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TOPIC BRIEF

AI in Southeast Asia: Marginalised learners

Insights for more inclusive and equitable use of AI in education

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About this document

About EdTech Hub

EdTech Hub is a global research partnership. Our goal is to empower people by giving them the evidence they need to make decisions about technology in education. Our evidence library is a repository of our latest research, findings, and wider literature on EdTech. As a global partnership, we seek to make our evidence available and accessible to those who are looking for EdTech solutions worldwide.

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EdTech Hub's topic briefs on AI in education in Southeast Asia

Across Southeast Asia, the demand for guidance on the use of artificial intelligence (AI) has grown rapidly. EdTech Hub has engaged with a number of partners across Southeast Asia on the use of AI in education, indicating that policymakers and teachers across the region are seeking clarity on the use of AI to support teaching and learning. This reflects a need for contextualised, reliable, high-quality, and rapid research to help education stakeholders quickly understand and adapt to emerging AI in education trends and topics.

While global evidence on AI in education is expanding quickly, stakeholders across the region have highlighted the need for tools that translate this knowledge into practical, locally relevant insights. The topic briefs respond directly to this need.

The briefs examine the intersection of AI with key elements of the education ecosystem in Southeast Asia. An initial desk review of the regional AI in the education landscape surfaced several priority themes and areas of interest, leading to the development of five topic briefs in this series.

This brief examines the use of AI for marginalised learners and focuses on the question:

How is AI currently supporting education for the most marginalised in Southeast Asia?

The other briefs in this series include:

AI in Southeast Asia: Strategic Partnerships by Delanie Honda (2026). EdTech Hub. https://doi.org/10.53832/edtechhub.1164. Available at https://docs.edtechhub.org/lib/NH9HAIW5.

AI in Southeast Asia: Ethical Governance of AI in Education by Neema Jayasinghe. (2026) https://doi.org/10.53832/edtechhub.1179. Available at https://docs.edtechhub.org/lib/2VBH4GZX.

AI in Southeast Asia: Girls' Education by Alesia Petrovets (2026). https://doi.org/10.53832/edtechhub.1180. Available at https://docs.edtechhub.org/lib/3KT6QT98.

AI in Southeast Asia: The Role of Teachers by Iona Wotton, Delanie Honda, & Nurhasmiza Sazalli, N. (2026) https://doi.org/10.53832/edtechhub.1178. Available at https://docs.edtechhub.org/lib/XWRW9BUJ.

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Abbreviations and acronyms

AI   Artificial Intelligence

ASEAN   Association of Southeast Asian Nations

DPL   Digital personalised learning

EEF   Equitable Education Fund

ESCAP   Economic and Social Commission for Asia and the Pacific

GEM   Global Education Monitoring

HNUE   Hanoi National University of Education

ICT   Information and communications technology

ISEE   The Information System for Equitable Education

K–12   Kindergarten 12

KBTG   Kasikorn Business Technology Group

KII   Key informant interview

LLM   Large Language Model

OECD   Organisation for Economic Co-operation and Development

PLDT   Philippine Long Distance Telephone Company

SEAMEO   Southeast Asian Ministries of Education Organisation

SEND   Special educational needs and disabilities

TTF   Teachers Task Force (also known as International Task Force on Teachers for Education 2030)

UNDP   United Nations Development Programme

VAIEP   Vietnam AI for Education Programme

YGB   Yayasan Guru Belajar

1. Introduction

Across Southeast Asia, education systems have seen steady gains in enrolment, completion, and learning outcomes over the past two decades. However, recent evidence shows that these gains are stagnating (↑UNICEF & SEAMEO, 2024). An estimated 11.8 million children in the region remain out of school (↑Afzal et al., 2024), and of those in school, only half of Grade 5 students have achieved minimum proficiency in reading after five years of schooling (↑UNICEF & SEAMEO, 2024). These gaps disproportionately affect learners with disabilities, those from low-income households, rural and remote communities, and those who do not speak the language of instruction at home (↑Smith et al., 2021; ↑Spink & Learning, 2021)

As education systems seek to recover lost learning and expand support for the most marginalised, governments, development partners, and private actors have increasingly turned to Artificial Intelligence (AI) (↑Noor & Kanitroj, 2025). AI-enabled tools that generate multilingual content, personalise learning pathways, function in low-bandwidth environments, or support learners with disabilities offer new possibilities for addressing barriers to accessing quality education (↑Pandey, 2022; ↑UNESCO, 2023).

