevent over-attachment. Others are asking students to use locally hosted models when feasible.
- In the meantime, K-12 students should be taught the "smart stranger" model: the idea that it's important to approach all AI as you would a stranger, so with caution and respect.
- We also discussed the importance of teaching students about the lag between technological innovation and global regulation. Council Members agreed that it is vital students learn how slow international policy reform can be when it comes to technological innovations, and that they are – to an extent – operating in a "Wild West" when it comes to AI, LLMs, data and privacy. This will enable students to make informed decisions about their AI usage and interactions.

Chapter 2

Metacognition, AI agents, and retaining friction to prevent cognitive atrophy

Metacognition is defined as the awareness and understanding of your own thought processes. It involves thinking about how you think, learn and solve problems. In education, teaching metacognition helps students become more independent, effective learners.

We talked at length about the lack of focus on critical thinking/metacognition in most education systems today, and how this needs to change to prevent cognitive atrophy in the age of AI.

We discussed how these skills will only become more vital in the era of AI agents: programmes already launched by OpenAI and others, which can complete entire tasks/projects. Instead of responding to specific prompts and delivering a specific answer, as with LLM models to date, AI agents are able to complete an entire task, such as booking a holiday. Agents can make decisions in sequence and act autonomously to achieve specific goals. Students will need to know how to use these agents and more importantly, to monitor agents' work with critical capacity as the **"human-in-the-loop".**

As our Council co-lead, Carla Aerts, said: ***"If we don't teach students how to be adaptable and how to gain knowledge/application in a fast evolving world in which they do need to be adaptable and be the controlling human in the loop of the tech (or at least have mastery of it - not just in terms use, but its impact) then education will definitely not equip learners for their futures. We can't just talk about literacy - but need fluency and mastery."***

Retaining friction and preventing cognitive atrophy through embedding philosophy and deep thinking in curricula

Used poorly, AI risks reducing deep thinking rather than enhancing it. We explored this and raised emerging research on cognitive atrophy among young people over-relying on GenAI tools. We agreed to stress in this report that, in reaction to AI developments, we need to embed more teaching on philosophy, history, and how to question in general into education systems. Why? Because this is how students hone their own development and skill sets that will permeate into their experience in the workplace.

We also explored how, to protect students' development and prevent cognitive atrophy and offloading of thinking to LLMs, policymakers must ensure that "friction" remains in the learning system. We agreed that we must teach students how to think and help them learn with AI rather than outsourcing thinking and falling into the "yes trap".

AI is frictionless, with LLMs like ChatGPT and Claude responding: "yes, I'll give you whatever you want" to students. This means educators must add friction back in through challenges that prompt student reflection, not just automation. Friction is what real life, real jobs and real tests involve.

Educators across the Council shared how they are already experimenting with - or plan to buy or build – custom-built tools: AI bots designed to push back, not just provide. These tools are scripted to ask clarifying questions, raise counter-arguments, or flag over-reliance on surface-level reasoning. Instead of simply answering queries, the AI might say to students: "That sounds plausible, but what's your evidence?" or "Try thinking from another perspective." This kind of interaction stretches thinking, surfaces bias and encourages persistence – key attributes all students will need.

We concluded: "AI should be a mirror, not a crutch. If it's too easy, it's probably too shallow."

We explored potential solutions to prevent cognitive atrophy in education systems once AI is embedded further. In addition to focusing on creating friction-creating chatbots and AI agents (see in-depth case study below), solutions suggested included:

- **Transparency in AI use.** We discussed how asking students to **submit their prompting history** would help teachers be aware of interactions and make metacognition and AI usage more transparent.
- **Shift the focus towards teaching students how to think and critically analyse everything around them.** Council Members pushed for greater emphasis on philosophy, ethics, history and interdisciplinary problem-solving, progressing from AI literacy to AI mastery throughout K-12 and higher education.
- **The creation of AI lab spaces** where students and educators can safely trial, reflect and co-create with GenAI together, to allow monitoring of interactions.
- **Building resilience and proof-of-metacognition into assessment design.** For example, Forward College requires students to complete both AI-assisted and non-AI assessments per course, encouraging critical comparison.
- **Deploying co-authorship scales.** These see students reflect on what proportion of the work was human-authored, AI-assisted, or AI-generated, and ask learners to justify their claims. Council Members said that adding these reflective layers introduces productive discomfort that builds discernment and responsibility.

Case studies - friction and metacognition

Case Study :

Forward College, ChatGPT log reflection *(France)*

At Forward College, students are encouraged to share their GPT prompting logs with instructors. This practice fosters a culture of reflective AI use and accountability. Educators use these logs to observe student metacognitive habits: how they prompt, adapt, and revise, and respond with targeted feedback. Early trends suggest strong student engagement in mid-level cognitive processes such as analysis and synthesis.

How it works:

- Fellows map teaching to cognitive, social, emotional, and practical intelligences.
- Students complete **two non-AI and one AI-enabled assessments** per course.
- AI use is permitted everywhere **except in classrooms,** which are reserved for human interaction.
- Students receive GPT+ accounts — but must share usage logs. Findings are being analysed to classify AI use by learning function (e.g. offloading, tutoring).

Case Study:

AI-Supported thinking routines *(global)*

A joint project by Nord Anglia, Boston College, and Harvard's Project Zero aims to enable students to become better at learning how they learn in the AI era. This involves studying through structured reflection using EdTech prompts, and includes visible thinking strategies, prompt reflection, and iterative questioning. Though in early stages, the model is seen as promising for helping students evolve intellectually, especially when using AI in cognitively demanding tasks.

Case Study:

Portfolio-based self-evaluation *(Brazil)*

Helena A. Mendonça, Educational Technologies Coordinator at Bioma Educação, Brazil, described the long-term, portfolio-based learning model underway in her secondary school, which sees students critically analyse their own work with and without AI – a method inspired by Spanish researcher Fernando Hernández. Hernández is an Emeritus Professor at the University of Barcelona. He has an extensive career leading research projects on how people learn in different contexts.

The project sees students maintain portfolios and reflect on their own work twice a term, seeing where they have improved, and looking at how they think and analyse concepts. The practice is embedded into formal assessment and aims to promote responsible tool use and self-reflection long-term.

The project looked to incorporate AI into the mix in 2025. The idea is that instead of just having all their work and reflections hosted on the school website/in Google Drive folders, AI could review the students' work and reflections and provide them with personalised analysis at the end of the year. **"It would almost be a metacognition process from their portfolio built over several years,"** she explained.

This year, students have also started executing prompts to analyse and try to understand their recent developments better, although this remains in an experimental stage.

Mendonca said: ***"Students are very wary of using AI and some have a lot of doubts on whether it can help them ... We think this is very good, because it's not only about understanding prompts, but helping students to understand the relationship between them and machines. We hope this process will help them to understand and establish their relationship with AI resources."***

Chapter 3

AI agents in schools

Council Member David Olinger, Director of Digital Strategy at O'Dea High School in the USA, said: ***"We can design agents that provide students with challenges that are not all agreeable. Agentic learning is going to be transformative and have a transformative ability to deliver personalised learning across contexts, too."***

Case Study:

Pioneering meta-co-learning framework *(Latin America)*

Overview

In Latin America, Fundación Luker's Aprendamos Todos a Leer (ATAL) programme is leading the way in using AI agents to build student literacy through challenge and reflection. Its AI-powered "meta-co-learning lectometer" framework sees students simulate, reflect and adapt alongside AI agents. It provides instant fluency diagnostics, while an AI tutor co-pilot offers adaptive suggestions for students and real-time support for teachers. These tools are true active learning partners.

Importantly, the system also includes parent-facing AI agents that send digestible feedback through WhatsApp, and animated video agents that celebrate student effort over outcomes. The result is a full ecosystem where friction is balanced with motivation and care. Students are spending ***30% more time reading*** independently, and teachers report dramatically reduced diagnostic workloads.

Council Members highlighted that this model is scalable, inclusive, and human-centred – and shows that embedding friction into systems can lead to positive and enhancing experiences all round.

In detail

In action since 2024, this high school-level programme positions students as adaptive learners alongside AI agents. Inspired by reinforcement learning frameworks like Dreamer, students engage in iterative cycles of simulating, perceiving, reflecting, and adjusting behaviour based on AI interaction. The model scaffolds meta-learning and strategic agency and is currently being evaluated for wider regional rollout.

At the heart of ATAL is the AI-powered lectometer, a tool that revolutionises the measurement of oral reading fluency. It analyses ***correct words per minute (CWPM), how words are spoken (prosody), and reading errors in real time.*** Building on ATAL's "cold reading" and "hot reading" strategies, the lectometer now offers: automated voice analysis, personalised progress tracking (each session benchmarks a student's performance against historical data, visualising growth through dynamic progress curves), and interactive dashboards that allow teachers to do real-time monitoring and intervention planning.

40%

This innovation has reduced the time **required to diagnose and address reading difficulties by 40%,** enabling quicker, targeted support for struggling readers.

ATAL's AI agents also create short, personalised animated videos for students. Characters like Adela the squirrel and Mario the monkey celebrate achievements with affirmations such as ***"You read like a champion today!"***. Students are voluntarily spending **30% more time reading** on ATAL's gamified EduGame Hub platform as a result.

Parental engagement

Lack of parental involvement often causes an AI gap in low-income settings. To solve this issue, ATAL introduced a multi-channel AI communication agent that translates data from the lectometer into accessible, encouraging messages for parents:

WhatsApp updates (text and audio): Short, friendly tips on how to support reading at home, such as shared reading or phonics-based songs.

Animated video capsules: Featuring ATAL's signature characters, like Octavio the Sloth, these videos provide playful, easy-to-follow guidance.

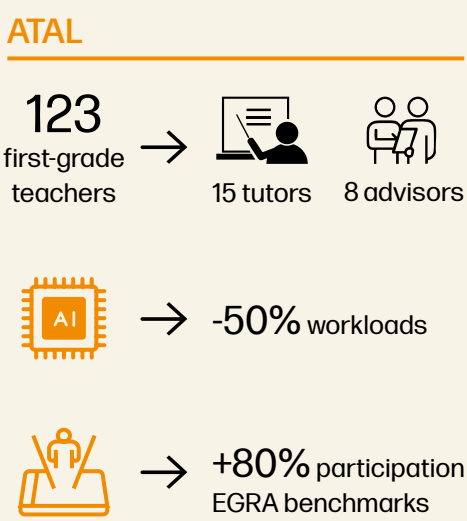
This personalised communication has increased parental engagement by 65%, as evidenced by activity levels on ATAL's digital community platforms.

Educator support

ATAL's human infrastructure includes 15 tutors and eight advisors who mentor 123 first-grade teachers. To amplify their impact, an AI tutor co-pilot was introduced. The co-pilot has cut administrative workloads for tutors by 50%, allowing them to focus on high-value, face-to-face teaching moments.

ATAL has also introduced a holographic teacher training platform. It offers immersive telepresence sessions (literacy experts appear as lifelike holograms to demonstrate phonics instruction and classroom strategies), interactive simulations (teachers practice real-world scenarios with AI-driven feedback loops), and immediate skill evaluation and actionable suggestions.

This model has increased teacher participation in training by 80%, with measurable gains in classroom fluency outcomes aligned with EGRA benchmarks.



In numbers

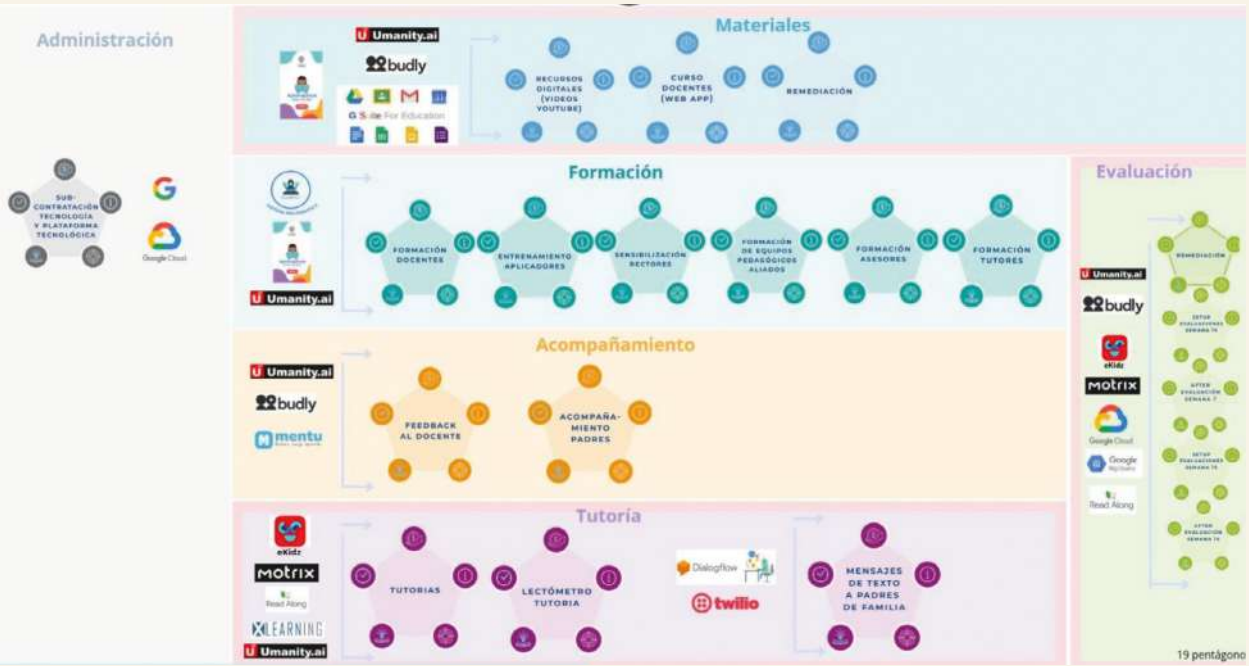
In just 12 months, AI integration has transformed literacy outcomes:

25% increase in average **CWPM,** aligning closely with international fluency standards.

40% reduction in reading delays, thanks to timely interventions.

50% decrease in manual reporting tasks for teachers and tutors.

High scalability: The system's automated architecture is ready for replication in other regions, with minimal adaptation costs.



Other programmes are also driving similar results. These include **HP READ (Reading skills Evaluation, Advancement & Digitization),** an AI literacy programme that harnesses generative AI and adaptive tech to redefine reading instruction. It aims to elevate literacy by supporting educators with AI-driven tools, ongoing professional development and measured results.

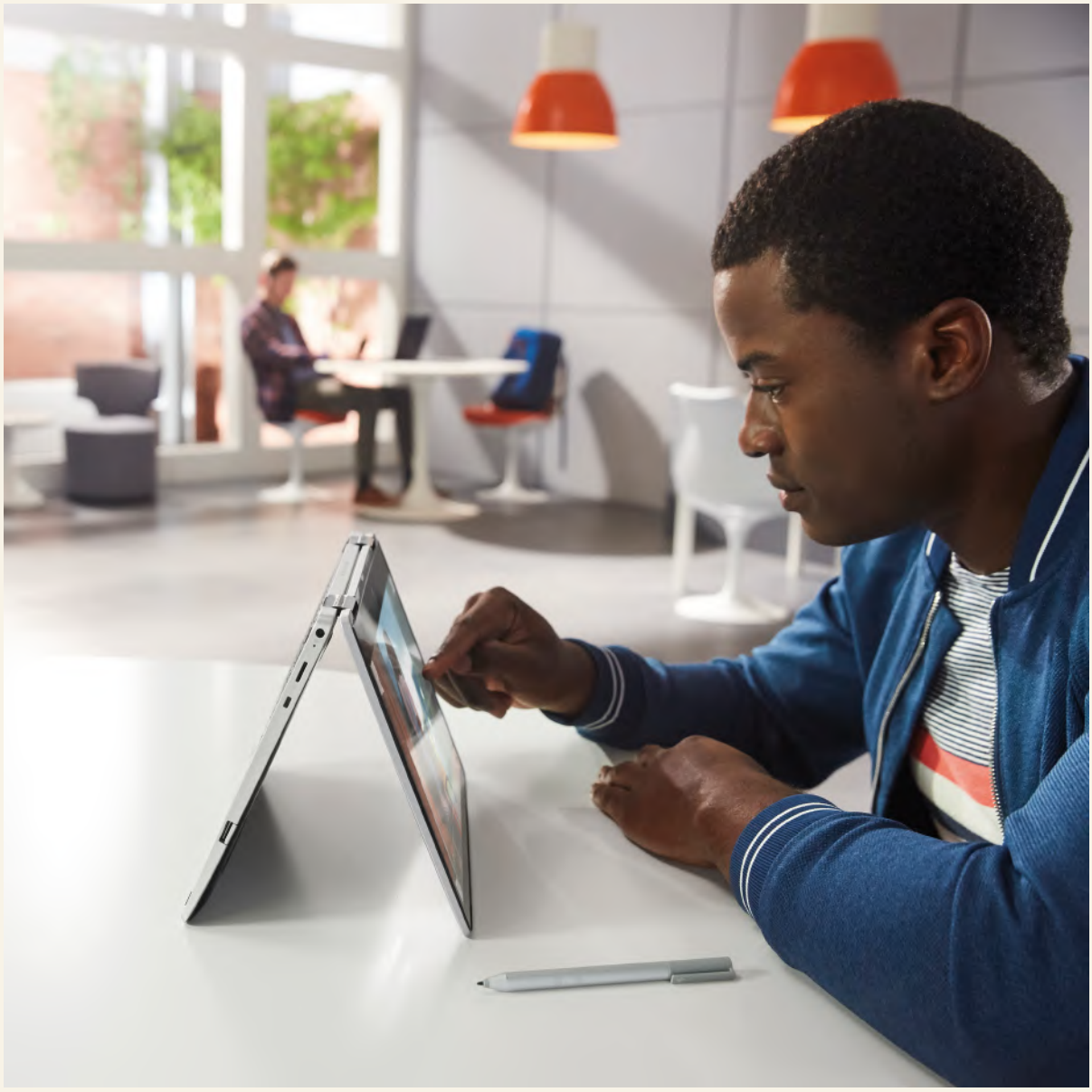
Watch this

Elements include:

- **Benchmark assessments:** Identify students' reading strengths and gaps to guide teaching strategies.
- **Professional development:** Provide teachers with training in the science of reading, use of AI tools, and effective program design.
- **Data-driven instruction:** Continuously adapt teaching based on student performance and local context.
- **Assistive technologies:** Through tools including Immersive Reader, Speaker Coach, and Reading Coach to support comprehension and diverse learning needs.

Chapter 4

Personalisation and AI as both safeguarding threat and wellbeing tool



Personalisation:

An educational breakthrough or a development to welcome with caution?

Personalisation – as evidenced in the ATAL case study above – is the use of AI to tailor learning experiences, content, and support to individual students' needs, preferences, pace and developmental progress.

It has been hailed as a breakthrough for education, particularly in less privileged contexts where highly-skilled and educated teachers are hard to come by. Our Council explored both the incredible potential of personalisation in education, and its potential pitfalls.

We asked: ***"How can we consider the strive of Big AI to (hyper)personalisation? Is it really that good an idea to personalise learning to an extent that we remove all the social fabric of learning and stifle skill development they need for their future?"***

Our Council decided to call for "connection-first" personalisation. This means a commitment from policymakers and school leaders to use AI to strengthen peer, teacher and community links, avoiding hyper-individualised learning paths that erode social fabric and workplace readiness.

The paradox of AI and student wellbeing

Student wellbeing is a core goal and topic in K-12 and higher education worldwide. As a Council, we discussed how AI and LLMs present a paradox when it comes to student wellbeing.

We discussed high-profile cases demonstrating that student-AI emotional attachment is a growing safeguarding issue, and shared personal experiences. We explored the risk of AI companions replacing human bonds and decided to call for all student-facing AI in schools and universities to

- a) disclose their synthetic nature,
- b) embed "breadcrumb" prompts that nudge users offline, and
- c) undergo impact reviews on mental-health risk.

At the same time, Council Members shared how their institutions are already **deploying AI to help improve student safeguarding to great effect.** Examples shared included the use of AI-powered "heat maps" at universities to support student wellbeing.

See case study in AI & Educators section.

Chapter 5

Giving students a voice in determining AI's role in education – with latest data and mission statements

The Council was unanimous in agreeing that students must be part of the conversation about AI, not simply governed by it. We decided to stress in this report that policymakers and education institution leaders must give students a voice on how AI is integrated into school and university systems.

