

Guidelines for Design-AI Education

26 May 2026 (ver.1)

0. Objectives

This document translates the [SUTD Design-AI Education framework](#) into actionable guidance 1) for faculty designing their courses and 2) for students seeking to understand the design rationale behind their curriculum. This guideline is also aligned with MOE’s AI-in-Education direction, which emphasises student-centred, pedagogically grounded, safe and responsible AI use, including learning about AI, using AI, learning with AI, and learning beyond AI.

As a guideline, it is informed by the university’s commitment to nurturing graduates who are technologically savvy and culturally competent, as our society collectively navigates the responsible implementation and adoption of AI, including, but not limited to, large language models, audio, image, and audiovisual generators, code generators, AI agents, and AI-powered simulations and immersive environments. Given the rapid evolution of AI, this guideline will serve as *a living document*, subject to ongoing revision to reflect emerging pedagogical best practices.

1. One Design-AI Education Vision

In response to the increasing presence of AI in many corners of our society, SUTD strives to train its students to be “trilingual.” That is, SUTD works to nurture students to become design innovators who are fluent in their **domain knowledge**, **design methodologies**, and **critical AI literacy**. With this vision in mind, students are encouraged to develop these trilingual competencies through both the standard academic curriculum within the classroom and the DIVE curriculum. Similarly, faculty members are invited to consider how each of their courses contributes to at least one of the three elements. So that by the time students complete their studies at SUTD, they know how to practice their trilingual approach. Three types of fluency in question are:

- **Domain knowledge:** foundational knowledge in a field that guides the development and adoption of AI to create value in communities and enterprises.
- **Design methodologies:** human-centred design interventions to solve complex real-world problems in the age of AI.
- **Critical AI literacy:** critical thinking ability to decide when to develop, use, or set aside AI for a given task.

SUTD’s Design-AI Education vision does not replace the technical rigour the school has long championed. In fact, SUTD’s curriculum remains, as ever, technically grounded. What Design-AI Education does is to enhance, redefine, and deepen students’ human intelligence—grounded in sociocultural wisdom and societal purpose—equipping them to thrive and innovate in the AI era.

2. Two-Lane Approach to Design·AI Education

To work towards the vision of trilingualism, the university takes a two-way commitment:

- to enable students to **maximize their human potential**, which will in turn
- enable students to help **maximize societal and economic values** through innovative problem-solving skills.

In other words, the university is invested in empowering students, especially at a time when our society is grappling with both the excitement and anxieties surrounding the impact of AI. It is also important that, based on the training students receive during their time at SUTD, they will be able to share their trilingual skills with the broader society to bring about positive change.

3. Three Principles for Teaching & Learning Design·AI

To collectively achieve the aforementioned missions, SUTD has developed three principles that are central to its Design·AI education. All faculty members are invited to incorporate these principles in their capacity as educators, and in accordance with their disciplinary subject knowledge grounded in academic rigour, as well as in domain expertise gained through collaboration with industry partners (e.g., in healthcare, robotics, cybersecurity, logistics, and the cultural sector). Below are the working definitions of each principle. To see how different pillars and clusters and courses therein might interpret these principles, please consult the SUTD Design·AI Education framework.

Principle #1: Human Judgement, Critical Thinking & Ethical Reasoning

First and foremost, SUTD strives to develop students' critical thinking and ethical reasoning skills, anchored in disciplinary and domain knowledge. Working towards this principle, faculty members are positioned to guide and support students to evaluate the implications of AI, and to help them make responsible decisions regarding its use in coursework or project work with external partners.

Principle #2: Responsible Use, Teaming & Shaping AI

Second, SUTD aims at equipping students with critical AI literacy, so that they would know how to ethically use and extend AI systems and practice accountability for their decisions both within and outside of the classroom. Such a critical AI literacy includes students' ability to determine when they ought to set AI aside entirely, and for them to be well-versed in data privacy and other sociocultural impacts of AI as they surface.

Principle #3: Innovation & Creation for Real Impact (Design-AI Innovation & Venture Exploration Principle)

Last but not least, SUTD works to enable students to innovate and create—using and expanding AI where appropriate—to address real-world problems and to put their talents and knowledge in the service of cultural and socioeconomic enrichment.