Yet who can realistically benefit from AI in education depends on who owns a device and is confident in using it, which schools are connected, and whose languages and cultures are represented in data used to train AI systems (↑Hara, 2024; ↑UNESCO, 2023). In a region characterised by rich linguistic diversity, cultural complexity, and wide resource disparities, the risks of misrepresentation, algorithmic bias, and pedagogical homogenisation are high (↑Eslit, 2025).

At the regional level, *ASEAN's Digital Masterplan 2025* places digital inclusion at the centre of its vision for development (↑ASEAN, 2025). However, translating this ambition into inclusive AI in education remains challenging. Much of the existing evidence on AI in education comes from high-income contexts and offers limited insight into how AI performs or which approaches are effective in rural, multilingual, special educational, or low-resource classrooms (↑Mulla et al., 2023; ↑OECD, 2024).

In this brief on teaching and learning, we aim to answer the following question: **How is AI currently supporting education for the most marginalised in Southeast Asia?** Through a regional desk review and key informant interviews (KIIs), the brief examines how key actors identify and address structural barriers that shape who can access, participate in, and meaningfully benefit from AI-enabled teaching and learning. The 'who' here primarily relates to those marginalised due to poverty, geography,

language of instruction, or digital exclusion. These are the most commonly addressed exclusions in AI-driven education initiatives. While efforts were made to identify initiatives specifically supporting learners with disabilities, the evidence base remains limited and uneven. Gender-based marginalisation is explored in a companion topic brief (↑Petrovets, 2026).

2. Methodology

This report consists of primary and secondary research. First, desk research was conducted to identify AI initiatives for inclusive education in the region. This scan identified common trends in implementation, evidence (or lack thereof), and key actors shaping the AI for inclusive education landscape in Southeast Asia.

The primary research was conducted through key informant interviews (KIIs) with stakeholders coordinating the design or delivery of AI for inclusive initiatives. They informed the case study spotlights presented in this brief, and provided deeper insights into how AI is being used to expand access to education and support learning for the most marginalised across the region.

2.1. Desk research

The first phase consisted of desk research to surface AI in education initiatives across the region, with a focus on those supporting inclusive teaching and learning. A broad regional search across academic and grey literature was conducted using the search terms "AI", "education", "ASEAN", "inclusion", "equity", and "teaching and learning". Searches were also conducted targeting individual countries, as well as marginalised groups, including "learners with disabilities", "ethnic and linguistic minorities", and "low-income households". The documents included in the review were typically programme evaluations, impact reports, blog posts, press releases, or articles on online news sites.

2.2. Key informant interviews

Four KIIs were conducted with organisations involved in AI in education initiatives. Key informants were purposefully selected for their regional scope, experience implementing AI in education initiatives, and their focus on equity and inclusion.

Key informants interviewed and profiled in this topic brief included representatives from CoLearn[1] (Indonesia), Yayasan Guru Belajar[2] (Indonesia), and Equitable Education Fund[3] (Thailand). One representative

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[1] See https://colearn.id/. Accessed 16 December 2025.

[2] See https://yayasangurubelajar.org/?lang=en. Accessed 16 December 2025.

[3] See https://en.eef.or.th/. Accessed 16 December 2025.

from the Biji-Biji Initiative[4] (Indonesia) was interviewed but was not included as a case study spotlight. Efforts were made to secure broader regional representation; however, organisations from other countries were unavailable or did not meet the inclusion criteria. Government representatives were invited to participate, but were unavailable.