We asked: ***What is the student perspective on AI's role in their education, and how can it inform institutional strategy?***

To this end, we decided to launch the HP Futures Student Survey *(see results in the next section).*

A vision statement from students, shared for this report

After completing the survey, students at ***Centralia High School*** in Southern Illinois, USA, decided - unprompted - to develop their own vision statement for AI in schools:

Their statement reads: ***"We envision AI in Education as a tool to personalise learning, foster independence, and promote equity, inclusivity, literacy, and environmental awareness. At the same time, we recognise the need to address risks such as misuse, deep fakes, job displacement, reduced foundation skills, lack of transparency, and the need for clear regulations and age-appropriate policies."***

Our Council endorses this statement.

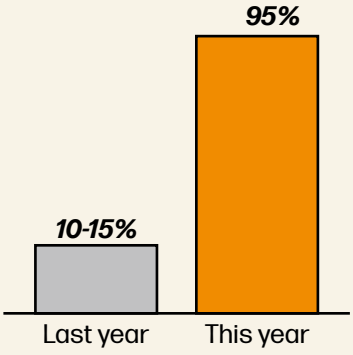
New: Findings from one of the only longitudinal, student-led AI studies in the K-12 sector in the USA

We also canvassed for other up-to-the-minute polling of students on AI use, and what direction they want around AI in Education.

Council Member Chaula Gupta is Vice President and Chief Program Officer at Digital Promise in the USA. Digital Promise offers a guide to certify companies that are socially and environmentally responsible. Gupta introduced the Council to Mary Catherine Reljac, Ed.D. Superintendent of the Fox Chapel Area School District in Pennsylvania, USA. Mary Catherine shared the results of her latest interviews with students around AI use. The findings she shared were fascinating and confirmed reports of the soaring rate of uptake of AI tools among teenagers in the last 12 months alone.

The evolving dataset the district is creating is one of few longitudinal, student-led AI studies in the K-12 sector. Reljac said: ***"We have a Superintendent's Student Cabinet (one for middle school and one for high school) that I meet with periodically... Recently, I met with the groups and asked (basically) the same questions [as the HP Futures survey] to mostly the same students. It was really interesting to see the shifting perceptions. For example, last year the middle school students thought maybe 10-15% of their peers were using AI and this year they believe 95% were doing so."***

Student AI use in a school



Another standout finding was that, while uptake among students was soaring, this was not yet translating into the classroom. The survey showed respondents saying just **1/10** or **2/10 teachers** were "engaging in some activity about or with AI in the classroom".

It was also striking to see many students voice clear ethical positions on AI misuse and thoughtful visions for responsible implementation.

> As one student said: ***"You are not learning if you have someone - or something - else write it for you."***

Full findings from the Fox Chapel Area School District interviews are in the Appendices.

Concerning findings from surveys of Australian students on the impact of AI in Education and future prospects

Council Member Matthew Esterman, a Visiting Fellow at Western Sydney University in Australia and Founder of The Next Word, shared the results of the "From Gen Z to GenAI" survey and findings from the 2024 "Teaching Tomorrow" AI in Education Conference at Western Sydney University.

The large-scale Australian youth-focused research initiative offered deep insight into how young people aged 14 - 27 perceive, engage with, and are impacted by AI. It surveyed over 560 students across secondary schools, universities and early-career work settings. The results echoed Mary Catherine's findings in the USA: 90% of respondents reported using AI, most commonly ChatGPT, for studying, searching information, upskilling and generating ideas. For younger students (aged 14–17), use was even higher, with 94% reporting having used GenAI, largely for help with homework or schoolwork.

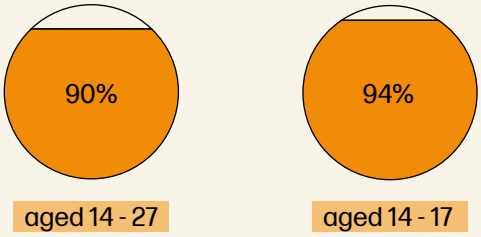
This study also revealed Gen Z's fears about the impact of AI on their learning and their job prospects. For example, a majority of students expressed concern about the impact of AI on creative industries, and nearly ***one in three said AI had already caused them to reconsider their career or study path.*** Many expressed a desire to pivot toward STEM and AI-aligned roles just to **"future-proof"** their prospects.

A gender gap was also shown to be emerging, with 41% of male respondents describing themselves as confident and skilled in using AI tools, and just 20% of women saying the same. Several students called on their universities to do more to support them with AI adoption. One 20-year-old university student in Victoria said:

> ***"Probably if there was more guidance for us as students in terms of how to use it properly and to our advantage, maybe this could be delivered like referencing and essay writing help in university libraries."***

"From Gen Z to GenAI" survey and 2024 "Teaching Tomorrow" AI in Education Conference

560+
students



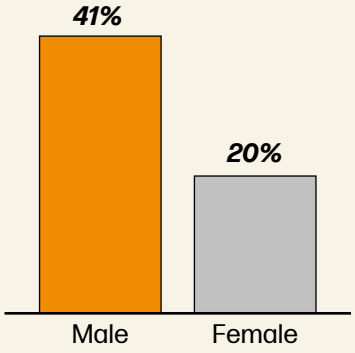
aged 14 - 27

Reported using AI for studying, searching information, upskilling and generating ideas.

aged 14 - 17

Reported using AI for help with homework or schoolwork.

A gender gap is emerging in confident AI use



Chapter 6

In-depth case studies showcasing the successful integration of AI in schools around the world

In addition to the case studies on AI agents and more shared above, our Council wanted to highlight these successful projects in order to help policymakers and institution leaders looking for strategic blueprints for inspiration.

These case studies span geographies, and show how adept, innovative and fast-moving many education institution leaders and educators are when it comes to trialling AI in education settings. It also shows how many institutions are having great success.

In-depth case study with interview: Integrating Gen AI in ISIS Europa Curriculum

At ISIS Europa, a secondary school in Italy, innovation lead ***Roberto Castaldo*** has led a **comprehensive and systematic effort to integrate Generative AI across an entire curriculum.** The school has now permanently introduced AI into its curriculum both as a subject of study and as a working tool. Today, all the educational planning for all classes across all programmes have been modified and integrated with a **new AI-led evaluation grid.**

"ChatGPT was a point of no return," Castaldo said. "School was already changing - irreversibly - and we thought it was now essential to act. I began experimenting in my own classes. When I saw encouraging results, I proposed expanding the initiative to the entire school."

The implementation journey was not without challenges. Roberto said that while students were excited about the project, he faced resistance from educators. **"The hardest part was the paradigm shift for teachers. Many had strong doubts."** But he pushed through and got teachers on board. **Now every teacher across every subject is required to integrate at least one GenAI-based activity per quarter, aligned with a multidisciplinary learning unit.**

Article 1

Systematic Integration of Generative AI in Education: Isis Europa Implementation Model

Article 2

First Year Class Learning

Article 3

Gen AI Evaluation Rubric

How it works:

The ISIS Europa model is built on three interlocking pillars:

Ethical and transparent use: Students learn to declare what has been AI-generated versus human-created, practicing responsible attribution and digital honesty.

Critical evaluation of AI outputs: Learners are trained to compare AI outputs with authoritative sources, and encouraged to validate claims through teachers or subject experts, building strong fact-checking habits.

Creative and original use: Instead of copying, students are expected to use GenAI as a launchpad to build arguments, generate hypotheses, and create new and original content.

These pillars are underpinned by **Civic Education Competency No. 10,** anchoring **AI literacy as a cross-disciplinary competency** aligned with national education standards. Students are required to document all interactions with AI, with this traceability used for both evaluation and ethical reflection.

ISIS Europa also developed a **five-criteria GenAI Evaluation Rubric,** covering: Prompt formulation, output evaluation, integration of AI outputs, tool use proficiency, self-reflection and metacognition.

The rubric shifts assessment away from outcomes and towards learning processes. Students are not graded solely on what they produce, but how thoughtfully they used AI tools to get there. **Rubric levels help trace individual progression in AI fluency, criticality, and ethical application.**

Notably, **ISIS Europa** uses a variety of GenAI platforms to teach students that not all AI tools are the same and allow them to get familiar with all and avoid brand loyalty. It uses: **ChatGPT, Gemini, Claude, Bing Chat, DALL-E, Midjourney, Leonardo, Ideogram, and Stable Diffusion.**

Interview with ISIS Europa innovation lead, Roberto Castaldo

How has GenAI integration gone for this project?

The first steps of such a significant experiment are never easy, and the outcomes haven't always been positive. But precisely because of what's at stake, I believe it's worth pushing forward, while remaining open to feedback, especially from students, and being ready to adjust the design at any time.

What have been the difficulties in integrating GenAI as you've done? i.e. was it hard to get teachers on board? Was it hard to convince students?

The biggest challenge, in my opinion, has been the paradigm shift required from teachers. Many of them expressed strong doubts and resistance. With students, it was much easier, mainly because there was no coercion involved. I believe one of the keys to success is proposing a shared path forward, never imposing it. An alliance is worth a thousand times more than a war.

What benefits have you already seen from implementing GenAI as both a subject of study and as a working tool?

A tool like GenAI must be understood in order to be used sensibly and consciously, especially in an educational setting. That's why I believe the two aspects - AI as a subject and as a tool - are inseparable. They go hand in hand.

What are your top tips for schools looking to follow similar models?

My top recommendation is to read, study, and adopt the Manifesto and Ethical Code for Artificial Intelligence in Schools - www.miasedu.it - which outlines principles and guidelines addressed specifically to both students and teachers.

In-depth case study: A practical model for AI implementation in action from Franklin School, *New Jersey (USA)*

Franklin School in New Jersey has developed and implemented a "Franklin A.I. Reporting (FAIR)" and AI-powered feedback tool that delivers real-time, on-demand performance reports for students and parents.

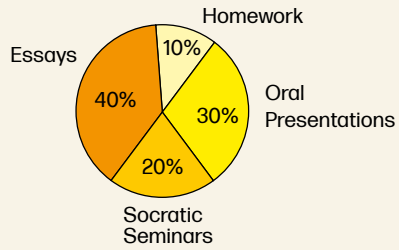
The tool is fully integrated with the school's Canvas Learning Management System (LMS), and utilises advanced AI to generate personalised feedback based on each student's homework, draft submissions, assessments and tests.

How it works:

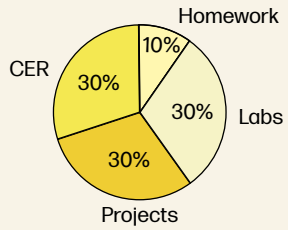
FAIR works by analysing the rubric-aligned teacher evaluations tied to each assignment. The tool produces feedback that is positive, critical, precise, and progress-oriented, supporting both academic growth and reflective learning. For added transparency and support, parents have access to feedback reports for all assessments and tests conducted within the past two weeks.

Feedback reports are dynamically generated from Canvas assignment groups and weightings.
For example:

English:



Science:



How the AI tool is used to improve student wellbeing

Will Campbell, Franklin School Head of School, said: ***"The Franklin AI Reporting (FAIR) tool is more than a digital feedback generator, it's a core component of our Academic Care Program, reinforcing Franklin School's commitment to both academic excellence and holistic student development.***

"The Academic Care Program at Franklin provides all students with personalised mentoring, emotional support, and long-term academic skill development, regardless of their learning stage. Through small mentoring groups, peer support systems, regular check-ins, and data-informed feedback loops, the programme ensures that students receive sustained guidance in both academic and personal growth. Workshops embedded within the skills curriculum target executive functioning, emotional regulation, self-management, and perseverance.

"FAIR plays a vital role in this framework by providing on-demand, rubric-aligned reports that are used during academic care sessions to ensure feedback is understood by helping students unpack teacher comments and AI insights, and support actionable strategies through mentoring discussions grounded in real data. It also lets us track progress over time, allowing mentors and students to reflect meaningfully on growth and set new, achievable goals."

Conclusion

Our Council's key findings and actionable recommendations for policymakers and education institution leaders include calls to:

Give students a formal seat in AI governance and policy design.

Protect students' data, and ensure that students are taught about the policy regulation of AI and how it's slow to catch up with developments. This will enable students to make informed decisions about their data sharing and use of AI.

Create policies that reflect how student–AI emotional attachment is a growing safeguarding issue – while also deploying AI to help improve student safeguarding.

Ensure students are equipped to deal with an AI-led world - and don't suffer cognitive atrophy as a result of too much AI use - through teaching and building metacognition and "AI-mastery" in schools.

Ensure that "friction" remains in the learning system to protect students' learning and job market-readiness - including through the use of AI agents.

Embed parent-community engagement and safeguarding modules into K-12 systems to help families understand and co-manage GenAI use. Examples include quarterly AI-safeguarding workshops with parents, continually updated WhatsApp channels and co-developed policy use.

Appendices

These are just some of the resources out of many shared during Council discussions.

UNESCO AI Competency Frameworks – useful baseline, though not always contextually inclusive
https://www.unesco.org/en/articles/what-you-need-know-about-unescos-new-ai-competency-frameworks-students-and-teachers

DCO/Misk/Accenture GenAI Ethics Paper
https://dco.org/youth-shaping-the-future-ethical-consideration-for-gen-ai-in-higher-education/

Work from the NEES Centre (Brazil), which focuses on AI in low-connectivity environments, developing unplugged, hardware-light AI education
https://www.nees.ufal.br/

Personalising Learning with AI
https://www.youtube.com/watch?v=pnDd190SChg

Full findings of the Fox survey
MS Student Cabinet - AI Discussion
HS Superintendent Student Cabinet - AI

Tokyo case study materials
https://www.mext.go.jp/content/20241226-mxt_shuukyo02-000030823_001.pdf

HP Futures Council on AI & Students Council Members:

Name	Title	Organisation	Country
Carla Aerts	Catalyst and Consultant	TrAInOfThought	UK
Paul Atherton	CEO	Fab Inc	Switzerland
Mark Buckner	Lead Instructor	Oak Ridge High School's iSchool	USA
Mary Burns	Expert	Brookings Institution	USA
Will Campbell	Head of School	Franklin School	USA
Roberto Castaldo	Computer Science Teacher	ISIS Europa School	Italy
Guilherme Cintra	Director of Innovation and Technology	Lemann Foundation	Brazil
Astrid deRidder	VP of Content	Save My Exams	UK
Lucia Dellagnello	Expert	STC EdTech Team, World Bank	Brazil
Diego García Saiz	Professor and Researcher in Software Engineering, Data Science and AI	Universidad de Cantabria	Spain
Alex Gray	Head of Sixth Form	Arcadia School	UAE
Gouri Gupta	Director of EdTech	Central Square Foundation	India
Zoya Lytvyn	Founder & Head	Osvitoria	Ukraine
Rodrigo Marques	CEO	Groupo COC Sao Luis	Brazil
Helena A. Mendonça	Educational Technologies Coordinator	Bioma Educação	Brazil
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Muzammil Mohammed	Teacher	Riverside School	India
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Shinichi Yamanaka	CEO	N High School	Japan
Boris Walbaum	CEO	Forward College	France
Shiny Wang	Vice Principal	Beijing No.4 High School International Campus	China

04

HP Futures 2025: Student Survey

OVERVIEW

HP Futures 2025 Student Survey

Survey timeline

the survey was open for responses between 38 days / 5.5 weeks.

Launch

May 8, 2025
00:00 GMT

Close

June 15, 2025
23:59 GMT

Survey participation

The survey received

2,860
responses
from students based in

21 countries
around the world.

These were then re-weighted so that each country contributed equally.

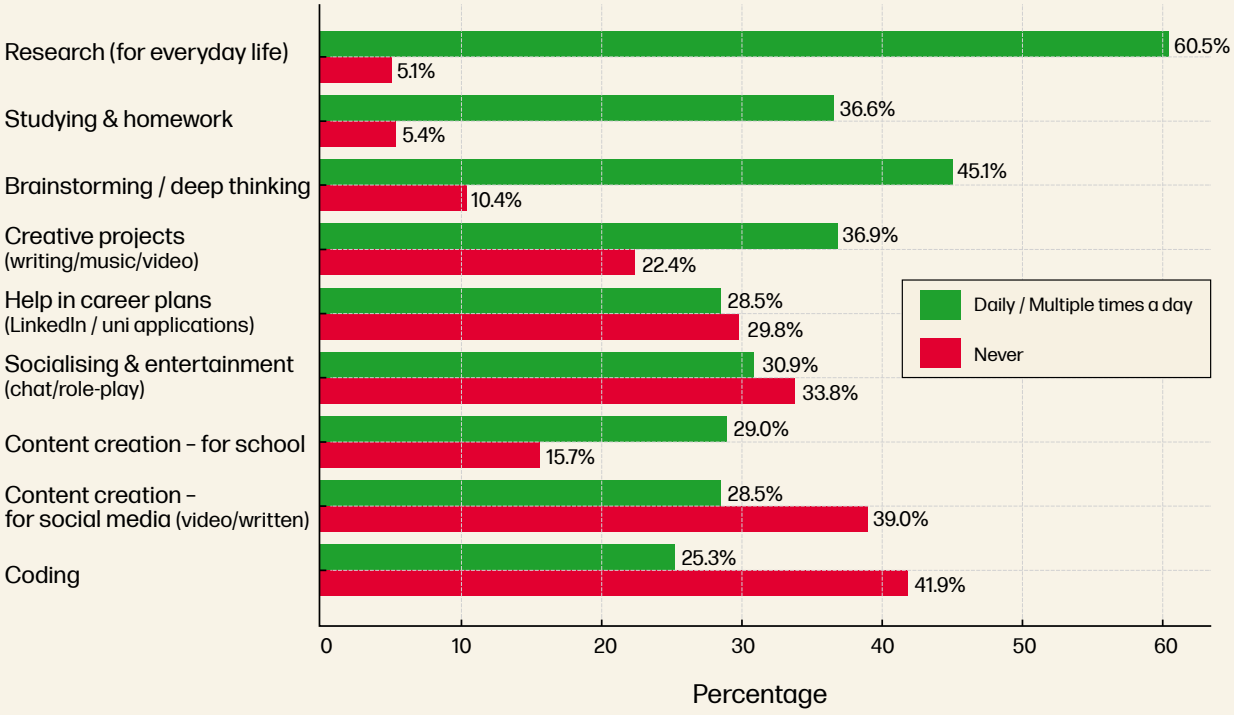
Countries represented in the survey

The United States	Lithuania	Afghanistan	Brazil
Pakistan	Australia	China	Qatar
South Africa	United Kingdom	United Arab Emirates	Bermuda
Spain	Uganda	Azerbaijan	Canada
India	Mali	Saudi Arabia	Mexico
Malaysia			

Survey findings

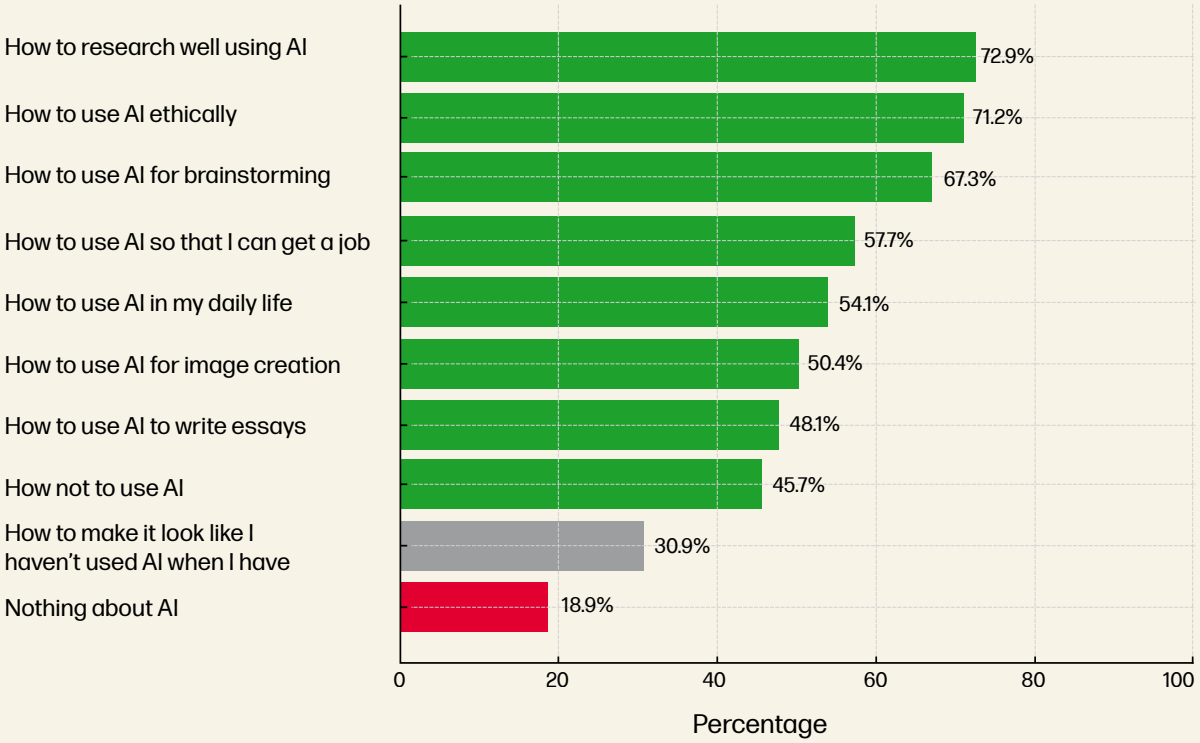
How students are using AI today

Finding: Nearly two-thirds of students (61%) polled are already using AI in their daily lives for research.