4. Four Recommendations for Assessing Design-AI Education

One of the most concerning implications of AI-powered tools in higher education is how it could easily aid students in mimicking the learning. That is, when AI is incorporated into their learning process without careful consideration and deliberation. The role of the instructors, therefore, is to factor in the critical and optimal usage of AI when identifying the learning objectives and designing the corresponding measurable outcomes in the courses they teach. To do so, it might be generative to first reflect on **what skills and disciplinary knowledge are meant to be developed on the assignment and course level**. To support such self-assessment of course designs, this guideline seeks to share some of the effective assessment methods currently adopted by SUTD faculty members and researchers at other universities, by way of peer-to-peer learning and a communal knowledge sharing practice.

Recommendation #1: Employ diverse, multi-layered assessment approaches to evaluate student learning

Global Context

In November 2022, OpenAI's large language model (LLM) ChatGPT has gained global recognition, as its public release came just in time for final examinations at universities and colleges in many parts of the world.¹ One of the biggest concerns then, and now, is how LLMs are trained to simulate human expressions based on probability models. For students who waited until the night before the final paper was due, LLM might have provided a welcoming last resort to generate an essay in the blink of an eye. For instructors, this meant take-home final papers can no longer be the sole method of assessment to measure how much students have learned over the course of a term. In response, Harvard University and many others in higher education have prepared policies on generative AI tools in the classroom, [requesting faculty to define what type of usage is appropriate](#) for a given course.²

¹ Korseberg and Elken (2025).

² Office of Undergraduate Education, Harvard University.

SUTD Examples

At SUTD, course assignments vary across pillars and clusters, ranging from logging of progress in studio tasks, to printing 3D models to iteratively test the validity of ideas, to conducting user interviews with industry partners. In courses like 3.007 “Design Thinking and Innovation” (DTI), Sumbul Khan (SMT) and Bradley Camburn (EPD) use a range of assessment approaches during the term, to balance students’ gaining critical familiarity with existing generative AI tools—such as an AI-powered chatbot designed by instructors and researchers to aid their learning—and their ultimate acquisition of necessary concepts, methodologies, and communication skills independent of AI. The assessment framework includes a range of assessment checkpoints, e.g., gallery-style presentations (akin to viva) and in-class assignments. The final assessment includes multi-modal artefacts such as videos, posters, CAD models, oral presentations, and functional, physical prototypes that require human orchestration for synthesis.

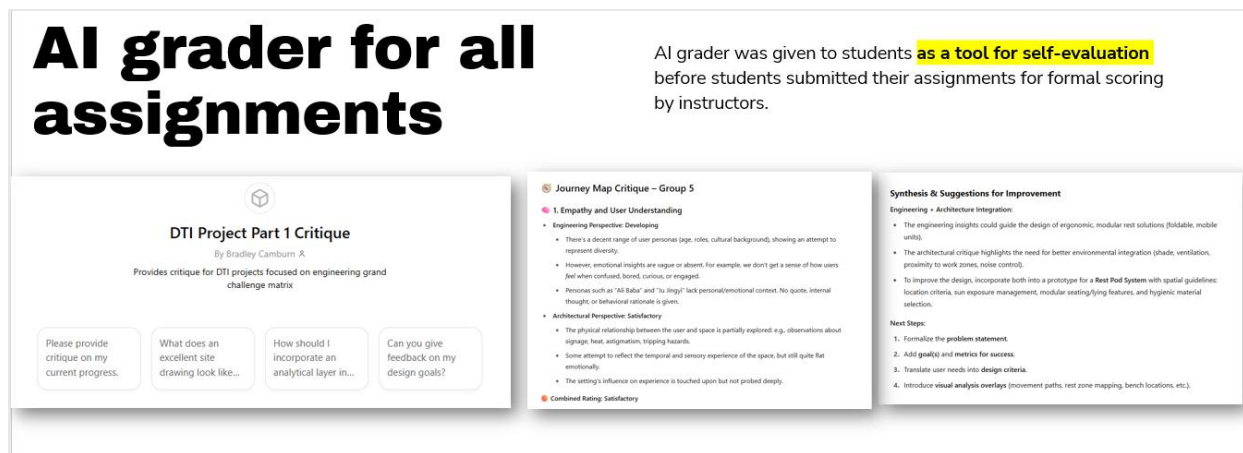


Image 1: A screenshot image of the AI grader used in DTI & iDeA (3.007) for journey mapping.