2.2.1. CoLearn

CoLearn (Indonesia) was selected for its focus on expanding access to education for marginalised learners through affordable, cohort-based tutoring and an AI-enabled homework support application. The organisation provides a relevant case of how AI can be used to scaffold learning, support tutors, and reach underserved learners at scale, particularly in low-resource contexts. CoLearn's experience also offers insights into pedagogical design choices and the risks of cognitive offloading associated with generative AI, making it well suited to inform discussions on equity, learning quality, and student agency.

2.2.2. Yayasan Guru Belajar

Yayasan Guru Belajar (YGB), Indonesia, was selected for its experience in curricula for large-scale teacher professional development initiatives and in supporting teachers in integrating AI into their practice. YGB's focus on community-based collaboration as a means to connect policy to practice, and close knowledge and skill gaps, made them an interesting example for this brief.

2.2.3. Equitable Education Fund

The Equitable Education Fund (EEF) in Thailand was selected to illustrate what meaningful localisation looks like in practice, and how cross-sectoral partnerships can promote inclusive uptake of AI for good. Its focus on understanding and addressing the needs of the most marginalised through systematic research and strategic partnerships is particularly relevant for this topic brief.

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[4] See https://biji-biji.com/ Accessed 5 January 2026.

3. AI for inclusive education

The desk review examined 15 initiatives from across Southeast Asia (see the Annex). Table 1 below provides a selected list of initiatives as examples of the types of programmes identified. Overall, the review finds that AI initiatives in the region are oriented towards building system readiness for more inclusive use of AI, rather than direct engagement with marginalised learners. Specifically, nine of the 15 initiatives focus on building capacity through teacher training, while only four initiatives deploy AI directly within learner-facing platforms or tools.

3.1. Types of initiatives

3.1.2. Teacher training and capacity building

Teacher training is the most common entry point for inclusive AI adoption, with nine of the 15 initiatives offering structured opportunities to support teachers in integrating AI into classroom practice. The most common areas of focus include foundational AI literacy, ethical and responsible use, and lesson planning using commercially available tools, such as ChatGPT. Only two initiatives meaningfully involve teachers through co-creation.

This dominant focus reflects widespread concerns that low teacher readiness is a barrier to AI adoption (↑Jamaluddin et al., 2025). Regional analyses similarly point to the need to close the AI literacy gap (↑UNESCO & SEAMEO, 2023a; ↑UNESCO & SEAMEO, 2023b; ↑UNICEF & SEAMEO, 2024); however, at the national level, teacher standards for AI in education are being developed. Policies such as Vietnam's 2025 National Plan to enhance digital and AI competencies for teachers and education managers and Cambodia's *ICT-AI Competency Framework* for teachers highlight the growing emphasis governments are placing on upskilling the education workforce (↑UNICEF, 2025; ↑UNESCO, 2025b).

3.1.3. AI-enabled learning tools

Only five of the 15 initiatives reviewed deploy AI-enabled tools that directly engage marginalised learners. Among these initiatives, three prioritise inclusion through localisation, affordability, or offline functionality targeting rural or low-resource settings. While these design features are essential in contexts with unreliable connectivity or limited infrastructure, they do not extend to adaptive, assistive, or accessibility-focused functionalities that could support learners with disabilities or address linguistic diversity. The

review surfaced only three initiatives that address accessibility and support for learners with disabilities:

1. SABAY (Screening using AI-based Assistance for Young children)

2. Philippine Long Distance Telephone Company's (PLDT) and Smart Communication's All Included

3. Sekolah Enuma.

3.1.4. Equitable access to technology and AI tools

PLDT and Smart Communications are the only profiled organisations that explicitly address remote connectivity and device access alongside their AI-related programmes. In most other cases, access is treated as a precondition addressed through broader national digital strategies, rather than as an integral component of AI in education initiatives led by non-state actors.