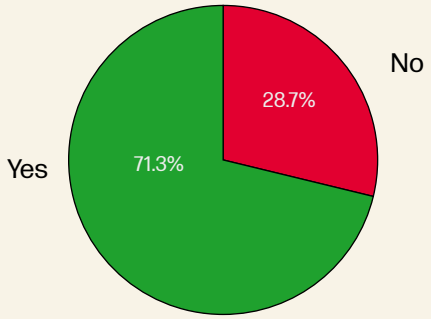
What should schools teach about AI?

Finding: 73% of student respondents want their schools to teach them how to research effectively using AI, and nearly three-quarters (71%) want to be taught how to use AI ethically.



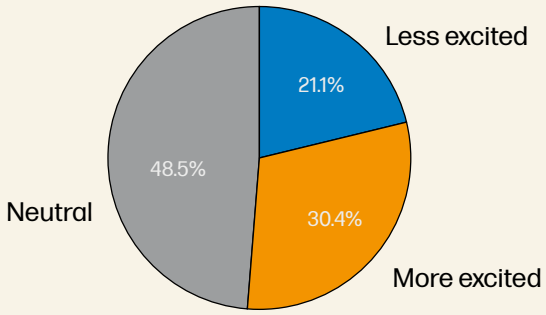
Students want to be taught how to use AI ethically

Finding: An overwhelming majority (71%) of students polled think that there should be limits to AI capabilities.

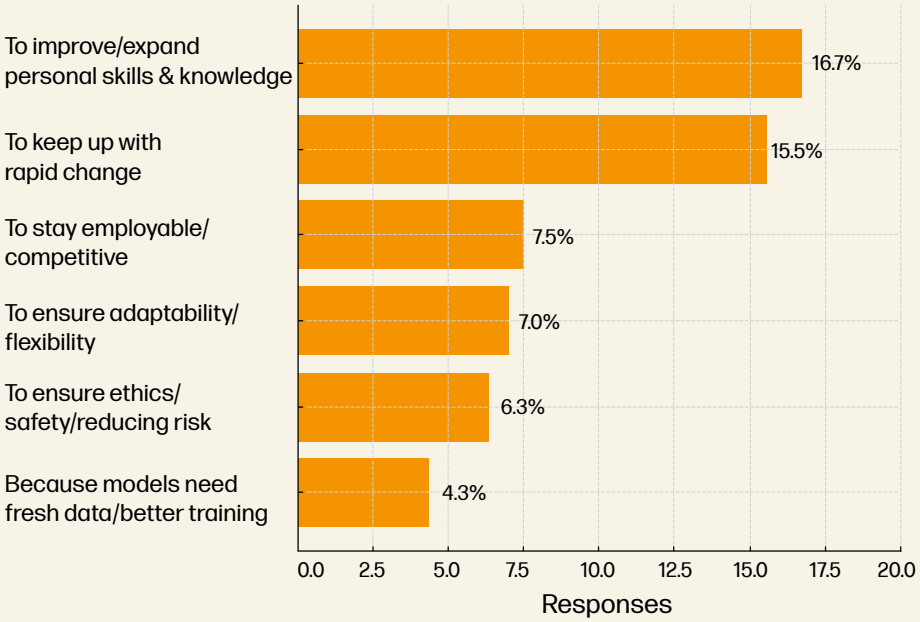


How AI makes students feel about jobs/future

Finding: Just 21.1% of students said AI made them feel less excited about their future job prospects



Why does continuous learning matter in the context of AI?



Footnote

To give a more accurate picture of global views, Survey Findings were weighted for proportionality given that one country, Pakistan, was disproportionately represented in responses.

Additional materials

After taking the HP Futures Survey, students at Centralia High School in Southern Illinois, USA, decided to develop their own vision statement for AI in schools:

The statement reads: ***"We envision AI in Education as a tool to personalise learning, foster independence, and promote equity, inclusivity, literacy, and environmental awareness. At the same time, we recognise the need to address risks such as misuse, deep fakes, job displacement, reduced foundation skills, lack of transparency, and the need for clear regulations and age-appropriate policies."***

Council Members agreed to endorse this statement.

Council Members also shared their personal experiences of students and AI use. They decided it was important to mention/reference in the report that:

- Many students are using AI to cheat, but feel demotivated or uncomfortable doing so.
- Some students fear becoming too dependent on AI.
- Some students distrust AI's data use entirely.

05

HP Futures Council on AI & Educators

Reshaping and reinvigorating the role of educators in the AI era

CONTENTS

> ***"AI won't replace teachers. But teachers who use AI will replace those who don't."***
> AI & Educators Council
>
> ***"We must stop designing EdTech for teachers without teachers."***
> AI & Educators Council

FOREWORD

Around the world, AI assistants are now marking homework and helping teachers create lesson plans. In some schools, teachers are already using AI assistants to cut planning time in half, while others are experimenting with adaptive instruction in multilingual classrooms.

EdWeek Research Center data shows that **between spring and autumn 2024, the proportion of teachers who reported receiving at least one AI-related training session increased by 50%,** and a nationally representative survey found that **half of US school districts now provide AI training for their teachers.** Meanwhile, AI-powered tools are already scheduling office hours and streamlining school management systems as institution leaders race to find efficiencies.

And this is just the start. In the years ahead, schools and universities will look to implement AI-driven technologies and innovations, which will entail overhauling traditional teaching and assessment methods.

Many teachers and lecturers are reporting finding great benefits from these tools – and their use cases are only set to grow, improving everything from inclusion ability to time-management. However, large-scale teaching system overhaul is a big ask for a profession already stretched thin.

Even before the arrival of Generative AI, **most educators faced mounting demands on their time, limited funding and systemic workforce shortages.** Now, the emergence of powerful AI tools has added a new layer of complexity. Its arrival poses urgent questions about what teaching is, what it should be, and how it should evolve for this new age we are entering.

An important factor to consider at the start of any discussion around AI & Educators is the fact that many teachers and lecturers remain wary of this new technology and its arguable potential to replace human educators. These concerns are understandable given provocative predictions that have sparked debate, such as the one from **Microsoft founder Bill Gates,** who recently said that soon **"the world will no longer face shortages in professions like doctors, teachers or factory workers",** because AI can take many of these jobs.

In our discussions, our Council emphasised that educators have to be brought on-side if we want to see AI deployed successfully in education settings. **Educators must be reassured that these tools will enhance their working lives, not make them redundant.**

As a Council, we looked at what the educator role could look like in AI-enhanced learning environments of the future. We discussed the vital importance of involving educators at every level of AI in Education deployment – from LLM upgrades and EdTech tool design, to AI policy formation. We shared case studies of how AI is already being made to work for teachers in classrooms from London to Sao Paulo, and deep-dived into frameworks such as Leon Furze's TEFL-inspired AI Assessment Scale, which is turbocharging adoption rates.

We also explored concerns educators have raised, such as lack of AI training provided by employers and school districts, and as a Council decided to stress that **integrating AI successfully in education will require significant investment in educator upskilling and AI literacy.** Investing in this way should also lead to improved teacher retention through helping to keep teachers engaged and supported. Surveys have already shown that **investing in professional development that is aligned to teachers' needs and goals can help improve retention.**

Fundamentally, we concluded that it is vital that policymakers and education institution leaders act fast to ensure AI is used to elevate the teaching profession and improve educators' lives, not erode their essential work and skills bases. **Put simply, AI should replace the mundane, boring bits of being an educator and none of the rewarding elements, freeing teachers to spend more time interacting with students and building their metacognitive, SEL and future economy skills including creativity, adaptability and problem-solving.** As we concluded in our final Council session: this is not just an opportunity to introduce AI. **This is a moment to redefine the future of teaching for the better, and we must not let it pass us by.**

We hope this report acts as both a call to action and a practical resource for education leaders, EdTech for teachers innovators and, crucially, for the frontline educators building what comes next.

With many thanks,

Tannya Jajal
Founder and CEO, AIDEN

Rajiv Suri
Vice President and Global Head of Enterprise AI and Machine Learning, HP Co-leads, HP Futures Council on AI & Educators

Chapter 1

Reimagining the educator role – from sage on the stage to expert facilitator in an AI-enhanced environment

To ground our discussions, we began by sharing what effective AI for Educators strategies are looking like on the ground in schools and higher education institutions today.

We heard how, across K-12 systems from Rwanda to California, AI is already changing what teachers do and how they do it. Council Members reported seeing AI literacy training and freely available AI tools (ChatGPT, Gemini) being used for lesson planning and assessments. Members shared how **teachers are experiencing workload reduction** through auto-grading assessments, lesson planning, differentiation activities, and data dashboards.

We heard how some school groups, such as Rising Academies, are making significant long-term investments ($5M+) into developing AI-powered tooling, such as a virtual maths tutor, WhatsApp-based auto-grading and teacher dashboards – tools that are already generating positive feedback and cost-savings. **In South Africa, SPARK Schools** is leveraging adaptive AI to tailor instruction in multilingual classrooms. **In Chile, Lab4U** is working on implementing AI-enabled science resources to enable non-specialist teachers to deliver content in schools facing subject-area shortages. Meanwhile, the Chilean national education ministry is supporting the development of a Spanish language LLM ("LatAmGPT") and AI centre of excellence. And **in Colorado,** an indigenous student district is using AI for collective intelligence. These are significant developments being seen across multiple contexts.

However, Council Members were quick to stress **that these developments all rest on securing educator buy-in.** We agreed that the introduction of AI tools must be done with educators' approval, as education systems cannot risk
a) **increasing teacher workload**
b) **undermining trust between leadership and educators, or education unions or**
c) **eroding the value of teacher-student interaction.**

We concluded: AI must be used to enhance what educators do best, and leaders must be careful not to turn AI integration into another demand on their time.

Case Study :

Chile's National Center for Artificial Intelligence (CENIA) and collaboration with other regional countries to create "Latam-GPT"

We heard how **Chile's state-run AI centre has invested heavily in developing an LLM, Latam-GPT, specifically trained to understand the region's diverse cultures and linguistic nuances.** The open-source project has been run alongside 11 other Latin American countries and taken input from more than 30 regional institutions. Development of Latam-GPT began in January 2023, seeking to overcome inaccuracies and performance limitations of global AI models that are predominantly trained on English-language data.

Chilean science minister **Aisen Etcheverry has said the project** *"could be a democratising element for AI",* **and hopes it will be applied in schools and hospitals.**

We framed our initial discussions around four critical questions:

1 How is AI changing the educator role? And what does this mean for recruitment, assessment and beyond?

We explored how teachers are shifting from **"sage on the stage"** towards expert facilitators of deep learning, spending more time with each student and helping them build the metacognitive and SEL skills that will be vital in the AI era. AI promises to reduce administrative and assessment burdens, personalise instruction and free teachers to focus on what matters most: imparting knowledge, supporting students as people, and fostering critical thinking, SEL and lifelong learning skills.

AI-enabled feedback systems could even make teaching more rewarding by providing real-time insight into student progress. We discussed how the chance to spend more time on these rewarding elements of teaching and lecturing, and less on marking and mundane administration, could dramatically improve the teaching role day-to-day and help solve teacher recruitment crises.

However, we also explored how, **without careful implementation, AI could become another layer of complexity, deepen existing educational inequalities across contexts, and even undermine the teacher-student relationship.** The core challenge is therefore not whether to use AI, but how to ensure its deployment enhances teaching rather than diminishes it. **As one Council Member reflected:** ***"We must reimagine the teacher's role. AI should not be an add-on. It should be a thoughtful and empowering part of the teaching craft."***

We explored how the higher education sector faces specific challenges in integrating AI into traditional teaching. **Difficulties include changing traditional academic evaluations and integrating AI effectively into research and foundational skills training.** Some universities are now creating AI-specific foundational courses, and we agreed as a Council that we need to see this happen more widely across disciplines. We agreed to explore examples where early winning approaches are being developed. See Case Studies chapter.

We also explored how assessment and the teacher's role in assessment must change in the AI era. For example, AI tools can take over marking written/typed/on-screen tasks, but it will be essential to test students' knowledge retention in new ways, given the ease of curating information through LLMs to hand in as homework.

Based on their expertise and experience, Council Members suggested that assessment be reshaped to be more viva-like in-classroom. Asking students to share knowledge verbally in front of a teacher or peers is more like the roles they will need to hold in workplaces, and is a way to test knowledge retention, rather than the use of AI tooling. Teachers will need to be trained to test and mark in this way, as opposed to through traditional testing methods.

Council Members also suggested requiring portfolios that compare human-only and AI-assisted work, and the adoption of co-authorship disclosure and critical, considered AI use rather than blanket bans. ***AI will be used in the workplaces of the future - it should be used in assessment today.***

2 How can education institution leaders secure teacher buy-in for using AI? And how can teachers be sensitively upskilled, while simultaneously improving productivity and reducing workload?

A key block to embedding AI in education today is the wariness of educators towards this new technology. We discussed how educators are likely to be less wary of the technology if using AI delivers immediate results and practically addresses workload and burnout. Areas explored included teacher/lecturer-specific AI training and plugging data insights to start using AI to make teachers' working lives easier and improve their roles, easing workload management and preventing burnout. We also agreed on the **urgent need to deliver AI upskilling and professional development**

services for all educators, and to do this sensitively and with educator buy-in.

Council Members shared examples of **AI tools that generate lesson plans aligned to standards, mark homework and provide data dashboards** for formative assessment. Early evidence suggests these tools reduce planning and marking time by 50–60%, allowing teachers to focus on higher-order tasks such as relationship-building and personalised feedback. However, we also acknowledged as a Council **that time savings are not always translating into improved wellbeing in early implementation examples, as teachers remain overstretched.**

3 What are the limitations of AI and LLMs in education? What balance between top-down policy and bottom-up, educator-led innovation will lead to scalable AI in Education strategies?

Key points raised here included the **risks of hallucinations,** and the fact that **generalist LLMs are not specialist-trained.** Council Members highlighted how LLMs pull the broadest possible answers, so they don't support innovative or critical thinking unless they are used in a contrarian way to eliminate ideas/solutions rather than generate them. Solutions proposed included to **fine tune and adjust temperature** and top-up, which educator users could do with prompting, and developers can definitely do by directly working with the API. Both measures affect the variability of output.

We also agreed that EdTech tools must be created with teachers' expert input - and honed with their feedback - in order to best deliver for students going forward. We also agreed to emphasise that all AI / EdTech tools must be centred on clear pedagogical, student and educator wellbeing objectives, not ease of access and development for companies. We also agreed that central frameworks must leave room for local experimentation, with feedback loops to refine and scale what works.

Chapter 2

Professional development, tool co-design and transparency

Our Council Members stressed that **educators must be provided with AI upskilling courses and wider professional development going forward,** if the education system is to effectively integrate AI as more than an ad-hoc add-on. We also discussed how, although teacher recruitment and retention may improve as AI-native educators enter the workforce, **without strong ongoing support, burnout will persist among teachers - regardless of AI - if systems fail to evolve in other ways.** This includes incentives such as improving educator salaries.

The experts also cautioned that **in the absence of professional development and supportive oversight from institution leaders, many are already seeing "bad habits" around AI use creep into education systems.** For example, Council Members reported seeing lecturers having AI differentiate content and generate assessment with limited oversight and critical thinking. Council Members said this is even resulting in some lecturers becoming an "AI copy editor" in some cases.

Discussions around this led us to agree that when educators use AI well, they tend to use it in two ways: 1) for discrimination 2) for titration - rather than as a wholesale replacement for educator expert input. We agreed to call for guidelines to be put in place across institutions to avoid this type of outcome.

As a Council, we also decided to emphasise that it is not only educators who need to be provided with AI upskilling training – school and university leaders also urgently need to go through rapid 'AI literacy training' that undergoes constant review. We discussed how leaders going through these AI literacy/mastery programmes alongside their teams will be a vital part of ensuring policy goes in the right direction. If headteachers and governors, for example, remain uneducated on AI, they are less likely to create policies that work for educators and students.

Further key findings from our discussions:

- **Transparency with educators is key in any framework, and co-design matters:**
  We concluded that teachers must be informed and involved in any AI implementation from day one. Initiatives like EdChat in South Australia, developed through co-design with local educators, were highlighted as examples of how this is already succeeding in practice.

  EdChat is South Australia's government-developed generative AI chatbot. It was built with Microsoft to support educators by streamlining tasks like lesson planning, adapting materials, and answering admin queries – all within a secure, in-state cloud environment. **It has now been rolled out to 30,000 staff across 900 public schools,** and uses strict content filters and a teacher-controlled "traffic light" system to manage student access. Early trials show strong uptake and impact, with teachers saving time and students - especially those with learning or language barriers - reporting increased engagement and confidence.

  There was strong consensus that **this type of blended approach is essential when it comes to innovating in AI for teachers**, i.e. having central frameworks with space for local, grassroots experimentation and committing to evolution taking on-the-ground local educator input into account.

- **We need language diversity in AI tooling, localisation and low-resource design:**
  Tools must be usable across languages and contexts. SPARK Schools' use of multilingual AI was praised for easing the burden of differentiation. Another was the Letrus writing support tool in Brazil, which Council Members said has been very effective thanks to robust moderation and analytics.

- **Educators need to see immediate workload reduction:**
  Technology should free up educators' time, not consume more of it. Council Members pointed to tools such as Mindjoy's AI teaching assistant and the ChetU-Cycle moral reasoning feedback system at Malaysia's digital school as examples of instances where educators could see AI immediately reducing time spent on routine tasks and creating space for more student and skills-centred lessons.

  Under Shahnaz Al Sadat, Managing Director at Sekolah Anak Malaysia, the digital school has developed "ChetU-Cycle", an AI teaching assistant that gives real-time feedback to educators. Al Sadat said it enables teachers to focus more on student social-emotional learning and moral development, and ends up preserving student time, not just teacher time.

- **Trialling using the classroom as an "AI Lab" or "AI Sandbox" is proving effective:**
  Many Council Members called for dedicated "AI sandboxes" or lab spaces where teachers can experiment with tools in a low-stakes environment. One model highlighted by Council Members was the Verizon Innovative Lab Curriculum. This lab uses immersive learning as an educational approach that leverages emerging technologies, such as **augmented reality (AR), virtual reality (VR), 3D printing, and artificial intelligence,** to create engaging, hands-on learning experiences. Such spaces allow educators to test, adapt and iterate without fear of failure or top-down mandate – also mirroring our recommendations in the AI & Students section.

  Council Members also stressed that education institution leaders and EdTech innovators must embrace this type of iterative approach, i.e. to pilot, learn, gather feedback from educators, refine and then scale. As a Council, we decided to recommend tracking foundational indicators (i.e. early-reading rates, SEL scores) in real time, using small pilots to surface impact, then expanding tools that amplify proven practice.

- **Educators need to be provided with access to high-quality AI skills training:**
  Council Members shared examples of training models under development in the UK and US, including the HP AI Teacher Academy and Cambridge's international teacher training efforts (e.g. in TESL, STEM).

  For example, in a three-hour course, HP AI Teacher Academy helps equip educators with the essential knowledge and skills to understand, use, and evaluate generative AI systems and tools. Educators who complete this course will be able to identify ways to integrate AI literacy into their teaching practices, select relevant tools for their learners, understand their ethical responsibilities, and ways to evaluate AI tools and outputs for their classrooms.

  Another useful course highlighted was the 4Dedu AI Literacy Course. This online, modular course is designed for school leaders and policymakers, focusing on AI basics, ethical frameworks and implementation strategies. **Council Members advocated for mandatory completion of such programmes for decision-makers.**

The lines between what AI-powered platforms can and can't teach are becoming blurrier – as evidenced by the rollout of AI-powered SEL support tools

This discussion emerged as the result of a case study shared by Rishabh Khanna, CEO of Suraasa, a Dubai-based skill-tech and job-tech platform dedicated to enhancing teachers' career growth.