Recommendation #2: Prioritise process-oriented assessment where appropriate

Global Context

As many in the world acknowledge that AI is a period-defining technology that is here to stay, institutes of higher learning are defining its optimal and critical adoption. For example, the University of Michigan has developed [its bespoke GPT to ensure equitable access to emerging technology among its students](#).³ The general consensus suggests that a number of universities have resolved to equip students with critical AI literacy so that they have the power to decide

³ Cohen (2025).

how and when to use contemporary technologies, as opposed to letting the technologies dictate.⁴

SUTD Examples

As a design and engineering institution, students at SUTD are trained to design not merely to improve objects or systems, but also to enhance interpersonal relations in domains such as healthcare, finance, and the public sector, as well as our relations with other species and the environment as conscientious technologists. Growing public awareness of [algorithmic biases](#), [chatbots' impact on young people's mental health](#), [extractive data collection and labor practices](#), and the [environmental cost of AI means](#) that engineers and designers are expected to be cognizant of the sociopolitical implications of their work and to demonstrate accountability in their practice.⁵ Courses like 02.535 “Humanistic Design: Ethics, Care, and Accountability in the Age of AI” taught by Setsuko Yokoyama (HASS), for example, feature established frameworks in software engineering like “[Data Sheets for Data Sets](#),” drawing on intersectionality and other humanities and social science frameworks to promote more mindful and accountable engineering practices.⁶ Most importantly, students practice facilitating constructive dialogues among stakeholders with seeming conflicts of interest—such as musicians, streaming platform companies, developers of AI-generated music, and listeners—through weekly discussions and a mock project proposal pitch.



Image 2: A lecture slide from the “Humanistic Design” course, inviting students to imagine the optimal role of AI in society.

⁴ Ng (2021).

⁵ Infocomm Media Development Authority (2024), Chok and Yang (2026), Hao (2025), and Liu et al. (2025).

⁶ Gebru et al. (2021).

Recommendation #3: Teach students how to use AI ethically and effectively for your course

Global Context

Many generative AI tools excel at pattern recognition, but it always comes down to discernment practiced by humans to assess the accuracy and trustworthiness of computationally generated outputs. For those who had their educational training prior to the advent of AI, their disciplinary knowledge and domain expertise often enable them to assess the validity of AI-generated ideas and content. For students who are yet to be familiar with the domain knowledge, there is little ground on which they can evaluate AI responses.⁷ A professor at Columbia University's Business School, for example, noticed that students had routinely resorted to ChatGPT summaries of business cases, in hopes of doing their homework more efficiently. As a result, these students overlooked the fact that it was their unique interpretative practices, grounded in careful reading and deliberations, that ultimately led to unique business solutions. To address this tendency among his students, [he created a dialogical bot to challenge students' lines of argument, as well as to help refine and expand their thinking.](#)⁸

SUTD Examples

Instructors at SUTD have also started to teach students how to cross-examine the validity of suggestions made by AI tools, so that students can benefit from the time-saving and generative mechanisms while recognizing their limitations. Hence, rather than replacing learning, AI is used to deepen it. For example, in 30.001 "Structures & Materials" taught by Chan Wai Lee (EPD), students test AI-generated structural designs through simulations and 3D-printed prototypes that were further subjected to tensile tests. This workflow allows students to observe how some AI-generated solutions may fail under real-world physical constraints, instilling in them both engineering judgment and an understanding of the capabilities and limits of contemporary AI technologies.

⁷ This understanding is not limited to higher education. A study published by the Oxford University Press in 2025 suggests that, of 2000 students aged 13–18, nearly half of them expressed the need for teachers to explain how to judge the trustworthiness of AI content.

⁸ Svrluga (2026).