Across the region, governments have prioritised universal access through investments in broadband expansion, school connectivity, and device distribution. For example, Malaysia's *Digital Economy Blueprint* outlines measures to enhance broadband coverage and distribute digital devices to underserved communities (↑Economic Planning Unit, 2021). However, the potential for public–private collaboration to expand access remains largely untapped within the AI in education space (↑UNESCO & SEAMEO, 2023b).

3.2. Target audience

Across the initiatives reviewed, teachers and school leaders are the most common target audience. A smaller number of programmes extend capacity building to learners through introductory AI literacy or exposure to emerging technologies. Two initiatives are intentionally designed for learners with disabilities. With the exception of isolated examples such as ECAIR's SABAY, PLDT and Smart Communication's All Included initiative and Sekolah Enuma, accessibility features are not embedded in the profiled tools, training, or platforms.

This pattern suggests that while many Southeast Asian countries have developed policies and guidelines on assistive and inclusive technologies, access remains limited, often confined to short-term pilot projects with a narrow reach (↑UNESCO & SEAMEO, 2023b). Evidence of impact is still scarce, largely due to lack of infrastructure and affordability of assistive technology devices, low accessibility of digital content and tools, and low

disability-related digital skills and awareness (↑ESCAP, 2025; ↑Kooli & Chakraoui, 2025).

Country patterns also vary. Vietnam, Indonesia, and Singapore show the greatest diversity of initiatives across training, research, and tool development. No relevant initiatives were identified for Lao PDR, Myanmar, Brunei Darussalam, or Cambodia, which highlights disparities in AI readiness across the region. However, these countries are supported by regional initiatives such as AI Ready ASEAN and ASEF ClassNet18, which facilitate cross-border knowledge sharing and capacity building.

Table 1. *Selective list of AI initiatives for inclusive education*

Initiative	Partners	Country	Description
Name: AI Teach **Initiative type:** Teacher training **Equity focus:** Underserved communities	Biji-Biji Initiative and Mereka, Microsoft, Plan International Indonesia, ASEAN Foundation	Regional	AI TEACH was an AI literacy and skills development initiative using Microsoft's AI Trainer Toolkit that sought to upskill teachers across Southeast Asia. In addition to the training workshops, the programme included a hackathon for teachers in Indonesia and Malaysia (↑Biji-Biji Initiative, 2025; see ↑Honda [(2026])
Name: AI Ready ASEAN **Initiative type:** Teacher training **Equity Focus:** Underserved communities	ASEAN Foundation, Google	Regional	Multilingual digital learning platform that offers foundational AI education training and support for Southeast Asians. It equips individuals, including teachers and students, with essential AI skills and supports master trainers in reaching more than 800,000 people. It aims to empower 5.5 million youths, educators, and parents. Alongside training, it is conducting regional research and policy and advocacy initiatives (↑ASEAN Foundation, 2025).
Name: All Included **Initiative type:** Teacher training **Equity focus:** Learners with disabilities	Philippine Long Distance Telephone Company (PLDT) and Smart Communications	Philippines	The workshop offered AI-for-accessibility training for teachers with special education needs and disabilities (SEND), led by visually impaired instructors. The training introduced tools such as Seeing AI and supports educators working with students who have visual, physical, or learning disabilities (↑PLDT, 2025)

Initiative	Partners	Country	Description
Name: ASEF ClassNet18 School Collaboration **Initiative type:** Teacher training **Equity focus:** Meaningful co-creation	Asia Europe Foundation, UNESCO, International Research Centre on Artificial Intelligence, Institut Jozef Stefan Ljubljana, and Open Education For a Better World.	Regional	ASEF ClassNet18 is a seven-month programme (May–November 2025) supporting secondary teachers and school leaders across Asia and Europe to co-design and integrate AI tools and programmes into their classroom practice in ways that are inclusive, effective, and ethical. The programme blends self-learning, team collaboration, and classroom–based action to promote fair and equitable use of AI in education (⬆Holmes, 2023)
Name: Bijak Lestari **Initiative Type:** Teacher training **Equity focus:** Underserved communities	University Teknologi Malaysia (UTM)	Malaysia	Bijak Lestari supports teachers in rural, underserved schools in building the skills and confidence to use AI for teaching and learning. The workshops are targeted to teachers' needs and prioritise practice over theory. Teachers practise how to prompt AI tools to create stronger lesson plans (⬆Radzi, 2025).
Name: GameAid **Initiative type:** Research **Equity focus:** Underserved communities	Hanoi University of Science and Technology; Coventry University; Hoa Binh College of Education.	Vietnam	GameAid is a two-year (2024–2026) initiative developing a game that helps rural teachers strengthen their understanding of AI tools and critically evaluate how they can be integrated into teaching practice. The project aims to enhance teachers' digital confidence and critical engagement with AI by providing an interactive, practical learning experience tailored to their contexts (⬆Coventry University, 2025).