Khanna works with educators all the time, and shared an example of a successful model of holding roundtables that help educators themselves identify "teacher vs AI roles".

He said: "We asked: 'what are the things that AI can do, and what are the things that a teacher should be doing? And how do we segregate those responsibilities?'

"You'd be surprised by the answers we heard. **It was not AI for knowledge, teachers for the human, empathic skills.** There were principals, heads of schools there who shared that they now have **AI-led tools running SEL programmes,** tools which are working on the well-being of the students. It made me realise all those lines we thought were there are much more blurry. However, everybody agreed on one thing, that the final human touch – that humaneness of a teacher where you do things which have not been predefined – needs to stay.

"I think it's the hidden curriculum which really the teachers will be driving as we go into the future, and not the explicit curriculum."

Khanna also shared how his team has already **"flipped classroom structures"** in some cases so that learners use AI tools independently, while teachers focus on giving deeper guidance and this **"human touch".**

We explored this as a Council, and agreed it is an important point to note in any report about the future of AI and Educators. **In short, previous assumptions on what roles and skills AI can and cannot cover may be outdated.**

AI could help solve persistent teacher recruitment challenges

Our Council also explored another side to AI and educators: the fact that its expansion could help solve persistent teacher recruitment crises. We explored how this could come about in part through making the role even more rewarding, through **AI removing a lot of the mundane administrative work teachers currently take on. Longer term, AI advances may also reduce the need for as large a number of teachers in strained systems.**

As one Council Member said: ***"This calls for a re-imagining of the teacher role and profession at large. There will be more applicants and fewer roles, so it will be a lot about upskilling."***

Chapter 3

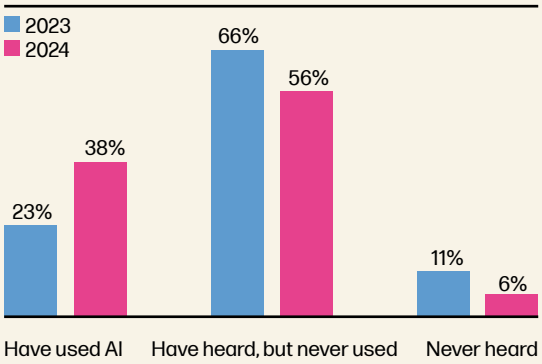
Making AI work for teachers in the classroom, in theory and in practice

> ***"There was a sense previously that through implementing an AI tutor or AI learning structure, teachers would have more free time. But actually, it's not free time. They now have time to do the real teaching work. There was a lot of work which was taking that teaching time away."*** - Council Member Rishabh Khanna, CEO of Suraasa

As a Council, we discussed further how the teaching profession is evolving toward what one expert called "a hidden curriculum of care" - one where the core of the teacher's value lies in the human nuance. As the Suraasa case study highlights, it is important that teachers know when to step in, when to step back, and how to maintain pedagogical intentionality in a world of automation. We discussed how this evolution means that teachers will in fact need more - not less - training in the AI era, in order to develop these skills further - and to ensure every teacher knows which aspects of their role to delegate to AI, and which to retain.

We explored how new tools and frameworks are emerging to support that shift. See Leon Furze case study below. However, a common challenge emerged across contexts: most teachers are still not adopting AI, or are in the early adoption phase and unsure of how to use these tools effectively. Many still feel they are navigating these shifts alone, without policy support or adequate training.

Teachers and AI



Nova Escola survey #2 :
AI usage among educators in Brazil

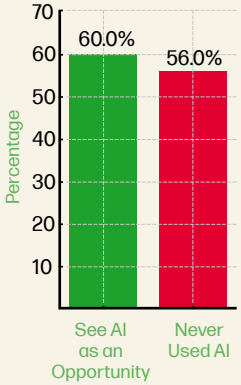
60% believe that AI represents an **opportunity**
51.4% who use AI claim that the tools are used to **help build lesson plans**
For 53.8% the biggest benefit of AI is **saving time**

September 2024 I 7,060 respondents

Nova Escola

Case Study : **Surveying 1.7M educators in Brazil on their AI use and views**

1.7M
Brazilian teachers surveyed on their AI use and views



Ana Ligia Scachetti, a Council Member leading major Brazilian education group, Nova Escola, shared that the organisation has been running surveys with over 1.7 million teachers in Brazil. Its most recent surveys, conducted in September 2024, **found that although 60% of those surveyed see AI as an opportunity, 56% had never used AI.** The surveys also found that teachers see transparency, agency, and co-design as critical to ensuring AI is seen "as a tool, not a threat".

The core solution to this issue is, as highlighted above, to ensure educators are offered long-term, in-depth AI upskilling courses and training. Another idea we explored to address teacher shortages was the concept of trialling a **"braided career"** model, made possible through the use of AI tools and support from industry professionals.

Council Member Joysy John MBE is an entrepreneur, EdTech advisor, and teacher. She said: ***"A new model is emerging, called the braided career model. The Royal Society has spoken about it, and some pilots are being run in Scotland. This is where, in order to address the teacher shortage, you bring people in from industry not as full-time teachers, but as experts who can share some of their time and their expertise with schools, and then use AI for scheduling for lesson planning for assessment... This could be a new model that could help address the teacher recruitment and retention crises."***

Case Study :

Helping teachers develop AI frameworks in Camden, London (UK)

Joysy John shared her own experiences at Parliament Hill School in London, which show how teachers benefit through learning how to tailor AI tools to their classes, rather than just adopting plug-and-play software. This is an example of **EdTech x teacher input = success**, which we decided to highlight in the report.

She said: "I'm currently teaching Computer Science GCSE at Parliament Hill School, a state secondary school based in Camden with 1,800 students. I've been experimenting with lots of AI tools.... I've been able to **mark hand-written exam papers using a tool called MarkSmart, give personalised student feedback, generate class-level feedback, and identify which questions students are finding hard.** This helps me tailor my lessons, set targeted practice questions and also provide additional support.

"I've also been sharing this with other teachers. We've created an AI working party where it's not just teachers, but also admin and support staff and teaching assistants who are able to learn and share what they are experimenting with when it comes to AI... It's working really well, and helping teachers and staff build confidence. We're now planning to disseminate this model across different schools.

"I think six out of 10 teachers are using AI today, but hardly any schools have an AI policy, so there's a huge risk that people are already using it in ways that they shouldn't be using or putting sensitive information out there. So I think the key learning here is that we need to have an AI policy that adapts to each school's specific context. And then we need to provide the training to ensure that teachers have the skills to be able to use these tools effectively."

Chapter 4

Our recommendations for AI risk and bias mitigation frameworks for educators

During our conversations, we discussed the importance of adopting risk-based and bias-mitigation frameworks that include:

Risk-level graphs:

Visual scales that help educators judge the sensitivity of tasks and decide whether AI is appropriate. For example, high-risk tasks (e.g. pastoral care conversations) require human-only intervention, while low-risk tasks (e.g. generating quiz questions) may be suitable for AI assistance.

Deployment protocols:

Step-by-step guides that start with a pilot phase, include teacher-student feedback loops and specify criteria for scaling. These protocols should be agile, allowing teams to iterate based on real-time data and reflections.

Co-authorship disclosure:

Systems that require educators and students to identify what proportion of a product was AI-generated versus human-created. This fosters accountability and trust.

Bias audits and temperature controls:

Educators should be trained to adjust parameters when using generative models to reduce hallucinations and encourage "friction-creating" outputs (see AI & Students section). AI and EdTech developers should also incorporate bias audits at the design stage, if they intend to sell their products into education systems.

(See AI Charter section)

Chapter 5

Case Studies – Leon Furze's pioneering TEFL-inspired framework and further successful models securing educator buy-in for responsible AI integration

Case Study :

Leon Furze and the pioneering AI Assessment Scale

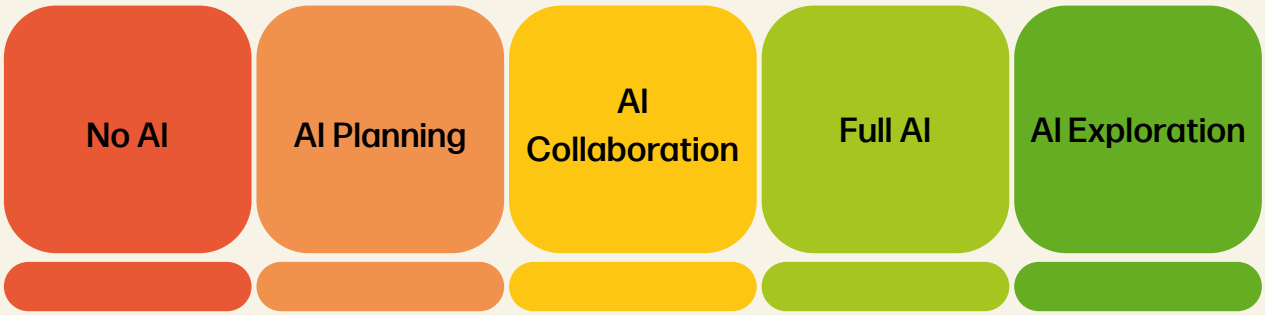
Overview

The work of Australian educator Leon Furze takes a "TEFL" style (Teaching English as a Foreign Language) progression approach to AI for educators. His multi-level AI integration framework has been widely adopted in K-12 and higher education settings in recent years to support safe, phased AI implementation. The AI Assessment Scale framework involves five levels, and provides a structure in which to think about how to apply AI and why, and looks at specific activities to help educators integrate AI responsibly and effectively in classrooms.

Multiple Council Members attested to this framework and its objectives being wonderful, and educators shared that they have personally been experimenting and iterating successfully with the framework in different countries and contexts. We concluded that the success of the Leon Furze model is important to note in the report, because it is the most high-profile example of the fact that educators are most open to AI tools that help with low-risk, high-friction tasks like planning and marking – and that tools that are co-designed, explainable and tested before scaling are most likely to succeed.

As Council Member Chaula Gupta, Vice President and Chief Program Officer at Digital Promise in the USA, said: ***"The framework helps teachers stop asking 'can we use AI?' and start asking 'where would we use AI?'"***

The AI Assessment Scale



In detail

The AI Assessment Scale model serves as a structured framework to evaluate how and when AI should be integrated into classroom practice. It helps educators match AI use with specific learning objectives and classroom contexts. For example, Level 0 is no AI use, which is reserved for tasks where human-only input is essential (e.g. foundational writing or knowledge demonstration). Levels 1–4 involve educators using increasing integration of AI, aligned with task complexity and learning goals, ranging from basic tool-assisted planning to creative, co-authored outputs that demand sophisticated metacognitive reflection.

The model is explicitly goal-aligned: educators are encouraged to define the pedagogical objective first, then select the AI integration level that best supports it. It also prompts educators to reflect critically on when not to use AI, emphasising that deliberate "no-AI zones" are as important as supported use.

He suggests asking:

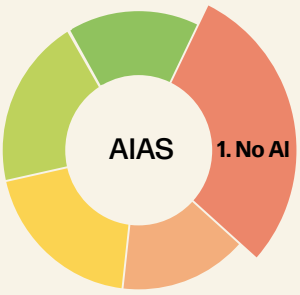
- Is this skill being practised enhanced or hindered by AI support?
- Are learners ready for that level of abstraction or co-creation?

This model helps avoid cognitive offloading that undermines learning for students, and reassures educators implementing AI.

Notably, the framework is not static. Furze continues to evolve it in collaboration with international educators, and publishes updated versions (including reflections and refinements) online:

AI Assessment Scale v1 – December 2023 | Updated Scale – August 2024

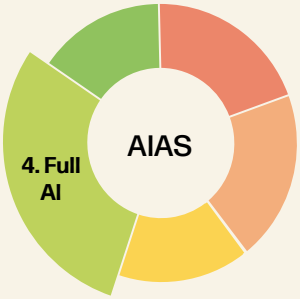
Educators from different countries and school systems have begun to adapt and iterate the model to local contexts. This decentralised development aligns with our Council's consensus on the need for blended frameworks. And, crucially, the framework offers a practical, teacher-led setup that anchors innovation in the realities of the classroom and the purpose of education itself.



You must not use AI at any point during the assessment

You may use AI for planning, idea development, and research

You may use AI to draft, refine, and evaluate your work

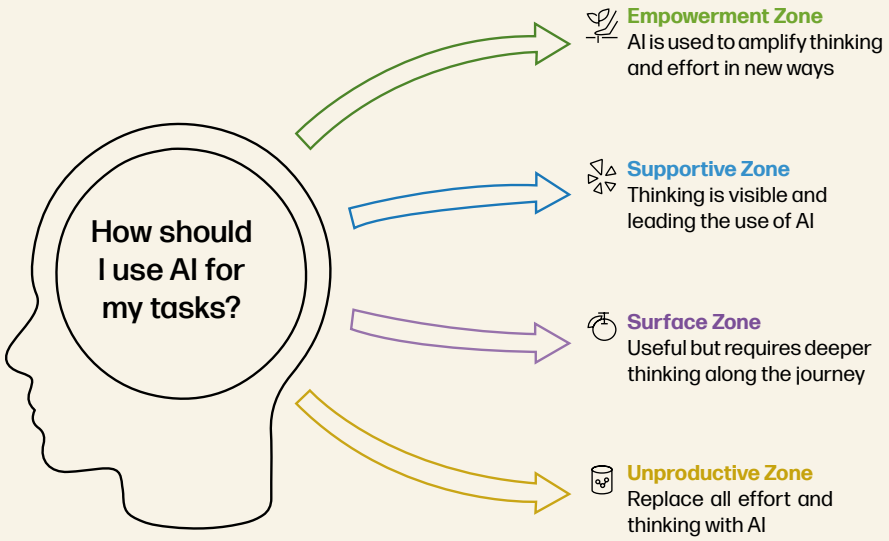


You may use AI throughout your assessment

You may use AI throughout your assessment

The AI Assessment Scale

1	No AI	The assessment is completed entirely without AI assistance in a controlled environment, ensuring that students rely solely on their existing knowledge, understanding, and skills **You must not use AI at any point during the assessment. You must demonstrate your core skills and knowledge.**
2	AI Planning	AI may be used for pre-task activities such as brainstorming, outlining and initial research. This level focuses on the effective use of AI for planning, synthesis, and ideation, but assessments should emphasise the ability to develop and refine these ideas independently. **You may use AI for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.**
3	AI Collaboration	AI may be used to help complete the task, including idea generation, drafting, feedback, and refinement. Students should critically evaluate and modify the AI suggested outputs, demonstrating their understanding. **You may use AI to assist with specific tasks such as drafting text, refining and evaluating your work. You must critically evaluate and modify any AI-generated content you use.**
4	Full AI	AI may be used to complete any elements of the task, with students directing AI to achieve the assessment goals. Assessments at this level may also require engagement with AI to achieve goals and solve problems. **You may use AI extensively throughout your work either as you wish, or as specifically directed in your assessment. Focus on directing AI to achieve your goals while demonstrating your critical thinking.**
5	AI Exploration	AI is used creatively to enhance problem-solving, generate novel insights, or develop innovative solutions to solve problems. Students and educators co-design assessments to explore unique AI applications within the field of study. **You should use AI creatively to solve the task, potentially co-designing new approaches with your instructor.**



Case Study :

Trialling "AI Fellows" to increase AI adoption among lecturers, Columbia University (USA)

Soulaymane Kachani, Senior Vice Provost at Columbia University, shared how the institution has recently introduced the new role of the "AI Fellow". The initiative was launched in order to allow lecturers with more experience with AI to internally mentor and support lecturers less familiar with the technology, or less likely to experiment with AI. The idea was to recruit AI Fellows among lecturer and postdoc staff, and so enable the university more widely to implement AI from within.

So far, Kachani said that ***AI Fellows have worked with chatbots, helped to automate a lot of previously mundane tasks for lecturers (checking grades, attendance rotas), improve course materials and expand on the bank of assessments students can access through utilising AI.***

As a Council, we agreed to recommend this approach to other universities looking to softly encourage AI adoption, rather than creating top-down mandates for experienced and often distinguished faculty members.

Case Study :

Davis Middle School, Los Angeles – An example of how to weave AI and latest technology seamlessly into interesting lessons/projects

Davis Middle School in Compton stands out as a global leader in innovation-driven, student-led sustainability education. Working with our **Council Member Jose Gonzalez,** students have consistently designed award-winning STEM projects that tackle real-world challenges, from food security and homelessness to ocean health.

With each project, Jose has involved AI and VR, and other technology such as Arduino and Micro:bits, which students use to build intelligent, sensor-driven systems. These projects introduce core AI concepts including automation, environmental sensing, and data-informed decision-making. Students also explore virtual prototyping, reflecting the digital twin and modelling techniques used in AI development.

Gonzalez has also worked to foster an environment where students engage with the types of problem-solving and ethical thinking that are central to AI's future – including discussing how humans and intelligent systems can work together to address real-world challenges.

Gonzalez said: ***"It's about creating small learning communities that are facilitated by experienced teachers and which respect the input from new teachers. I recommend looking to provide meaningful professional development for teachers, including more training in project-based learning.***

"We need to provide students with access to cutting-edge tools and a future-forward curriculum that encourages creativity, collaboration, and problem-solving... It's about building tech tools skills, inviting professionals into the classroom, and having students working on real-world issues in the classroom.

"I think we can also explore the role of AI in supporting the evolving teacher role (facilitator, mentor, coach etc.) with focus on activities that AI automates and those that AI augments."

For more information, see Appendices.

Case Study :

David Game College, London (UK) – an example of a school pioneering AI learning programmes with 15-year-olds

David Game College in London launched the UK's first GCSE programme entirely powered by AI-driven adaptive learning platforms. The project, the **AI Adaptive Learning Programme or Sabrewing Programme,** launched in **September 2024** and **replaces traditional teaching with AI platforms that personalise instruction** in core subjects like maths, English, and science based on each student's strengths and weaknesses.

Every morning, students on the programme work independently through personalised digital pathways, supported by **AI systems that adapt content and pacing in real time.** Virtual reality headsets and other digital tools supplement the experience, while a **team of three learning coaches** monitors progress, maintains engagement, and provides guidance in areas where **human input remains critical**. Notably, the school identifies these areas as **art, wellbeing, and interpersonal development.**

Afternoon sessions broaden the curriculum beyond exam preparation, covering topics like **entrepreneurship, digital literacy and critical thinking.** The college frames the programme as a **student-centred alternative to conventional schooling,** particularly suited to **independent learners or those who struggle in standard classroom environments.** However, **critics have voiced concern over the lack of human interaction and the risk of over-reliance on AI,** highlighting the importance of social development and the limitations of current AI in evaluating creative or SEL skills.

Conclusion

Our Council's key findings and actionable recommendations for education institution leaders and educators worldwide include calls to:

Promote intentional integration through the use of low-resource "sandbox" pilots and agile review boards that allow educators and education institutions to test and adapt frameworks in real time.

Urgently ensure that all school and university leaders go through rapid "AI literacy training" that undergoes constant review.

Reshape assessment to be more viva-like in-classroom — and to take into account the use of AI outside the classroom and in jobs.

Be transparent with educators about the changes taking place to help secure buy-in to AI rollout. Our report has shared examples of developing frameworks around AI implementation with educators that are working in terms of a) securing buy-in, b) reducing workload and c) generally making educators' working lives better. These can be used as frameworks for others to draw on in implementation.

Urgently deliver AI upskilling and professional development services for all educators. AI requires a redefinition of teaching roles - from content delivery to facilitation, contextualisation and skill-building - which necessitates extensive and supportive upskilling and PD.

Track and publish AI's impact on educator workload, wellbeing and recruitment through real-time dashboards and common metrics. This approach will help to ensure that past mistakes with tech implementation are not repeated, and educators are centred in any rollout.

Provide a summary of responsible AI use frameworks for educators, including risk-level graphs and deployment protocols. Make educators' lives as easy as possible.

Appendices

These are just some of the resources out of many shared during Council discussions.