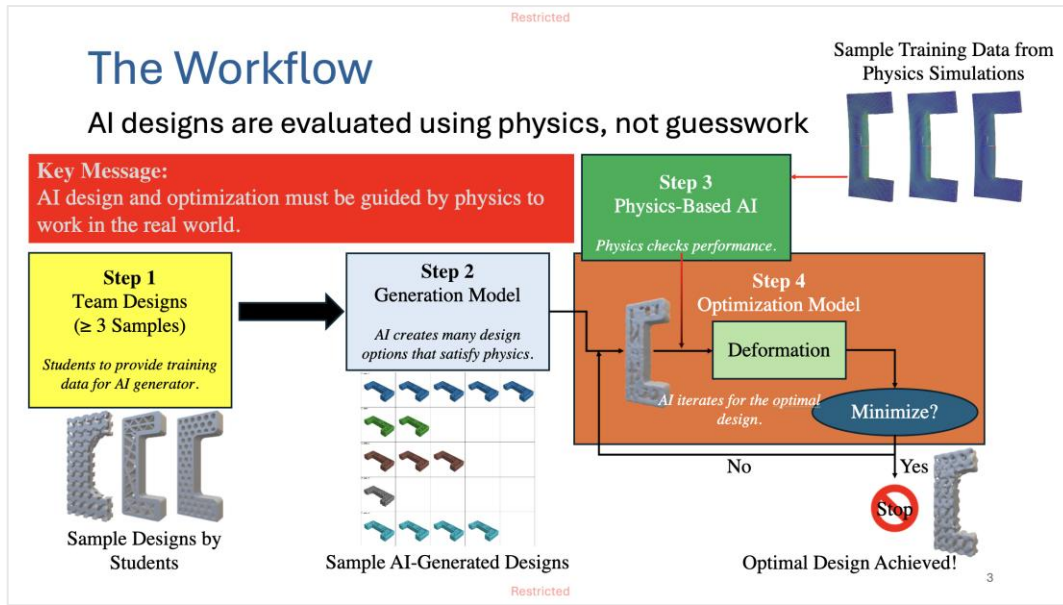


Image 3: The “Physical AI” approach taught in the “Structures & Materials” course.

Similarly, in 50.003 “Elements of Software Construction” taught by Kenny Lu (ISTD) and Dileepa Fernando (ISTD), AI is integrated as a second opinion provider. Besides assessment, the course also encourages students to use the LLM/AI tools effectively to assess and cross-examine their teammates’ work. For example, asking the LLMs to generate a sequence diagram based on the teammates’ submitted pull requests might reveal how their descriptions of design and development guidelines could be incomprehensible or non-standard for others. Using the LLMs in this manner could help assist peer learning among students with AI as a tool and a teammate, as they offer assistance and guidance on how to better restructure the component descriptions.

Recommendation #4: Design complex, authentic challenges that require human creativity & critical thinking beyond AI capabilities

Global Context

Other universities teach students to use AI in conjunction with their disciplinary and domain expertise, so that they can help develop creative solutions to pressing societal challenges. For example, Arizona State University provided students with an institutional license so that they can create custom GPTs to apply their knowledge for the greater good in society, [such as addressing the sustainability question in fashion industries](#).⁹ Indeed, an international study

⁹ Muñoz (2025).

conducted by fashion researchers in Korea—and many similar studies in different fields—led to the development of a pedagogical framework that illustrates how best to incorporate AI tools, such as large language models, image generators, simulations, and feedback systems, to enhance students’ creative thinking.¹⁰

SUTD Examples

At SUTD, students are also learning by making, sometimes with the aid of AI tools, but most definitely with their creative inspirations stirred by their instructors, lived experience, and user research. For example, in 02.005 “Introduction to Human-Centred Design,” Evelyn Chew (HASS) and Lyle Fearnley (HASS) invite students to [redesign a mode of public transport to promote prosocial behavior](#). Students are encouraged to consider the multiple aspects of real-life challenges and cultural context, such as people’s reluctance to socialize with strangers or being on a crowded train. By using ethnographic methodologies (e.g., observations, semi-structured interviews, and surveys) as well as iterative participatory prototyping, students work to develop a creative solution—such as designating silent, social, and family cabins on a train—that respects both cultural realities and practical constraints of their users.