Initiative	Partners	Country	Description
Name: SABAY (Screening using AI-based Assistance for Young children) **Initiative Type:** Disability screening **Equity focus:** Learners with disabilities	Department for Education (DepEd) and Education Centre for AI Research (ECAIR)	Philippines	SABAY addresses the hidden costs of screening for speech-language disorders and dyslexia. Using an AI-driven mobile app wrapped in a Filipino folklore narrative, SABAY analyses a child's speech while keeping the experience playful and non-clinical. This creates a digital triage system that screens every Grade 2 learner at no cost to families, unlocking national screening value that was previously impossible to fund. The project is in initial data-collection rollout, with full deployment targeted for late 2026 (↑Ojeda, 2025).

Initiative	Partners	Country	Description
Name: Sekolah Enuma[5] **Initiative type:** Digital Personalised Learning **Equity focus:** Localised content; offline access	Enuma Inc	Indonesia	Mobile learning platform adapted for Bahasa Indonesia, Indonesian early-grade literacy, mathematics, and English. The platform uses AI-enabled adaptive sequencing, learning analytics, and automated scaffolding to support self-paced mastery through gamified activities and immediate feedback. The platform operates offline and applies Universal Design for Learning principles. An integrated learning management system allows teachers and facilitators to track progress and support diverse learners (↑Anindita, 2021)

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[5] See https://www.sekolahenuma.com/my/my Accessed on 15th December 2025.

4. Case studies

The case studies in this brief spotlight organisations across Southeast Asia that are integrating AI into education and that have meaningfully considered equity and inclusion in their approaches to design or implementation. Each case is informed by a KII and examines how AI is being designed or implemented to address context-specific challenges. The profiles distil practical takeaways, which are developed in key insights and recommendations presented in Sections 5 and 6. Notes in parentheses indicate the KII from which information was gathered.

4.1. CoLearn

4.1.1. Background

CoLearn is an EdTech startup based in Jakarta, Indonesia. It was founded in 2018 and formally launched its online platform in August 2020. The company was established to address a problem: Indonesian students consistently rank in the bottom 10% on global benchmark tests, with learning outcomes in mathematics, science, and reading continuing to decline (↑OECD, 2022). Indonesia has developed a deeply embedded tutoring culture, and it is not uncommon for learners to spend two or three hours per week attending extracurricular tutoring centres to supplement their classroom education. However, rising tuition fees and long journeys have made in-person tutoring unaffordable and inaccessible, particularly for students from low-income and rural communities.

CoLearn seeks to close this gap by providing affordable online education (USD 7 per month) for K–12 students across Indonesia. The platform centres on cohort-based live online classes taught by trained teachers, designed to sustain learner motivation through structured interaction. Within this model, AI supports assessment-informed instruction by providing teachers with timely information to track and adapt their teaching practice in response to the cohort's progress, engagement and attendance (↑Science of Teaching, 2023). In parallel, CoLearn released a Generative AI-powered Tutor[6] in 2025, which is designed to support students' independent learning outside live classes. An earlier AI-enabled doubt-solving tool, Tanya, based on Optical Character Recognition (OCR) and video matching, has since been decommissioned, but the associated

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[6] See https://www.colearntutor.com and for further information; https://www.youtube.com/watch?v=CR6dV6tMCVU. Accessed on 9 January 2026.

video library remains publicly available and is now used to train Large Language Models (LLM) (CoLearn, KII).