Cambridge "Getting Started with AI" guide – for onboarding teachers at all levels
https://www.cambridge-community.org.uk/professional-development/gswaic/

4Dedu AI Literacy Course – recommended for system leaders
https://4dedu.org/ai-literacy-course/

A major benchmarking study from University College London on AI in Education use
https://www.educateventures.com/beyond-the-hype

AI in digital learning: Innovative solutions to enhance the learning experience
https://www.youtube.com/watch?v=utMEhHacfdU

Teaching with Artificial Intelligence (AI)
https://www.youtube.com/watch?v=wKpOxtUa9AQ

Artificial Intelligence in Education | Royal Society
https://www.royalsociety.org/news-resources/projects/ai-in-education/

Stephen Bush on AI in Education in the FT
https://www.ft.com/content/1369e4f6-12c7-43ec-b620-4f74e601c8ff

Further information on the Leon Furze model
https://leonfurze.com/2024/08/28/updating-the-ai-assessment-scale/
https://leonfurze.com/2023/12/18/the-ai-assessment-scale-version-1/

Exploring collaboration in Latin America to create new Spanish language LLM
https://nationaltechnology.co.uk/Latin_American_Countries_Collaborate_On_First_Regional_AI_Model.php
https://medium.com/@martareyessuarez25/chile-will-have-its-own-artificial-intelligence-model-in-june-it-will-be-called-latam-gpt-c05ec2b431da

HP Futures Council on AI & Educators Council Members:

Name	Title	Organisation	Country
Jean Pierre Berthet	Chief Digital Officer	Sciences Po	France
Jody Britten	Director of Learning Technology	Team 4 Tech	USA
Hernan Carranza	Head of Innovation	Innova	Peru
Chinezi Chijioke	CEO	Nova Pioneers	South Africa
George Cowell	Chief Strategy Officer	Rising Academies	Ghana
Alex Crossman	Executive Head	London Academy of Excellence	UK
Komal Dadlani	CEO	Lab4U	Chile
Oleg Figlin	CEO	Faria Education	UK
Dionisio Garza	CEO	Talisis	Mexico
Jose Gonzalez	21st Century Learning Specialist	Davis Middle School	USA
Chaula Gupta	Vice President and Chief Program Officer	Digital Promise	USA
Jennifer Holland	Senior Director of Program Management	Google for Edu	USA
Tannya Jajal	Founder	AIDEN	UAE
Soulaymane Kachani	Senior Vice Provost & Professor	Columbia University	USA
Rishabh Khanna	CEO	Suraasa	UAE
Dr Beth Lane	Founder	AI in Schools	UK
Joysy John MBE	Computer Science Consultant	Parliament Hill School	UK
Niall McNulty	AI Product Lead, Education Futures	Cambridge University Press and Assessment	South Africa
Yi Xian Ng	CEO	Eton House	Singapore
Rohan Parikh	CEO	Acres Foundation	India
Shahnaz Al Sadat	Managing Director	Sekolah Anak Malaysia	Malaysia
Ana Ligia Scachetti	CEO	Nova Escola	Brazil
Aditya Shah	MD	SIS Schools	Indonesia
Anju Sharma	Manager, Virtual Assistant Product Management	HP	USA
Rajiv Suri	VP, Global Head of AI and Machine Learning	HP	USA
Annelies Volckaert	Innovation & Research Lead	EdTech Station	Belgium
Nkazimulo Zitha	Head of Primary Schools	Spark Schools	South Africa

06

HP Futures Council on AI & Leadership

Creating agile, imaginative and responsible education systems and policy for a new age

"Policy must move from prescription to iteration. Agility is not optional in the AI era."

CONTENTS

FOREWORD

The decisions made by education policymakers and institution leaders today will likely determine how an entire generation learns to engage with and adapt to AI – and whether the majority can fully benefit from its potential.

So, how can already under-pressure school and university leaders set a safe and bold course for their institutions? What does responsible AI policy look like at a system level? And how can policymakers ensure their policies and guidelines will not be out of date within months, due to the rapid pace of AI development?

Our Council looked to answer some of these pressing questions.

Our conversations spanned first principles, exploring how policymakers can work to ensure AI reduces, rather than deepens, educational divides, and looked at the different approaches policymakers need to take to AI deployment in K-12 vs higher education. We looked at case studies demonstrating that it is possible to deploy effective AI tooling in low-connectivity environments, and heard from education ministers and policy leaders on when and why it is vital for ministries to invest in their own in-house AI expertise.

Notably, we came down firmly on the side of "live", dynamic AI policymaking, concluding that the era of static policymaking is over. Going forward, any AI in Education policy will have to be under continuous review, ideally with a cadence of around **6-12 months.**

We also touched on an under-explored topic in AI in Education: the impact of the pressure to adopt AI effectively on hard-pressed school and university leaders. This is a pivotal moment for provosts and headteachers, but, as we note in this section: "We're now telling people they need to do so much at every level, and it can be pretty overwhelming."

Together, we explored how these leaders need to be supported by wider education policy to implement AI effectively going forward. We also stressed the importance of both Education policymakers and institution leaders receiving AI training as soon as possible. It is not possible to effectively roll out AI strategies without understanding this technology.

Finally, we addressed the fact that the rate of AI's progress is currently unclear. It depends on so many factors, from regulation to power generation and adoption. **What we do know is that, today, AI's success in education settings depends on the moves made by leaders and policymakers.** If we are to move beyond hype and scattered pilots, and towards cohesive, inclusive strategy across contexts, we need more roadmaps, more data-sharing, and more big-picture thinking in education. As one Council Member put it: ***"AI isn't just a tool, it's a societal shift."***

Here, we cite frameworks and extensive case studies that share details of initiatives already working on the ground for readers to utilise. In creating this report, we are proud to be playing a small part in supporting leaders as they create AI-enhanced, equitable learning environments for learners of the future.

With many thanks,

Rohit Talwar,
CEO of Fast Future

Anarkalee Perera,
Director of AI & Digital Policy at HP
Co-leads, HP Futures Council on AI & Leadership

Chapter 1

Laying the groundwork for successful AI in Education policymaking and leadership

"AI isn't just a tool, it's a societal shift."

"If there is no integration with intent, there is no real integration."

We started by exploring the role and purpose of AI in Education, with Council Members raising important questions, such as: **How can we ensure AI supports rather than erodes human relationships and cognition? How can we balance speed of adoption with responsible oversight? And how can institutions avoid past mistakes made with digital technology implementation?**

Council Members shared examples of AI's proven effectiveness in administrative tasks (back office functions, data management, predictive analytics), and agreed that the **"low-hanging fruit"** when it comes to AI deployment in education is primarily to enhance institutional efficiency. Council Members shared examples from around the world of this efficiency in action. For example, Brisbane Catholic Education school found in one case study that they could save staff **9.3 hours per week** of mundane administrative tasks through deploying AI tools.

We then moved on to exploring how AI's rapid development and potential necessitates rethinking the fundamental goals and setup of education systems. We concluded that effective integration of AI in Education will entail developing individuals capable of navigating their future, and emerging equipped with skills they need for AI-reshaped economies.

To reach this goal, we agreed to emphasise the need for a **shift away from "grand strategies with poor execution",** which has been a pitfall with previous waves of technology implementation in education.

We worked to hone the principles that our experts believe AI in Education policy frameworks should be based on in 2025 and beyond. Core tenets included:

- The need to create **organic policies that evolve as AI technologies rapidly advance.** We agreed on the need for **"live", non-static policies and dynamic protocols/guides that adapt flexibly as AI updates,** to avoid the risks of irrelevant or harmful governance. We explored how leaders can practically and responsibly design such policies, and Council Members shared examples of where policy creation already considers regular updates and review intervals due to the rapid pace of technological change, to great effect. See case studies below.
- The creation of structured protocols to responsibly vet and integrate AI tools at national ministerial and/or institutional level.
- At the policymaker level, **ensuring inclusive AI adoption strategies are created and prevent the AI era from deepening educational divides.**
- **Creating policies / frameworks that prepare students for collaborative roles alongside AI,** and ensure AI rollout is intentional, embedded, and owned – not left to **"early adopters".**
- Ensuring equity of access to AI tooling, protecting student-teacher relationships in a new era, and avoiding trapping institutions into **"hyped"** AI tools and pivots.
- Policymakers encourage **collaborative design of AI interventions,** meaning teachers and institution leaders should be consulted in tool development, and that all technologies rolled out in schools should have clearly defined educational objectives and challenges.

- **Foster teacher and leadership AI literacy** to enable effective, meaningful adoption at institutional and policy-making levels.

- **Every AI in Education policy worldwide must continue to centre students' foundational capacities, emphasising critical thinking, ethical reasoning, and human-centred values** over prompt engineering or familiarity with any specific AI platforms.

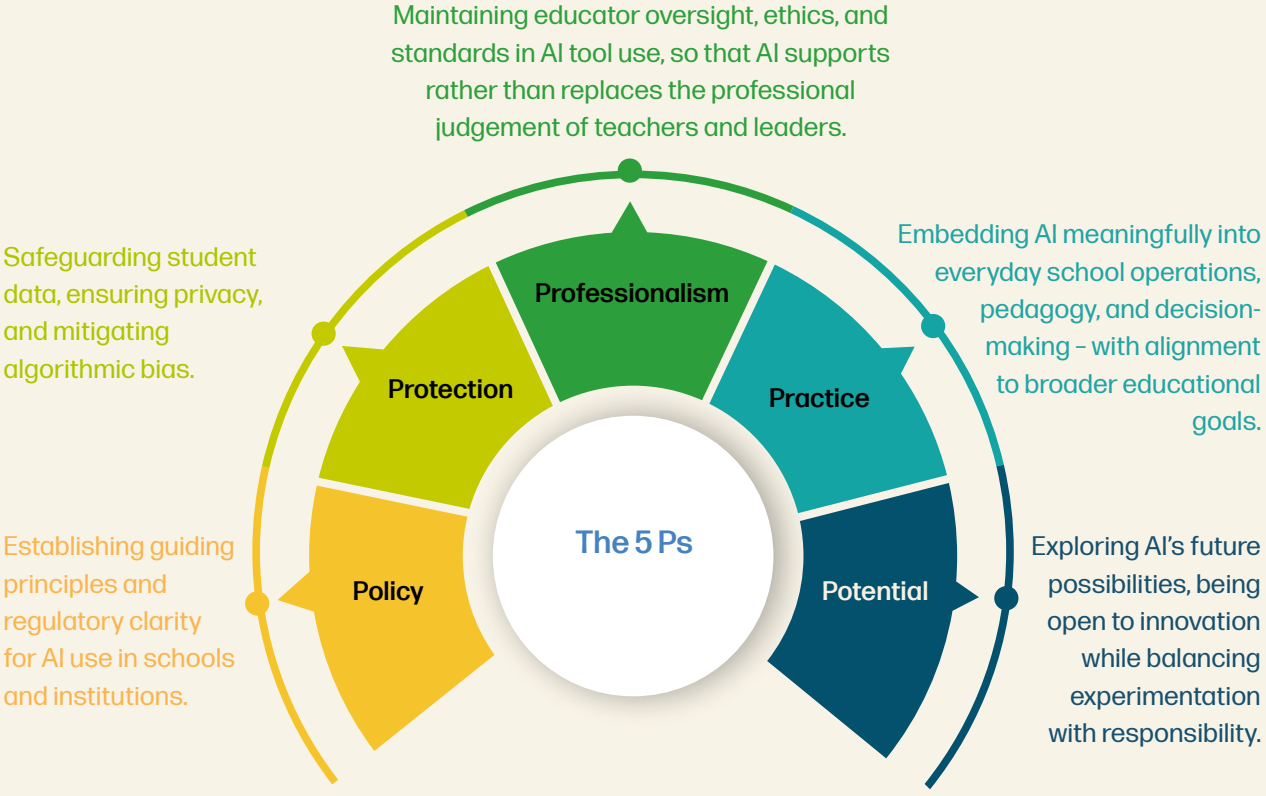
As in the AI & Students and AI & Educators councils, we also touched on the issue of **"cognitive atrophy", and the need to avoid this among students,** and agreed with our fellow Councils that students must be co-creators of policy, and that policymakers and institution leaders should start implementing such initiatives as soon as possible. We explored how **students' real-world AI usage (often far ahead of institutions) will provide invaluable insight.**

Note: To avoid duplication, our Council agreed that this report would **build on the bases established by the UNESCO AI Competency Frameworks, the recent DCO/Misk/Accenture GenAI Ethics Paper, and the Brookings AI in Education Pre-Mortem.**

Case Study:

Simple framework: The 5 Ps

Christine Nasserghodsi, founder of UAE-based education consultancy Verdant, shared her "Five 5 Ps" framework for getting started with AI in Education. She has been regularly using this framework to help schools and systems start to think about what they need to have in place for responsible AI use.



Chapter 2

A six-step blueprint for building “live” policy frameworks – from “AI-readiness” surveys to mandatory refresh cycles

> *"AI decisions must be guided by moral clarity and service to the greater good. Technologies should not compromise individual dignity, data privacy, or the nurturing of human relationships within our school communities."*

> *"Young people are challenging every aspect of education as they see industries (in particular their preferred careers) change rapidly. And we are only at the start. What might we say in this report that gives hope and some direction to school leaders who need to look students and parents in the eye and promise that education is worth pursuing in order to lead a fulfilling life?"*

As stated, there is as yet no clear, winning blueprint for how to successfully integrate AI in education settings. We set out to provide a helpful outline for policymakers to reference as they build out AI strategies.

Our suggested six-step blueprint

1 Start with the fundamentals. This means adopting a "principles/policy-first, tools second" approach to AI in Education policy. By this, we mean sit down with key stakeholders and agree on what kind of society, workforce and teaching profession your country/region/state wants to create. Define what you want to achieve using AI, whether that is improved learning outcomes, teacher efficiency, or student wellbeing – or all of the above. Policymakers need to make sure any policy has clearly defined educational objectives and challenges.

Then pick the **AI providers, costs and tools** you want to engage – not the other way around. We recommend that policymakers **set ethical, pedagogical and data-use baselines up-front so vendors serve learning goals rather than shape them.**

Council Members explained that it is very easy to fall into the trap of starting with what's out there, and what other ministries are doing, instead centring your strategy on context-specific goals.

Armand Doucet is an educator currently on secondment with the New Brunswick Department of Education, where he is helping the state structure its AI integration from early childhood through to higher education.

> He said: *"We need to redefine as a profession what we want to happen – what we want our workforce, society, and our profession to look like.... Education systems don't have a philosophy on tech integration. Everybody owns it, so nobody owns it."*

2 Before deciding on any AI in Education policy or procurement, commission "AI-readiness baseline" surveys. This recommendation was based on input from Council Members seeing this approach work effectively in several contexts, including the US and the UK.

Council Members explained that **encouraging baselining and benchmarking to assess current AI maturity before acting** can ensure policy is **targeted to the needs of specific areas.** It can also help to avoid **"pilotitis"**, where AI tools are implemented piecemeal based on positive feedback elsewhere, with limited effect and **no structural, planned-out long-term AI transformation in a system.**

We decided to urge every education policymaker worldwide to carry out this type of survey, including **auditing their leadership confidence, infrastructure, security and equity gaps** to inform roll-out priorities.

Case Study :

Schools AI Benchmarking: Rose Luckin, UK, and Joe Fatheree, USA

Council Member, Joe Fatheree, Innovation Specialist and educator at Oak Ridge Schools, shared examples of **school benchmarking studies** conducted in both the UK and Illinois, which helped identify gaps and strengths in readiness.

UK: Professor Rose Luckin (UCL Institute of Education, Founder/CEO EDUCATE Ventures Research) was the **first to make waves through benchmarking AI-readiness among schools and colleges.** The initiative invited UK schools and colleges to take a short, **10-minute survey to benchmark their use of AI in Education.** Based on nearly **1,200 responses** gathered so far, the benchmarking effort found that while **many educators understand AI conceptually and are aware of its potential risks, they often lack clarity on how to safeguard against those risks and how to use AI effectively in the classroom.** The exercise aimed to contribute evidence to inform conversations about AI ethics, regulation, and best practices in teaching and learning. It's positioned as a practical step toward ethical and responsible integration of AI, supported by educators and policymakers.

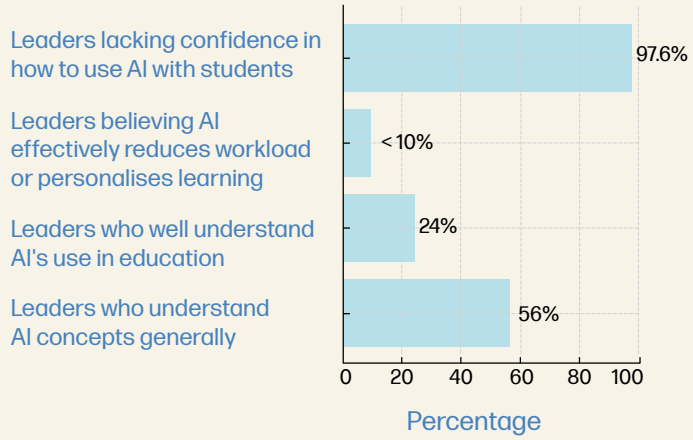
Widespread lack of AI training and digital safety frameworks. →

10% Schools with a clear AI strategy — **6.8%** Schools actively using AI with a policy in place

Illinois: Fatheree decided to conduct a similar survey in Illinois. With assistance from the **Illinois Principals Association (IPA)** and the **Illinois Association of School Administrators**, he launched an **AI-readiness survey in August 2024,** aiming to **benchmark the status of AI awareness and usage** in schools across the state.
A total of **219 school leaders** were surveyed. The survey found that most school leaders in Illinois lacked the confidence, training, policy structure and infrastructure needed to effectively integrate AI into their schools.

August 2024

219
school leaders
were surveyed



Just **6.8%** of schools reported having a **clear approach to identifying and piloting AI tools**, and just **11.4%** believed they were **supporting students to use AI tools effectively, appropriately and safely. Leadership engagement is low, with only 6.8% of schools using AI with an existing policy in place.**

Joe explained that this benchmarking survey was important to carry out ahead of any AI in Education policymaking for the state, because it revealed a significant readiness gap. Knowing about this gap means policymakers can take action to deliver the **professional development, policy support, and safety frameworks** school leaders need. Having this kind of information ahead of setting AI in Education policy also means **policy scope and ambition can be set at the right level.**

Case Study:

Framework: A helpful AI-readiness baseline checklist

Alaa Abdulaal, Chief of Digital Economy Intelligence Digital Cooperation Organization in Saudi Arabia, is a computer scientist and educator by background. She shared a helpful checklist for policymakers and education leaders to consult ahead of conducting any AI procurement or classroom deployment. As she said: ***"If you don't know your baseline, you're designing blind."***

The checklist:

- Infrastructure audit: Assess hardware availability, internet connectivity, and data security protocols.
- Capability baseline: Evaluate staff digital literacy and existing knowledge of AI tools.
- Equity profile: Identify disparities in access, particularly in relation to geography (rural vs urban), language diversity, and neurodivergence.
- Safeguarding gaps: Review policies related to student data protection and the emotional impact of AI tools.
- Leadership confidence survey: Gauge understanding and comfort levels among education system leaders and school heads.

3 Make sure to create "live", agile and reactive AI in Education policy, with mandatory annual policy refresh cycles to ensure that school systems and policies can mirror/ keep pace with AI developments.

Our Council explored how, with **major model updates** every ~3 weeks**, static, top-down AI policies will become obsolete within months.** Therefore, Council Members recommended that policymakers work to create **"live"** and agile AI policies that can be **edited, updated and reshared** with school and university leaders at frequent intervals.

Our recommended framework is that all AI in Education policy is:

- Agile - subject to scheduled review cycles.
- Inclusive - co-developed with educators, students and tech experts.
- Purpose-driven - focused on core educational outcomes.

Council Members converged on a **suggested cadence of AI policy review of around 6-12,** to allow enough time for early implementation, but not enough for policies to become extremely outdated.

4 Make sure to consult education institution leaders, educators and students before finalising any AI in Education policy.

Our experts also urged policymakers to ensure education leaders, teachers and students are consulted in the development of any widely deployed AI tools. See extensive coverage of these topics and reasons why this is vital in the **AI & Students and AI & Educator sections.**

Council Members also recommended other ways to help policymakers establish **ethical/ meaningful AI in Education guidelines, including:** Public AI awareness campaigns, capacity building across stakeholder groups (parents, admins, students), and tracking awareness impact via measurable metrics.

5 Make sure policymakers are clear on the software quality and data ownership settings each country/ ministry/region is comfortable with deploying in schools.

Council Members noted that **not enough is currently discussed around the software quality criteria that AI systems should meet in order to be used by under-18s.**To date, only the European Union has classified the deployment of AI systems in education as high-risk AI systems.

This comes despite the fact that **LLM-based generative AI systems remain susceptible to biases and hallucination.** This raises big questions, from teaching students incorrect information via hallucination, to potentially providing responses that introduce discrimination, as happened with the Grok model.

Many researchers are working on developing software testing techniques and methods to assess the fairness of an AI system, so policymakers could take them into account. For example, there are several **open-source toolkits** including **IBM's AI Fairness 360, Microsoft's Fairlearn and FairTest,** which already offer metrics and algorithms to detect and mitigate bias. These tools **evaluate model behaviour across demographic groups, uncover unintended associations and enable real-world scenario testing.** Pioneers like **Joy Buolamwini and Deborah Raji** have demonstrated how such audits can expose bias in commercial AI systems and influence both corporate practice and policy.