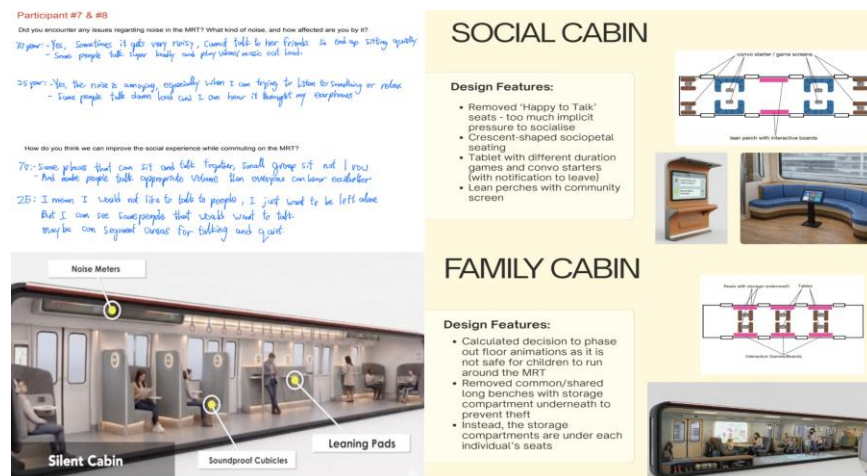


Image 4: Students’ participatory user research informing the prosocial transport solution in the “Introduction to Human-Centred Design” course.

¹⁰ An and Park (2026).

5. Further Exploration of Design·AI Education Initiative at SUTD

This document translates the SUTD Design·AI Education framework into actionable guidance for faculty designing their courses and for students seeking to understand the design rationale behind their curriculum. Given the rapid evolution of AI, this guideline will be updated regularly to reflect emerging pedagogical best practices, ongoing institutional learning, and new Design·AI education initiatives across SUTD.

There are also a number of Design·AI education initiatives across campus, led by colleagues from different units, which welcome interested faculty and students to participate. Please reach out to the relevant initiative leads to learn more about their objectives and how you can contribute to, refine, and enrich Design·AI teaching and learning at SUTD. The list will be updated regularly, and colleagues are encouraged to contact the Design·AI Task Force to have their initiatives included.

| Name | Unit | Leads | Deliverables / Objectives |
|---|--|---|---|
| GenAI Integration in Coursework | Office of Strategic Planning (OSP) | Nachamma Sockalingam | Reimagine Education Weekly Newsletter , course design tools (e.g. GenAI course auditor and GenAI integrator), consultations and workshops |
| Fab Lab 2.0 | Fab Lab | Soh Gim Song | Pedagogical Tools (e.g. Speak-to-Print, Print GPT) |
| Building 0 | Building 0 | Poon King Wang | Pedagogical Tools |
| D.AI course mapping | Teaching-Track Faculty Across Pillars/Clusters | Oka Kurniawan, Apple Koh, Chandrima, Kenny Lu, Pang Yang Huei, Wong Wei Pin | Peer-to-peer Design·AI course mapping exercise, using design frameworks |
| “Design in the Age of AI: An Ontological, Epistemological, and Ethical Foundation for Design Education” | ASD | Khoo Peng Beng, Stylianos Dritsas, and Kang Shua Yeo | Position paper & executive summary |

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| “AI & Ethics in Asia” | HASS | Yow Wei Quin & Courtney Fu | White paper |
| “Mission Team Human” | HASS | Evelyn Chew, Setsuko Yokoyama, Taka Yamamoto, and Björn Fischer | Mock job interview training & mentoring for graduating UG students in collaboration with the Career Development Centre (CDC) |
| “Critical AI Reading Group” | HASS | Setsuko Yokoyama, Taka Yamamoto, Jeffrey Chan, Su Mengyang, and Grace Dixon | Reading discussions of emerging AI ethics literature in the humanities, arts, and social sciences |
| SMT AI committee | SMT | Xue Hansong & Lou Xuanming (supported by Kwan Wei Lek, Maggi Pee, Julia Zhu, Agnieszka Gorecka & Sumbul Khan) | SMT AI Resources Team |

6. Similar Initiatives at Other Universities

Needless to say, SUTD is among the many universities that are developing guidelines for their faculty and students to navigate the shifting landscape of higher education. As a full-fledged guideline detailing SUTD’s uniquely interdisciplinary Design·AI pedagogy awaits further development, find below some of the robust guidelines published by other universities. They are shared here, in hopes of offering additional support, resources, and pointers for students and faculty as we collectively and continuously define the optimal adoption of AI at SUTD.