Council Members urged policymakers to **consider such testing criteria for AI systems before requisitioning them into schools, and to create policy that means an AI system can only be deployed in education if it achieves certain thresholds.**

See more on this in our AI Charter in the Education Frameworks section.

Case Study :

Higher education: New York, *USA*

Council Member, John Baker, is CEO of global software company, D2L.

He said: "In 2024, I had the privilege of working with the Strive (Strategic Research IN VEstment) task force in New York – a research-driven initiative launched by SUNY. It was me plus about 250 different experts from 27 authorities, working across 16 working groups, trying to map out a strategy around how to embrace AI for the state... At the core, we decided to think about it on different pathways. So if you look at AI, the questions to ask are:

- **How does it change the curriculum?**
- **What are we actually teaching differently?**
- **Then I think about it from a research perspective as well. How does this change the scholarship of teaching and learning?**
- **How does it change assessment?**
- **How does it change tutoring?**
- **How does it change every aspect of the learning endeavour?"**

The Strive task force aimed to double SUNY's research output across three high-impact domains: AI, Biotechnology / Biomanufacturing / Bioengineering and Microelectronic Packaging. It had multiple task pillars, including **Education, Social Impact, Workforce & Industry, Research & Infrastructure,** and looked at themes including **data privacy, education, social impact, infrastructure and industry alignment.** It produced a comprehensive white paper and strategic plan to implement across SUNY's 64 campuses, representing extensive faculty-led deliberations on AI's evolving impact and strategic use within New York and beyond.

Key findings included the **urgent need to integrate AI literacy across all disciplines, establish a pipeline for AI-ready talent,** and double AI research outputs by fostering **interdisciplinary, socially impactful innovation.** The plan stressed the importance of **building shared infrastructure and governance frameworks to ensure safe, inclusive, and ethical AI deployment.** The plan will be bolstered by **annual Trifecta progress updates** – an example of **"live" policymaking** – and will reflect milestones achieved.

Chapter 3

Can effective leadership prevent the AI era from deepening educational divides?

Paid vs free models and the equity gap

Freddy Vega is the co-founder and CEO of Platzi, a leading online education platform based in Latin America. Freddy highlighted compelling data (link and link), and asked one of the difficult questions around AI and equity in education.

Vega said: ***"The equity problem is not new or specific to AI. There have always been students who can or cannot afford public/private education or tutors. However, my worry is: does AI accelerate the gap?***

"Right now, most students can use AI because they don't pay for ChatGPT or Google's free models. This means they're using an AI that is at the 50% range of the paid-for models. But if you can afford to pay $20, you're going to be getting much better use from AI. So, if we extrapolate this, AI may just widen and accelerate the gap between wealthy and less wealthy students. How can policymakers prevent this?"

We did not arrive at a concrete solution to this issue as a Council, but we believed it was important to include this question in our report. Solutions suggested included ensuring equitable AI access through initiatives such as free LLM subscriptions for all citizens.

Beyond hardware/tooling to create equity in AI

We also explored how equity in AI will come down to more than access to the best tools – including aspects policymakers can work to address. For example, we discussed how equitable AI access really includes AI literacy, teacher support and supervision. These are all currently less likely to happen in underprivileged communities.

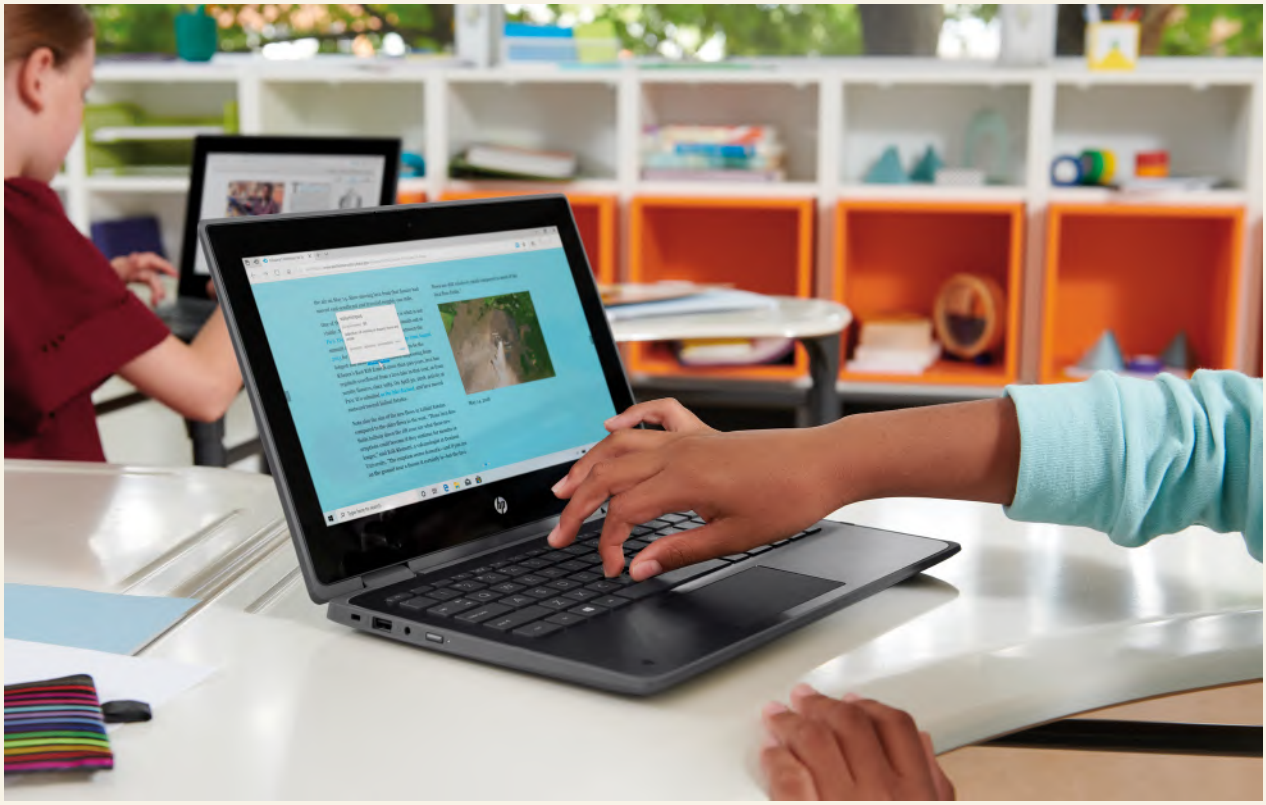
Joe Fatheree, Innovation Specialist and educator at Oak Ridge Schools, said: ***"Today, a lot of it has to do with supervision. We see some of our most disenfranchised kids having access to AI tools, but they have no supervision on it. So we need to think about that... what does equitable access mean?"***

Connectivity and beyond: Creating inclusive AI adoption policies to prevent the AI era from deepening educational divides

As a Council, we decided to call on policymakers worldwide to work to guarantee baseline, **equitable access to core AI services in K-12 schools.**

Council Members' recommendations include deploying **minority-language and low-bandwidth variants** through pooled procurement, open-source collaborations and zero-rating schemes.

Based on experiences successfully deploying in **Indonesia and Brazil** (see case studies below), we concluded that connectivity does not pose as much of a barrier to AI adoption as settings some might believe. For example, ChatGPT should run smoothly - if slowly - on 2G/3G, with cap content size (≤ 6 MB hour). Alternatively, the case study below, which explored AI deployment in low-connectivity environments, found a solution to connectivity issues through developing unplugged, hardware-light AI education.



Case Study:

AIED Unplugged, *Brazil*

Council Member **Ig Bittencourt** works at the **Harvard Graduate School of Education (HGSE), the Center of Excellence in Social Technologies (NEES),** and is based at the **Federal University of Alagoas (UFAL).** He shared an insightful AI equity/access case study launched with the aim of ensuring **AI closes rather than deepens the digital divide: AIED Unplugged: Leapfrogging the Digital Divide to Reach the Underserved.**

The AIED Unplugged case study introduces **a radically inclusive framework** for deploying AI in low-resource settings. Today, most AI in Education solutions depend on **stable internet, advanced infrastructure and digital literacy** – resources that are often scarce **in low-income regions.**

The approach centres on designing AI solutions that work offline, require minimal digital skills, support shared device use, and integrate seamlessly into existing educational environments without costly infrastructure upgrades. The model draws inspiration from Jugaad innovation, a concept that originated in India to refer to a frugal, flexible, and creative approach to problem-solving.

To test the framework, the case study authors **redesigned a Brazilian national education policy aimed at improving K-12 students' writing skills.** Rather than relying on high-tech platforms, the system uses mobile apps to photograph handwritten essays, which are then assessed via computer vision and natural language processing. The AI provides **printed feedback dashboards within** 72 hours **– down from the original four-month manual process** – without requiring teachers or students to learn new digital skills. Since 2022**, this solution has reached over** 500,000 students in 7,000 schools **and has informed national education policy.** The report authors argue that **AIED Unplugged provides a viable model for scaling inclusive AI in Education, enabling low-income countries to "leapfrog" the digital divide.**

Chapter 4

Why investing in digital overhaul through in-house tech expertise can be an excellent return-on-investment for taxpayers

Investing in in-house expertise is often an option that education ministries avoid, preferring to outsource highly technical tasks to tech companies or tech providers. However, when it comes to digital overhaul and AI adoption, Council Members with on-the-ground experience leading education ministries **recommended peers invest in recruiting and retaining engineers, UX designers and data scientists as permanent "thought-partners".**

This approach proved successful in Indonesia, as we explore in the case study below with Iwan Syahril, former Director-General at the Indonesian Ministry of Education. Syahril explained how taking this approach **improved institutional memory and reduced vendor lock-in,** allowing the country to deploy a major and successful digital overhaul initiative across low-income areas. This initiative, conducted between 2019 and 2024, set the country up to be able to deploy AI going forward. Without this groundwork, Indonesian students would have been left behind.

Iwan Syahril, former Director-General at the Indonesian Ministry of Education, said: ***"Having a policy to build an in-house tech team meant we could bring in leading talent, which made it easy to understand and align and know what was going on with AI. We weren't reliant on asking tech companies to do stuff for us, and we could iterate rapidly. It also meant that, from the initial stages, we could really think about how our programme would be designed, and what implementation would be, so as leaders we could understand the rationale of our strategy for the long run."***

Case Study :

Indonesia's 2019–24 digital-learning overhaul

This case study highlights the **successful approach of using mobile technology tailored to low connectivity environments for equitable nationwide rollout in Indonesia.** It underlines the importance of **in-house tech teams, clear problem identification, user-centric design, and iterative development processes** to ensure sustainable and widely adopted AI educational infrastructure.

Before designing any AI strategy, **Syahril started, as suggested in our blueprint above, with a deep, system-wide diagnosis of Indonesia's core educational challenge.** In this case, it was **a long-standing learning crisis.** Syahril said he did this despite internal pressure to immediately roll out platforms. Instead, in 2019, he began by asking hard questions about impact and priorities, recognising that while school access had expanded over two decades, **learning outcomes had stagnated.** His team then decided to **use tackling this challenge as the north star for all future technology choices, including AI.**

The critical enabler was the education **ministry's then-400-person in-house tech team, who were integrated into policymaking from day one.** The team decided to prioritise mobile environments for its AI deployment, after Syahril commissioned research that showed that teachers felt far less anxious using familiar phones than new devices. Platforms were designed to run on **2G and 3G,** and content was **capped at 6MB/hour, enabling reliable access even in remote regions.**

Notably, adoption was incentivised through product quality, not mandates, which Syahril highlighted as another key decision. It meant users could opt in, and that value spread by word of mouth. Today, the initiative has reached over 3 million teachers, with over 95% of schools using the school report card and budgeting tools. Early trials using ChatGPT for lesson planning showed promise.

Syahril's short guide to building in-ministry AI projects:

- Put purpose before product: begin with a "learning-crisis" diagnosis, then designed tech around it.
- Put money behind your project within the education ministry. Indonesia hired 400-plus in-house engineers as "thought-partners", preserving policy memory and cutting long-run vendor costs.
- If you're in a low-connectivity environment, opt for mobile-first/low-bandwidth design (runs on 2G/3G; up to 6 MB/hour), as this both reduced teacher anxiety and lifted uptake.
- Look to create models where adoption is voluntary and community-driven. In Indonesia, the ministry pursued this collaboration with features that triggered a "hockey-stick" surge to 3 million active teachers.

Chapter 5

K-12 and higher education – why “stitched together” but differentiated policy is essential

Alaa Abdulaal, Chief of Digital Economy Intelligence Digital Cooperation Organization in Saudi Arabia, said: ***"The primary goal of AI use in K-12 Education is to support basic learning and foundational digital skills, while on the other hand in higher education the primary goal of AI should be to enhance research, innovation, employability, and personalised learning."***

As a Council, we highlighted that in many contexts, there is a **lack of system-wide dialogue between schools and universities.** This leads to a **lack of joined-up teaching,** and can **leave students underprepared for the workplace.** Council Members highlighted that this will be a key faultline when it comes to AI deployment, and stressed that **policymakers must support school and university leaders to bridge the gap where it occurs.**

As Didem Un Ates, Founder & CEO of platform LotusAI, said: ***"Different segments of the education journey don't talk to each other – and it's a really big conversation that needs to happen."***

In short, neither students nor policymakers can afford to see **AI integration efforts fail or become fragmented** or duplicated due to this lack of connection.

Why policy must be differentiated for K-12 and Higher Education

Didem Un Ates, Founder & CEO of platform LotusAI, said: ***"We also need to be very mindful that the higher ed space is quite different. And there is a much more bottom-up structure where the institutions can say, 'Yes, we are doing AI', and the professors can say, 'Well, I'm not.'***

We explored how and why AI policymaking must explicitly differentiate approaches and segment guidance by educational level. We concluded that:

For K-12 education: Policies must focus on safeguarding, promoting critical literacy and cognitive resilience, and guiding responsible AI engagement.

For higher education: Policies should empower student research autonomy, support academic integrity through traceable processes, and introduce student success co-pilots.

To achieve these goals, Council Members recommended:

- **That K-12, higher-ed and employers share AI expectations with employers.** Having this information can help policymakers design policies that will ensure students are not deemed "unready" at every transition. Council Members recommended that ministries convene cross-sector forums to align curricula, assessment and credentialing.

- **That policymakers urgently work with both K-12 and higher education leaders to find where AI can be seamlessly embedded into existing curricula, and build continuous learning pathways.** As explored extensively in the AI & Students and AI & Educators sections, in the AI era, it is essential that traditional curricula are overhauled to ensure they focus on lifelong skill-building – including continuous AI skillbuilding – rather than age-based knowledge milestones.

- **That policymakers work with education experts to determine what the AI in Education approach will be for the youngest learners.** Our Council Members also noted that policymakers must differentiate between young learners (e.g. K–6) and older students, as well as between institutional contexts. The typical consensus today is not to deploy AI with students under the age of 10. However, some contexts are moving earlier with AI.

  For example, earlier this year in India, in Maharashtra's Nagpur district, the government launched the country's first AI-driven Anganwadi (early childhood care) centre. It includes AI-integrated smart dashboards, VR headsets, and interactive digital content to teach nursery-level curriculum such as songs and poems in fun, engaging ways. Forty more centres are planned, and staff are trained to use the tech. This development targets children well under age 10 and aims to bridge rural–urban educational divides.

Case Study:

Personalised AI co-pilots in higher education settings

Council Members highlighted examples of AI personalisation being used in higher education today, including **"student-agent"** co-pilots. These pilots help students **navigate the university, their study load and progress, and help make connections with their peers and tutors.** Early deployment has seen success and engagement.

Examples included **Florida State University**, which is piloting **Microsoft's Copilot Chat** with custom AI agents that draw on institutional data and student preferences to support tasks like **course information, homework guidance and research assistance.** These agents function as personalised co-pilots for both students and faculty, improving engagement and reducing workload burdens.

Meanwhile, several other **US, European and UK universities**, including **Northeastern University** and the **London School of Economics,** are adopting Anthropic's Claude for Education, an AI system designed to act as a learning companion. **Claude for Education uses a Socratic "Learning Mode"** to prompt reflection and guide study. It supports study guide generation and conversational tutoring, with early reports of high student engagement and deeper learning interaction.

> ***"Personalisation doesn't have to only be Individualised learning pathways... if we do personalisation right, we better connect students to other students, to their professor, or to their subjects they are pursuing."***

Chapter 6

AI makes us all learners – including policymakers – and education leadership requires transition support

Teaching the leaders – offer repeated "AI literacy training"

> As Council Member Matthew Esterman, a a Visiting Fellow at Western Sydney University in Australia and Founder of The Next Word in Australia, said: ***"How many leaders (including councils / governing bodies / oversight / politicians) have lived experience of AI themselves in their work and lives? We need to recommend that all people who are decision makers above/around schools and higher education institutions should also need to engage in AI literacy/mastery programmes. It's something I'm supporting in Australia, but we're still at a very nascent stage."***

Council Members also highlighted concerns about the **dangers of policymakers and institutional leaders remaining uneducated on AI.** If leaders don't understand this technology, we risk hundreds of millions of students missing out on the broader transformational opportunities this technology presents. As one Council Member put it: *"most policymakers around the world are not yet AI-literate".*

We recommend that all policymakers and school and university leadership are offered or buy access to high-quality AI skills training. Council Members shared examples of training models under development in the UK and US, including the HP Innovation & Digital Education Academy (HP IDEA) and the 4Dedu AI Literacy Course (global).

HP IDEA is a year-long professional development programme that **empowers educators to drive innovation in blended learning.** Drawing on leading frameworks from Harvard and the University of Michigan, the programme equips teachers with practical skills to implement and scale pedagogical innovation projects in their schools. 4Dedu offers a **modular course designed for school leaders and policymakers, focusing on AI basics, ethical frameworks and implementation strategies.** Other notable courses specifically designed for business leaders and education institution leaders include those offered by the University of Oxford and the University of Cambridge.

Council Member, Joe Fatheree, shared that he has already begun providing AI training for policymakers and school leaders in the USA, and said: ***"It has been an amazing experience watching them develop a realisation as to how little they actually know and how much work needs to be done."***

"It's pretty overwhelming": Supporting K-12 and higher education leaders through a great transition

As a Council, we agreed to highlight an under-explored key issue when it comes to AI in Education: the wellbeing and capacity of school and university leaders themselves.

This is a **pivotal moment for education institution leaders around the world.** We explored how these leaders **need to be supported by wider education policy** to implement AI effectively going forward. Leaders are often under enormous pressure already, and now also need to remain agile in the face of unpredictable AI advances.

> Council co-lead, Rohit Talwar, CEO of Fast Future, said: ***"We're now telling people they need to do so much at every level, and it can be pretty overwhelming. We need to give people in the education value chain guidance on where to start, what to think about – and support in finding the emotional and intellectual bandwidth to deal with the AI transition. We're not talking about moving sofas around – this is a fundamental change in the way we think about education and educators. But a lot of the time, the leaders we're asking to execute this change are largely thinking about getting through the next day."***

Mini Case Study :

Personal testimony: "We rarely have a 'to stop' list as well as a 'to do' list"

Council Member Simon O'Connor is Director of Deira International School in the UAE. He said: ***"As a school leader myself, the reality is you're dealing with lots of different elements, whether it's governance, whether it's authorities, whether it's inspections, all of whom add things [to your plate]. And in my experience over 12 years as a school leader, very rarely do policymakers/authorities add something and take something away correspondingly. And that's where the overwhelming element comes into it. Responsibilities and tasks bases just get larger and larger."***

As a Council, we came up with suggestions of solutions to help school leaders cope with the additional task of successfully integrating AI. These included:

- **Recommend school and university leaders set up working groups in order to share the burden, and break up the thinking, planning, policy elements between mid-level leaders at their institutions.**

  Janak Rajani, Head of Digital & IT Avanti Schools Trust in the UK, said: *"Start with the benefits: Highlight how every member of staff can save three-to-five hours a week using AI. If you multiply this out for an educational Multi-Academy Trust (MAT), that can have a huge impact.*

  "We created a working group of cross-functional team members to help think about different lenses and angles of vision on AI, and how we can work together to have outputs and policies resonant with our Trust. We found that leaning on workload reduction elements created significant currency and buy-in from teachers."

- **Explore establishing AI leadership fellowships and innovation-focused grants to fund "AI sabbaticals".**

  John Baker, CEO of global software company, D2L said: *"One idea that we're working on in New York is around sabbaticals – creating AI-focused sabbatical opportunities for superintendents and school leaders. Because a lot of them want to learn, want to engage, but they simply don't have the time. We need to give them space to think and grow in this moment."* These measures would allow leaders to step back, learn, and return to their school and university settings with informed implementation strategies. Council Members stressed that the up-front financial investment in this type of initiative would likely pay off in the long run, assuming leaders came back and effectively implemented AI strategies.

- **Consider providing workload audits to ensure leaders can allocate cognitive space and emotional bandwidth effectively.**

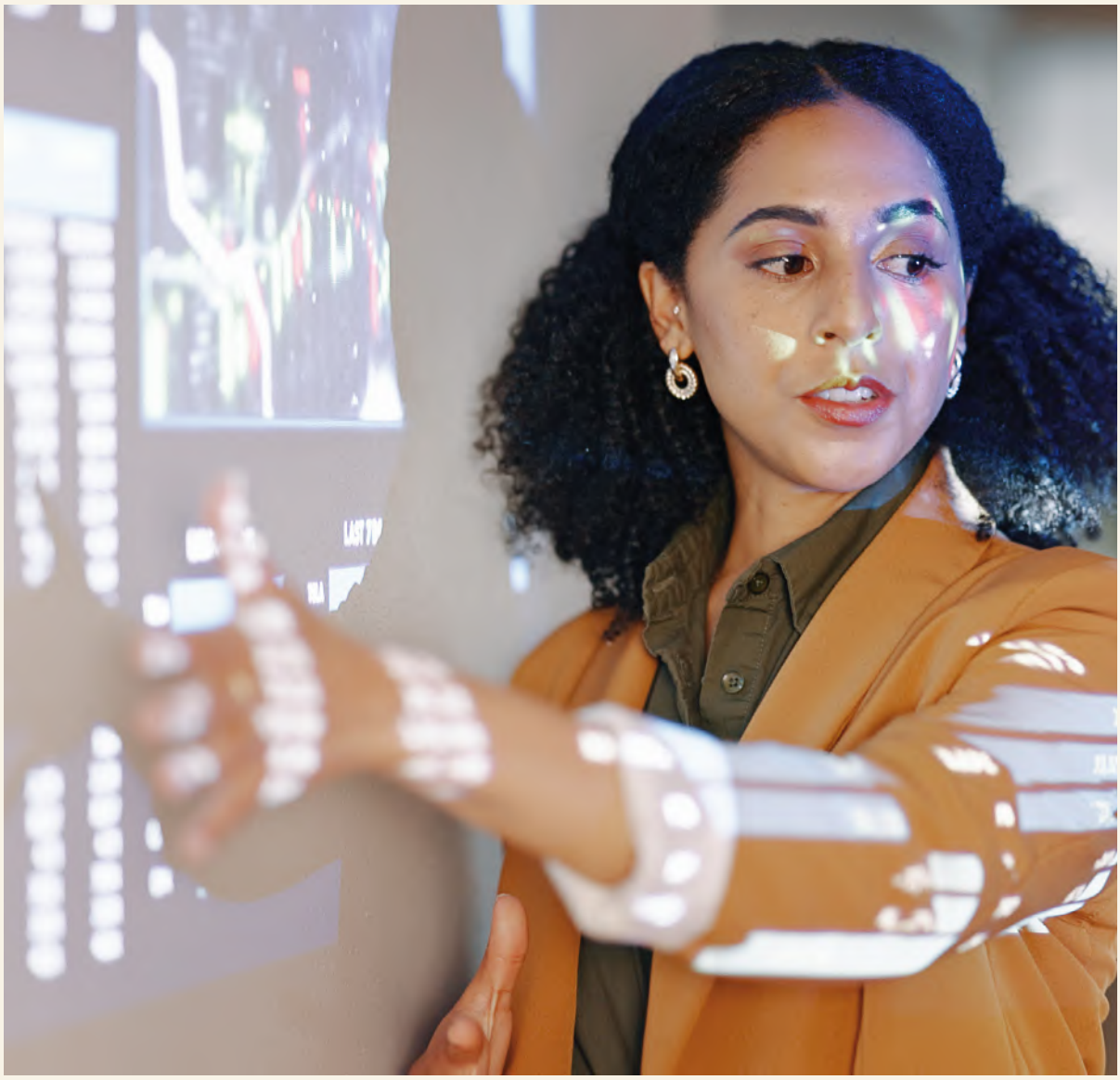
  Joe Fatheree, Innovation Specialist and educator at Oak Ridge Schools, said: *"We have to protect our leaders. They are being pushed and pulled in so many directions."*

- **Create an international cadre of vetted AI-in-education ambassadors.**

  Through creating an AI in Education ambassador programme, policymakers could simultaneously offer school and university leaders a support network as they look to build AI into their institutions, and create a pool of expertise to tap frequently, and to track. Council Members explained how diverse, peer-endorsed voices can guide schools, counter misinformation and build trust in AI adoption.

Chapter 7

Looking forward – AI agents, AGI and the future



Our Council Members stressed that it is important, in creating this report and our blueprints for strategising on AI in Education, to remain mindful that **we are only at the start of this AI journey.** We remain at **"narrow AI" stage,** despite these tools' huge abilities.

As a Council, we discussed how the pace of AI/AGI progress remains uncertain and policies must reflect a range of possibilities, from steady to exponential growth. How fast progress in AI development will be depends on everything from energy costs and chip performance to regulation of AI companies and products. We highlighted three potential **AI development scenarios: steady, accelerated, and exponential.**

Council co-lead **Rohit Talwar,** who specialises in the futures space, pointed to the AI-2027 report, and emphasised that **the point is not to predict the future but to plan for volatility.** As a Council, we agreed to stress that this is the reason **all AI in Education policies must be live and agile, and operate with foresight-led, iterative structures.**

Talwar said: ***"****This is not about predicting the future. It's about recognising that there are multiple plausible scenarios, and we need to be ready for all of them.* ***By 2030, visions / scenarios diverge on what a whole system model might look like as AI penetrates more fully. For example, situation***

1) where AI is used as just another element in the mix, situation

2) is where AI is more deeply educated and integral, and situation

3) is where education systems have been completely reworked with AI at their core.

Finally, there's an exponential trajectory, where things really take off due to recursive self-improvement or artificial general intelligence."

Chapter 8

Case studies showing successful AI leadership and policymaking

Case Study :

Saudi Arabia's "AI Sandbox" and national responsible digital learning strategy

Lokesh Rajendran is a consultant at the **Director General's Office for the National eLearning Center (NeLC) in Saudi Arabia.** The NeLC recently launched a **comprehensive, nationally coordinated programme to integrate AI into digital education**, and Rajendran shared its findings and progress for this report.

The programme centres on the development of a structured policy ecosystem, which includes a competency framework for AI use, detailed regulations on generative AI tools, and a wider AI framework for digital learning environments. At its heart is an "AI Sandbox in Digital Learning", a national platform that enables safe, structured experimentation with AI in Education.

The Sandbox serves two key groups:

1) researchers working on AI strategy or pilot studies, and
2) developers creating AI-powered tools, such as virtual tutors or adaptive assessment systems.
Projects move through phased stages of evaluation, onboarding, and testing, with the goal of scaling only those tools that prove to be effective and aligned with real-world digital learning and training needs. Innovations to date include intelligent Arabic-language tutors, AI tools for Qiyas exam preparation, and applications in sign language translation and gamified learning.

The country's **AI Sandbox is also an example of a national policy strategy bringing in/working with AI companies effectively.** The project includes an international partnership with Google, Microsoft, IBM, HP, and TeachAI, and enables leaders to connect with expert mentorship.

Case study with interview:

Building teacher-centred AI tooling at the pioneering AI Centre for Education Technologies (AICET), *Singapore*

Singapore's AI Centre for Education Technologies (AICET) at the **National University of Singapore (NUS)** was established in **2021** with **S$10 million ($6.5 million) in research funding over five years.** Initially aiming to improve online learning in the Covid-19 pandemic, it has expanded to focus on **actively accelerating practical, classroom-ready AI tooling for teachers and students.**

The centre's remit is explicit: help teachers teach better and improve their quality of life, not replace them. As AICET Director, Professor Ben Leong, puts it: ***"You don't get better education by just throwing AI at the problem; you get better education by understanding how to teach better, then using AI to support that. We believe that the focus of deploying AI should be on improving pedagogy and helping teachers."***

Implementation and key findings

AICET builds software hand-in-hand with teachers and iterates in real classrooms. It found that early pushback did not come from students but from **misuse and over-reliance risks.** When deploying AI tutors, AICET realised that some learners tried to **"spam the bot for an answer"**, and some teachers inadvertently wound up teaching prompt engineering rather than the intended skill, such as essay writing.

AICET responded by focusing on articulating learning objectives clearly, keeping humans firmly in the loop, and assessing the learning process, not just the outcome. Professor Leong recommended this as an approach for any leaders and institutions looking to build and deploy their own in-house AI products.

Nearly 10,000 students are now using its learning management system, **Coursemology,** every year. **AICET has developed a tool, called Cikgo, that enables teachers to personalise the learning of their students, while retaining full control over replies and pacing.** Professor Leong said that, in lab settings, **AICET has found its AI feedback tools outperform disengaged teaching assistants,** providing consistent, on-demand guidance, suggesting that tools can level the baseline. However, AICET has found the best human instruction remains superior, reinforcing the **need for teacher-first models long-term.**

Notably, Professor Leong also highlighted the risks of an **"AI chasm of death",** where outsourcing thinking limits student learning. To combat this risk, **AICET studies real student-bot interactions** to understand harm, and **codify good use from expert student users for wider teaching.**

He said: ***"The likelihood is that, as more students turn to AI, it will limit learning if kids outsource their thinking to AI – they will be stuck behind this barrier we call the 'AI Chasm of Death'. We believe that AI has the potential to cause real harm, and the real focus of our work is to understand exactly how students are using AI and to understand the nature of harm that it might be causing, why, and how to combat this. We are also studying how students are using AI well, with the hope of distilling this, and incorporating it into future practice."***

Based on all its work to date, AICET now has three key working findings that guide all its AI deployment:

- AI / AI Tutoring alone might not improve education outcomes, it must serve clear pedagogy and objectives.
- AI cannot replace the best teachers, but it can level-up the bottom segment, especially in challenging and low-resource contexts.
- When it comes to the deployment of AI in Education, the biggest challenge is change management for humans, rather than the capability or availability of the technology. In short, equipping pupils and teachers effectively to use AI is imperative for school and university leaders today.

In detail

How it works (tools & workflows)

AICET maintains a suite of classroom tools used across secondary and tertiary settings, integrated with existing learning platforms. They are:

- **Lesson-authoring & AI-scaffolded Q&A:** A storyboarded system delivers lessons in content and action blocks. Teachers can review draft replies to student questions before enabling auto-reply, and can always intervene to steer learners back to the planned pathway. As Professor Leong said: ***"we don't want the chatbot to take over the learning experience".*** Features include Personalised Timelines (pacing), Recall (nudges via familiar channels like Telegram), and Co-author (convert slides/PDFs into editable lessons).

- **Automated feedback for coding/homework:** An AI feedback assistant provides formative hints; dashboards let instructors see code evolution, timestamps, and bot interactions to monitor genuine effort versus shortcutting. Deployed at scale (including internationally), it consistently outperforms disengaged human TAs, though the best human TAs will still perform better and more reliably than the bot – a pattern AICET treats as a design constraint, not a flaw.

- **Role-play/"human skills" simulators:** LLM-driven role-plays (e.g. courtroom witnesses, difficult-parent scenarios) allow learners to practice interpersonal judgement and communication with automated performance analysis.

- **Assessment & admin automation:** Tools for exam digitisation, grading, and feedback reduce teacher workload and turnaround times, aligning with Singapore's nationwide Student Learning Space (SLS) environment.

> Professor Ben Leong, Director of AICET, said: ***"LLMs hallucinate, and a human-in-the-loop isn't a silver bullet to address this problem, because humans tend to get lazy. As models improve, people will tend to over-trust them. We design against that."***

Practical rules AICET gives teachers

- **You can't stop students using AI,** so we try to ensure that our students understand when to use AI. We need to recognise that in some cases, it is perfectly fine to use. For example, through using Google Maps, we can likely get away with not knowing how to read a map. We share the following rule with our students:

  Make sure you're using AI for what you don't want to do (i.e. boring admin, repetitive work), not what you cannot do and need to learn how to do – ***otherwise learners will never acquire the target skill.***

- **Teach the fundamentals harder** as AI gets stronger: explicit learning objectives, better classroom management, clearer modelling of the target skill.

Rules of engagement for students

AICET recommends instructor-set, context-specific rules. Where AI use is allowed, Professor Leong advised leaders to create policies that insist students must declare which tools were used, and submit a transcript of prompts/outputs alongside standard references and citations. This approach supports **ethical attribution, traceability and fair assessment,** while helping students **learn how to use and get the most from AI.**

He said: ***"We are very careful in terms of ensuring we do no harm. We keep the learning objectives in mind all the time, and we make sure a student doesn't produce a piece of work without learning."***

> Professor Ben Leong, Director of AICET, said: ***"If we want students not to cheat, design assessments so they can't – and be explicit about where AI belongs and where it doesn't."***

Notably, AICET's approach is transferable, because it offers:

1. Tooling that keeps teachers in control (review-then-auto-reply; visible learning trails);
2. Assessment of process (dashboards and transcripts) to prevent AI short-cuts;
3. Clear, course-level rules of engagement that normalise ethical AI use;
4. Human-skills simulators that use LLMs where they add unique value (practice at scale).

Q&A with Professor Ben Leong, Director of AICET

What have you learned so far about AI's impact on teaching and learning?

"Better AI doesn't automatically mean better teaching. Our data show AI can lift the bottom - especially where TAs are stretched – but it won't replace the best teachers. Pedagogy leads; AI supports."

What worries you most?

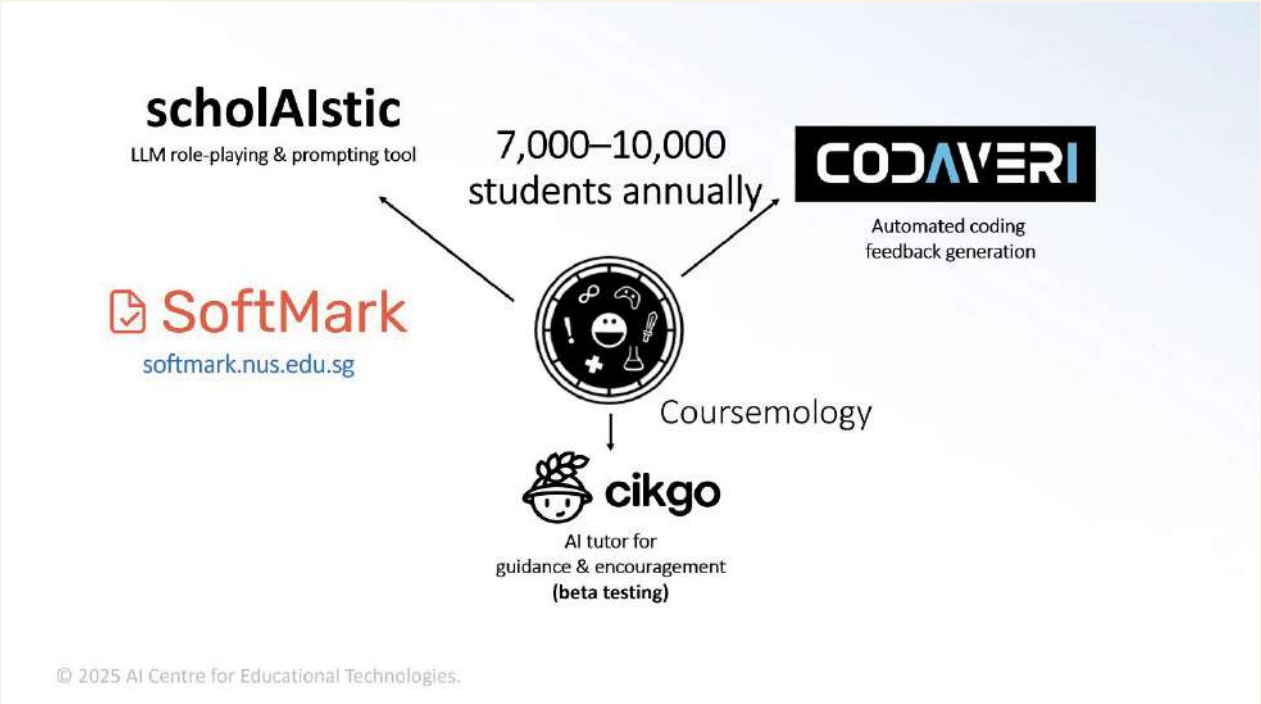
"Students outsourcing thinking. We see cases where learners try to game the assistant. Even with a human-in-the-loop, people tend to 'over-trust' models as the (LLM) models get better. That's why we audit interactions and assess the process, not only the output."

What rules should school leaders adopt right now?

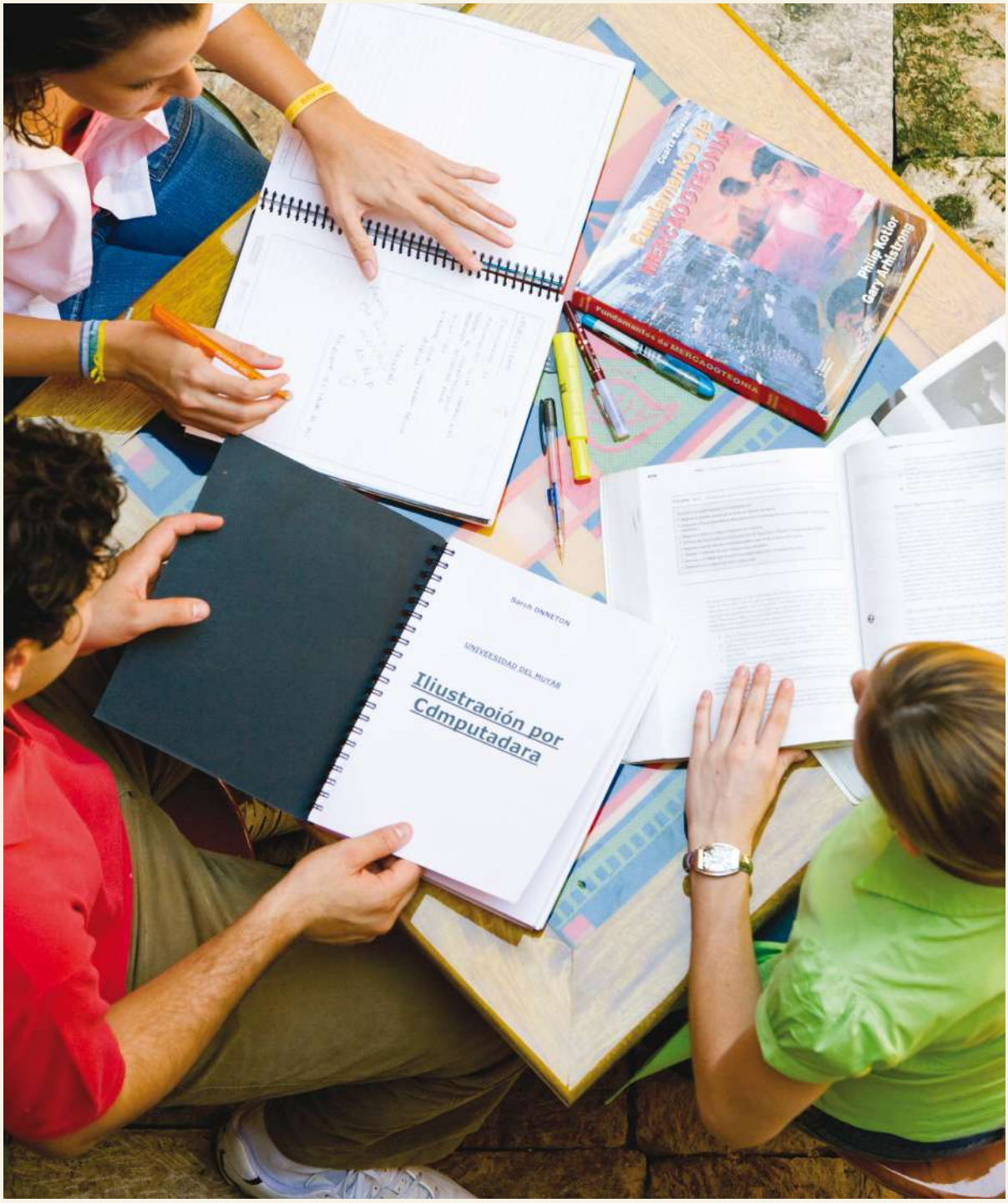
"Let instructors set the rules for each course. If AI is allowed, require declaration of tools used and a prompt/output transcript. Be explicit where AI is off-limits because it would defeat the learning objective."