- The University of Sydney has adopted what they call a [“two-lane approach” assessment](#), which controls how and when to use AI depending on the types of learning objectives. See their [“AI for Educators.”](#) written by a team of instructors, which offers multiple examples of different assessment methods. Also of note is their [“AI in Education,”](#) prepared by students, detailing different AI tools that could help aid the learning process.
- The award-winning [AI Assessment Scale](#) is developed by education researchers Mike Perkins, Leon Furze, Jasper Roe, and Jason MacVaugh in Vietnam, UK, and Australia, and has been translated and adopted around the world. Their guiding question is “how much AI involvement is permitted in this task?,” which they answer with five levels of involvement.

We will share more resources by way of a “literature review” practice, once we vet the academic rigour of different initiatives. If you know of resources developed by your colleagues in your field that could benefit SUTD faculty and students, please share them with the Task Force with a brief explanation of their significance.

7. Review of the Guidelines

This guideline will be updated and refined following each end-of-term teaching reflection meeting across pillars and clusters. Doing so will ensure that the guideline reflects the latest and effective pedagogical practices championed by SUTD faculty and serves as a communal resource for peer learning. The Task Force will document the evolution of Design·AI Education by implementing version control.

8. Disclaimer

The main goal of this guideline is to provide useful pedagogical suggestions and recommendations. In particular, the guideline strives to:

1. recognize existing practices and initiatives in one place,
2. create a space for pedagogical knowledge sharing among faculty, and
3. offer a language for students to understand their curriculum design.

Please keep the guideline authors informed of your latest pedagogical endeavors, so that we can help celebrate critical and creative works of students and faculty on the SUTD campus.

9. Authors and Advisors

This guideline is prepared by the Design·AI Education Task Force, with advice from President Professor Phoon Kok Kwang, and the Head of HASS and Programme Director of DAI Professor Yow Wei Quin.

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10. Works Cited

An, Hyosun, and Minjung Park. 2026. 'AI Tools and Fashion Design Education: Instructor Perspectives on Student Challenges and Design Process Tool Support.' *Fashion and Textiles* 13(3). <https://doi.org/10.1186/s40691-025-00452-9>.

Bridgeman, Adam, Danny Liu, and Ruth Weeks. 2024. 'Program Level Assessment Design and the Two-lane Approach.' Teaching@Sydney, *The University of Sydney*, 12 September 2024. <https://educational-innovation.sydney.edu.au/teaching@sydney/program-level-assessment-two-lane/>.

Chok, Ivy, and Calvin Yang. 2026. 'Mental Health Professionals Warn of Risks from Relying on AI Chatbots for Emotional Support.' *Channel News Asia*. 12 March 2026. Last Accessed on 22 May 2026. <https://www.channelnewsasia.com/singapore/mental-health-professionals-risks-artificial-intelligence-ai-chatbots-emotional-support-5986726>.

Cohen, Benjamin. 2025. 'The New Normal' *The Mich*. Student publication as part of David Gold's course "English 325: Magazine Writing" offered in the College of Literature, Science, and the Arts, University of Michigan. 1 December 2025. Last Accessed on 21 May 2026. <https://themich.org/2025/12/01/how-u-m-students-are-normalizing-campus-approved-generative-ai/>.

Gebru, Timnit, Jamie Morgenstern, Briana Vecchione, et al. 2021. 'Datasheets for Datasets'. *Communications of the ACM* 64 (12): 86–92. <https://doi.org/10.1145/3458723>.

Hao, Karen. 2025. *Empire of AI: Dreams and Nightmares in Sam Altman's OpenAI*. Penguin Press.