What are your top tips for equipping teachers on the ground across contexts today?

"To remember: you can't ban AI, so learn to teach with it. Get started by using GPT for tasks you don't want to do, never for what you can't do. And double-down on fundamentals and classroom craft, because as AI gets stronger, human skills will only matter more."



Conclusion


Philip Kotler
Gary Armstrong
Sarah DINNETON
UNIVERSIDAD DEL HUYAB
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Our Council's key findings and actionable recommendations for global education policymakers and education institution leaders include calls to:

Urgently commission national "AI-readiness baseline" surveys before honing AI in Education policy or procurement.

Ensure all AI in Education policy is:
Agile - subject to scheduled review cycles.
Inclusive - co-developed with educators, students and tech experts.
Purpose-driven - focused on core educational outcomes.

Adopt a "principles/policy-first, tools second" approach to AI in Education policy.

Ensure education policy is "live" and reactive, with mandatory annual policy refresh cycles to ensure that state school systems and policies keep pace with AI.

Invest in in-house Education Ministry tech teams that co-design policy, not outsource to tech companies.

Urgently ensure inclusive AI adoption strategies are created to prevent the AI era from deepening educational divides, and guarantee baseline, equitable access to core GenAI services for schools.

Overhaul traditional curricula to ensure they focus on lifelong skill-building rather than age-based knowledge milestones.

Urgently ensure that all policymakers involved in setting education policy – go through rapid "AI literacy training" that undergoes continuous review.

Create policies and supportive frameworks for education institution leaders (K-12 and higher ed) to support them through the AI transition.

Create an international cadre of vetted AI-in-education ambassadors.

Appendices

These are just some of the resources out of many shared during Council discussions.

The AI-2027 report explores how fast AI could progress in the coming years
https://ai-2027.com/

Chip War is a relevant, award-winning book by economic historian Chris Miller
Chip_War:_The_Fight_for_the_World%27s_Most_Critical_Technology

Regulations and Guidelines for the Use of GenAI Tools and Applications in Digital Learning, from the NeLC
https://nelc.gov.sa/en/node/3050

Framework for Artificial Intelligence in Digital Learning, from the NeLC
https://nelc.gov.sa/en/node/2929

Exploring AI and data analysis in education
https://www.youtube.com/watch?v=hPXRxutB85c

More details on the AIED case study, as explored in this section
AIED Unplugged (1).pdf

Further data on AI benchmarking
https://epoch.ai/data/ai-benchmarking-dashboard
https://agi.safe.ai

HP Futures Council on AI & Leadership Council Members:

Name	Title	Organisation	Country
Alaa Abdulaal	Chief of Digital Economy Intelligence	Digital Cooperation Organization	Saudi Arabia
Tahani Aldosemani	Director of Cultural Higher Education Programs	Ministry of Culture	Saudi Arabia
Didem Un Ates	Founder & CEO	LotusAI	UK
Aditi Awasthi	CEO	Embibe	India
John Baker	CEO	D2L	Canada
Ig Ibert Bittencourt	Associate Professor	Federal University of Alagoas (UFAL)	Brazil
Raquel Blanco-Aguirre	Associate Professor	University of Oviedo	Spain
Simon O Connor	Director	Deira International School	UAE
Armand Doucet	Senior Advisor - AI in Education	Department of Education and Early Childhood, New Brunswick	Canada
Matthew Esterman	Founder	The Next Word	Australia
Charles Fadel	Founder & Chairman	Centre for Curriculum Redesign	USA
Joe Fatheree	Innovation Specialist	Oak Ridge Schools	USA
Clara Hawking	Expert	Kompass Education	Spain
Jesus Jara	K-12 Global Practice Leader	Prometric	USA
Ali Ahmad Khan	COO	Beaconhouse Schools	Pakistan
Lidija Kralj	Independent Adviser on AI & Data	European Commission	Croatia
Jane Mann	MD	Cambridge Partnership for Education	UK
Christine Kerlin Nasserghodsi	Founder	Verdant	UAE
Anarkalee Perera	Director, AI & Digital Policy Lead	HP	USA
Jeff Poole	CEO	Fusion Education Group	USA
Janak Rajani	Head of Digital & IT	Avanti Schools Trust	UK
Lokesh Rajendran	Consultant, Director General's Office	National eLearning Center	Saudi Arabia
Markus Schwertel	Director, Public Policy & Strategy	HP	Germany
Iwan Syahril	Former Director General	Ministry of Education	Indonesia
Rohit Talwar	CEO	Fast Future	UK
Freddy Vega	CEO	Platzi	Colombia
Paul West	CEO	Spencer Academies Trust	UK

07

AI in Education Frameworks

Actionable AI in Education Frameworks

Our actionable recommendations include a starting point for an AI in Education Charter for global governments and AI companies, and AI policymaking frameworks and implementation strategies that are being successfully used in regions around the world today. Examples include a guide to how to build a secure and effective state-wide/federal approach to AI in Education policy, and a 13-step guide **that forms a practical, step-by-step framework - from committee formation to policy refresh - for policymakers to utilise.**

The HP Futures AI in Education Charter

Establishing a global charter as a foundation for safe, ethical and effective AI integration in education systems worldwide

Across all three HP Futures 2025 Councils, there was **overwhelming consensus on the urgent need for a universal, principles-first AI in Education Charter to guide policymakers, and ensure transparency** as education undergoes a critical shift. The idea is that this Charter would **set a baseline for ethical, pedagogical and environmental standards,** ensuring that only AI companies / LLM models and generative AI-powered EdTech products meeting these agreed principles would be permitted in education systems signed up to the Charter. In this way, the Charter would serve both as a regulatory foundation for governments and a transparent benchmark for vendors, as being signed up to / approved by the Charter would offer a mark of differentiation in a crowded and fast-evolving landscape.

As Rajiv Suri, Vice President and Global Head of Enterprise AI and Machine Learning at HP, said: ***"Signing up to a form of AI in Education Charter could become a key differentiator for companies. Having a recognised framework that says 'our LLM meets these guidelines and is safe for classroom use' – that's something that vendors could align with and that the market could gravitate towards."***

Our Council Members proposed that the Charter would align with frameworks developed by ISTE, Digital Promise, and UNESCO, with extensions. The Charter would incorporate a clear certification process distinguishing between approved and non-approved tools, and would see governmental signatories agree to abide by principles including transparency with educators, students and parents, data stewardship, and work to measure AI's learning impact. The Charter would also require vendor signatories to offer data privacy options, learner-data ownership, and environmental sustainability goals/records, plus explicit safeguards for minors and bans on exploitative business models.

Key recommended principles include:

- **Transparency and explainability at every level:** AI providers must disclose how models are trained, what data is used, and how outputs are generated. Terms of service must be written in plain, age-appropriate language – they must be "joyfully explainable" to students. Similarly, to be signed up to the Charter, schools and universities must have a transparent AI policy in place which actively addresses how AI is used in teaching and learning.

- **Data protection and learner privacy:** Student interaction data must be anonymised, stored securely, and never used to train commercial models. Clear opt-out rights should be guaranteed, and vendors must be contactable for redress in cases of misuse.

- **Safeguarding by design:** Tools must be clearly synthetic in nature, include guardrails against emotional over-attachment or behavioural manipulation, and pass what was described as the "hedgehog test" – winning the confidence of even the most sceptical school leaders.

- **Ethical and environmental accountability:** AI companies should disclose energy usage and goals, with certain thresholds required for any company to be a signatory to the Charter. By signing up to the Charter, AI model providers and EdTech companies would also agree to deliver schools and universities products designed with "planned obsolescence" – meaning the products' core goal is to serve learning or SEL goals before fading into the background, rather than recruiting customers at a young age and aiming to retain over time.

- **Educator rights and professional agency:** Any tool that benefits from teacher input must offer fair credit and ideally a form of compensation. EdTech providers signed up to the Charter commit to providing tools that solely support teachers' roles, rather than replacing roles, keeping educators firmly "in the loop".

- **Student rights and cognitive integrity:** The Charter would aim to protect against excessive offloading of learning tasks to machines and the risk of cognitive atrophy, and to preserving "friction" in interactions with AI tooling, student agency and critical thinking.

A number of contributors also flagged specific risks that the HP Futures Councils would like to see addressed through implementation mechanisms alongside the Charter. These include:

- Behavioural manipulation and the risk of creating affective dependencies between learners and AI systems
- Use of personal data for commercial or influencing purposes
- Over-reliance on AI tools, undermining human agency in learning
- Teacher displacement or disempowerment
- Equity gaps in access to AI-enhanced learning
- Loss of cognitive diversity through algorithmic standardisation

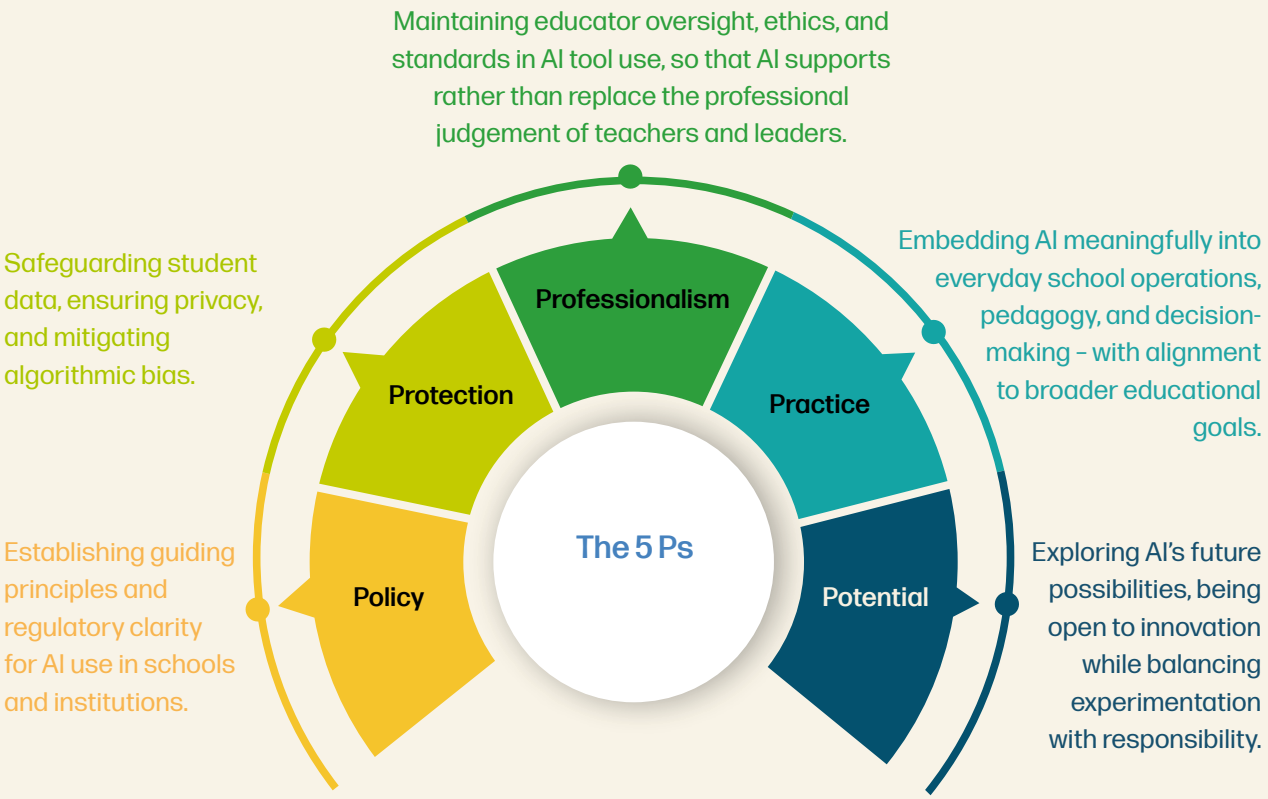
To mitigate the most acute of these risks, particularly **data misuse and behavioural influence,** Council Members recommended **requiring that all student data be stored by an independent, trusted third-party intermediary.** This approach would act as a **firewall between AI providers and sensitive learner data, allowing only anonymised, auditable data access** for product improvement or research. They further proposed **behavioural audits for all model versions before deployment,** especially where AI agents interact directly with students.

In sum, an internationally endorsed AI in Education Charter would offer a **powerful mechanism for ensuring AI is implemented safely, effectively and transparently** across education systems. Such a Charter would create a shared language and set of expectations for both public and private actors, and provide reassurance for students, families and educators that AI is serving, rather than steering, the future of learning.

Actionable AI policymaking frameworks and AI implementation strategies

A simple framework to help with getting started: The 5 Ps

Christine Nasserghodsi, founder of UAE-based education consultancy Verdant, shared her "Five 5 Ps" framework for getting started with AI in Education. She has been regularly using this framework to help schools and systems start to think about what they need to have in place for responsible AI use.



A three-step strategy for education system leaders to follow when forming their AI plans

Armand Doucet is an award-winning educator currently on secondment with the New Brunswick Department of Education and Early Childhood, where he is helping the state structure its AI integration from early childhood through to higher education.

He shared this three-step guide based on his own experiences, and said that his in-depth research suggests that **without careful design and planning, AI implementation risks becoming transactional, reinforcing inequities and undermining learning.** He said that his approach is rooted in intentional design, and urged other education systems to begin **not with tools, but with clear guidelines, data infrastructure assessments, and a professional development strategy** that scales from classroom teachers to ecosystem-level players. He also recommended building real knowledge mobilisation networks, rather than relying on scattered resources and events, and **training "AI champions" at all levels of a system.**

Here is his three-step guide:

1 **Policymakers must establish guidelines early on**
Countries must publish clear, context-specific guidelines for AI in Education. These should go beyond principles to include practical expectations around ethical integration and accountability.

2 **Knowledge mobilisation**
Policymakers and education institution leaders must ensure professional development rapidly moves from static events to dynamic ecosystems. For example, set up networks of teacher-champions, resource hubs, and bottom-up proof-points. Here, reviewing TeachAI's OECD-endorsed AI literacy framework is helpful, as it shares four AI-literacy competencies (Engaging, Creating, Designing, Managing). Doucet suggested also focusing policymaking around a fifth element: "AI fluency", the ability to navigate AI tools with civic, ethical and contextual awareness.

3 **Systemic integration**
System leaders should audit data infrastructure and platforms to determine where AI can meaning fully amplify learning and where it risks becoming a crutch. For example, dashboards supporting real-time intervention (e.g. reading by Grade 3) can drive better outcomes, if implemented with intent.

Step	What it means	Concrete actions	Early-success indicators
1. Guidelines first	Publish clear, context-specific principles before any tool procurement, so vendors serve learning goals—not the reverse.	∘ Co-draft a short AI Charter with teachers, students & parents. ∘ Cover data use, equity, environmental impact, teacher workload, and learning evidence. ∘ Require every RFP to cite how a product meets the Charter.	∘ Charter adopted by ministry board. ∘ All new tenders include Charter reference section. ∘ 80% of school leaders report "clarity on red-lines" for AI.
2. Knowledge-mobilisation PD	Shift from one-off webinars to living ecosystems that move knowledge "bottom-up and sideways," not just top-down.	∘ Fund Teacher-Champion Networks —release time + micro-grants for peer demo lessons. ∘ Launch a searchable "AI in Practice" hub (short videos, lesson artefacts, FAQs). ∘ Offer stackable micro-credentials that map to the TeachAI/OECD literacy framework plus a fifth competency: Navigating with AI (ethical, civic, value-driven use).	∘ 1,000 resources uploaded to hub in first year. ∘ 60% of teachers complete at least one micro-credential. ∘ Peer-observed lessons rise by 30 %.
3. Systemic scale-up via dashboards	Use real-time data to decide where AI should amplify learning and where it risks becoming a crutch.	∘ Deploy provincial dashboards tracking "Reading by Grade 3," SEL surveys, teacher workload hours. ∘ Tag each metric with traffic-light thresholds to trigger AI pilots or pause use. ∘ Run six-month sandbox pilots; expand only if green-light metrics improve.	∘ Dashboards live in every district portal. ∘ Reading-by-G3 gains of ≥ 5 pp in pilot schools. ∘ 90% of pilots publish public impact briefs.

A 13-Step guide for K-12 leaders looking to create their AI strategy

This roadmap, shared by Joe Fatheree, Innovation Specialist and educator at Oak Ridge Schools, offers a step-by-step guide designed to help school leaders looking to move from uncertainty to structured, impactful AI integration. The expert has worked with multiple US school districts using this guide, which spans how to form committees, ensure diversity, and get the right structures in place.

The 13 steps are:

1. Convene a meeting of diverse stakeholders.
2. Define your purpose for using AI at school.
3. Discuss a growth plan and what the culture looks like that supports it.
4. The growth plan should include: the why, the what, and the how.
5. Start with staff.
6. Set guidelines and encourage exploration.
7. Seek feedback from stakeholders to measure success.
8. Begin discussions on equity, privacy, bias, academic equity.
9. Decide how to measure how much time your students spend on devices at school.
10. Discuss what information you should expect from vendors. This covers: what learning theory are you using, how your system will work, and what safeguards you have in place to protect our students.
11. Begin discussions with a school legal team to ensure proper frameworks are in place.
12. Develop a communication plan to share how AI is being used at school and by whom.
13. Share when and how students can start to use AI at school.

A helpful AI-readiness baseline checklist

Alaa Abdulaal, Chief of Digital Economy Intelligence Digital Cooperation Organisation in Saudi Arabia, is a computer scientist and educator by background. She shared a **helpful checklist for policymakers and education leaders** to consult ahead of conducting any AI procurement or classroom deployment.
As she said: ***"If you don't know your baseline, you're designing blind."***

Infrastructure audit: Assess hardware availability, internet connectivity, and data security protocols.

Capability baseline: Evaluate staff digital literacy and existing knowledge of AI tools.

Equity profile: Identify disparities in access, particularly in relation to geography (rural vs urban), language diversity, and neurodivergence.

Safeguarding gaps: Review policies related to student data protection and the emotional impact of AI tools.

Leadership confidence survey: Gauge understanding and comfort levels among education system leaders and school heads.

08

AFTERWORD

This report is a call to action.

Our HP Futures Councils have outlined a roadmap for how AI can be deployed effectively to enhance education systems and learning outcomes across diverse contexts. Making this progress will not be easy, but it is possible. And necessary. It will require cross-sector collaboration, policymaking and institutional leadership with intent, and a firm commitment to putting learners at the centre of all AI implementation programmes.

If we had to very briefly encapsulate this report's key findings, it would be this call to action:
To ensure all AI in Education policy is made "principles/ policy-first, tools second", and is: agile, subject to scheduled review cycles; **inclusive** - co-developed with educators, students and tech experts, and **purpose-driven**, focused on core educational outcomes.

Taking this approach would help ensure we create AI-enabled learners, with the highly-developed metacognitive skills they will need to succeed in the reshaped economies of the future. **As Brookings Institution Director of the Center for Universal Education, Rebecca Winthrop,** recently told Ezra Klein in a The New York Times podcast that was widely shared beyond the education sphere:
Students today need to build "explorer muscles". They need to develop the curiosity, resilience, and critical thinking needed to solve novel challenges in the unpredictable future we are entering.

Our report shares input from educators and policymakers on just how to build those muscles, with **case studies and guidance from leaders overhauling curricula in Italy, deploying low-connectivity AI tools in Brazil, and creating national AI frameworks in Saudi Arabia,** to name a few.

As we go to publication, the integration of AI is gathering speed. Across the United States, school systems are rolling out Google's Gemini AI for millions of students. A US school group called Alpha School is already teaching English, Maths and Science via AI-led programmes in just two hours a day, leaving the remaining hours free to build wider skills. **Similar projects are underway in the UK, the UAE, Europe, Saudi Arabia and beyond, as highlighted in our report.**

Our Council Members are at the forefront of guiding and implementing these changes around the world, and we are extremely grateful to each and every one of our contributors for their time in creating this HP Futures 2025 report.

The findings and calls to action shared here are practical and based on latest data and expert consensus. We urge policymakers and education leaders around the world to review these materials, and draw on them as they build the AI-enabled, student-centred schools and universities that the learners of tomorrow deserve to attend.

With many thanks,

Mayank Dhingra
Director & Global Head - Education Business and Strategy, HP, and HP Futures Project Lead