Infocomm Media Development Authority. 2024. 'Singapore AI Safety Red Teaming Challenge'. Last Accessed on 22 May 2026. <https://www.imda.gov.sg/activities/activities-catalogue/singapore-ai-safety-red-teaming-challenge>.

Korseberg, Lene, and Mari Elken. 2025. 'Waiting for the Revolution: How Higher Education Institutions Initially Responded to ChatGPT.' *Higher Education* 89 (4): 953–68. 184872732. <https://doi.org/10.1007/s10734-024-01256-4>.

Liu, Felicia H. M., Karen P. Y. Lai, Bertrand Seah, and Winston T. L. Chow. 2025. 'Decarbonising Digital Infrastructure and Urban Sustainability in the Case of Data Centres'. *Npj Urban Sustainability* 5 (1): 15. <https://doi.org/10.1038/s42949-025-00203-1>.

Office of Undergraduate Education, Harvard University. 'Generative AI Guidance.' *Harvard University*. Last Accessed on 21 May 2026. <https://oue.fas.harvard.edu/faculty-resources/generative-ai-guidance/>.

Oxford University Press, 2025. 'Teaching the AI-native Generation.' *Oxford University Press*. Last Accessed on 21 May 2026. <https://corp.oup.com/spotlights/teaching-the-ai-native-generation/>.

MLA-CCCC, 2023. 'Overview of the Issues, Statement of Principles, and Recommendations.' *MLA-CCCC Joint Task Force on Writing and AI*. Last Accessed on 21 May 2026. <https://aiandwriting.hcommons.org/working-paper-1/>.

Ministry of Education Singapore. 2026. 'Artificial Intelligence in Education.' Educational Technology Journey, *Ministry of Education Singapore*. 8 January 2026. Last Accessed on 27 May 2026. <https://www.moe.gov.sg/education-in-sg/educational-technology-journey/edtech-masterplan/artificial-intelligence-in-education>.

Muñoz, Joycelyn. 2025. 'Putting the AI in fAshlon.' ASU Enterprise Technology, *Arizona State University*. 1 May 2025. Last Accessed on 22 May 2026. <https://tech.asu.edu/features/putting-ai-fashion>.

Ng, Davy Tsz Kit, Jac Ka Lok Leung, Samuel Kai Wah Chu, and Maggie Shen Qiao. 2021. 'Conceptualizing AI Literacy: An Exploratory Review.' *Computers and Education: Artificial Intelligence* 2 (January): 100041. <https://doi.org/10.1016/j.caeai.2021.100041>.

Svrluga, Susan. 2026. 'ChatGPT Fed His Students Easy Answers, So He Built an App to Argue with Them.' *The Washington Post*. 1 April 2026. Last Accessed on 22 May 2026. <https://www.washingtonpost.com/education/2026/04/01/professors-design-ai-apps/>.

University of Sydney. 'AI in Education.' Last Accessed on 22 May 2026. <https://canvas.sydney.edu.au/courses/51655>.

University of Sydney. 'AI for Educators.' Last Accessed on 22 May 2026. <https://canvas.sydney.edu.au/courses/63765>.

11. Works Consulted

Desai, Hrishikesh. 2025. 'What's Worth Measuring? The Future of Assessment in the AI Age.' *UNESCO*, May 19, 2025. Last Accessed on 23 May 2026.

<https://www.unesco.org/en/articles/whats-worth-measuring-future-assessment-ai-age>.

Harvard Business Publishing Education. 2026. 'Must Reads: Cultivating Sound Thinkers in the AI Era.' *Inspiring Minds*. <https://he.hbsp.harvard.edu/cultivating-sound-thinkers-in-the-ai-era.html>.

Luo, Jiahui. 2024. 'A Critical Review of GenAI Policies in Higher Education Assessment: A Call to Reconsider the "Originality" of Students' Work.' *Assessment & Evaluation in Higher Education* 49 (5): 651–64. <https://doi.org/10.1080/02602938.2024.2309963>.

Yan, Lixiang, Samuel Greiff, Ziwen Teuber, and Dragan Gašević. 2024. 'Promises and Challenges of Generative Artificial Intelligence for Human Learning.' *Nature Human Behaviour* 8 (10): 1839–50. <https://doi.org/10.1038/s41562-024-02004-5>.