4.1.2. Challenges and strategic responses

Challenge: Dependence on AI is preventing the 'productive struggle' needed for deep learning

In Indonesia, as elsewhere, there are growing concerns around the pedagogical limitations of generative AI and AI-enhanced digital personalised learning (DPL). Tools marketed as 'personalised' promote efficiency and predictability, rather than building critical thinking, analytical skills, or creativity (⬆Sarwar, 2022). From a cognitive load perspective,[7] this risks reducing the 'productive struggle', or the cognitive effort required for deep learning, and learners become passive recipients of information. As these systems are not neutral and embed particular epistemological and ideological orientations based on the data on which they were trained, the passive reception of information can be particularly problematic, particularly for vulnerable groups (⬆Prinsloo, 2018).

CoLearn's Generative AI-powered Tutor is designed to guide students towards solutions rather than provide direct answers. The Tutor requires learners to submit their written attempt and uses an inbuilt system-prompting layer to deliver targeted feedback, corrections, and prompts. Feedback is provided through both text and voice, allowing students to focus visually on their own work while listening to guidance on errors and next steps. According to CoLearn, this design aims to reduce reliance on general-purpose AI tools such as ChatGPT or Gemini and to promote 'productive struggle' by encouraging learners to engage with feedback and work through solutions themselves (CoLearn, KII).

CoLearn's engagement with technology companies surfaced this tension between efficient design and pedagogically sound processes. They have seen how AI-enabled educational products are optimised to minimise user friction, often without consideration of how such design choices alter learning behaviours. CoLearn reports that it is exploring collaborations with technology developers to connect and integrate cognitive science and classroom realities into AI design processes (CoLearn, KII).

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[7] Cognitive Load Theory distinguishes between intrinsic cognitive load (the effort required to understand new material), germane cognitive load (the effort involved in making meaning and building understanding), and extraneous cognitive load (extra information that distracts from the main purpose of what is being communicated) (⬆Sweller, 1988). AI tools focused on efficiency rather than learning can lower intrinsic and germane cognitive effort, and undermine deep learning.

Challenge: Risk of bias and misrepresentation within Large Language Models (LLM)

Across Southeast Asia, the rapid adoption of LLMs has outpaced the development of locally relevant training data (↑Noor & Kanitroj, 2025). Many models used in Indonesia, and elsewhere in the region, are trained primarily on English-language datasets from high-income countries. Biases embedded in the training data are reproduced in educational settings, often resulting in discrimination for marginalised groups (↑Al-Zahrani, 2024). Unlike textbooks or curricula, AI systems are still only lightly regulated in education, raising concerns about real-time experimentation on learners. Despite these risks, there is limited evidence on the prevalence and impact of algorithmic bias for learners and teachers (↑Jamaluddin et al., 2025).

In response, CoLearn reports collaborating with global AI companies to explore how LLMs, and other available technology, can be applied in education in ways that promote 'productive struggle'. Their support focuses on content creation for LLM development related to Indonesia-specific examinations, licensing their 600,000 videos for LLM development, and designing system prompts to shape how existing LLMs are used within learning products. CoLearn also describes adopting a participatory design approach, testing prototypes with parents and students to inform the development of outputs that are intended to be safe, relevant, and culturally appropriate.

Challenge: Uneven teacher readiness and little capacity to adapt to new pedagogies

Indonesia's 2022 curriculum and assessment reform, Kurikulum Merdeka, marked a shift away from teacher-led instruction towards student-centred learning, higher-order thinking, and problem-based approaches (↑Taranthy et al., 2025). However, many teachers, particularly those who have been in the system for longer and those in rural settings, continue to rely on rote instruction (↑Irsyad et al., 2024). Moving from teacher-led instruction to concept mastery and problem-based learning requires not only new pedagogical skills and a shift in mindset, but also continuous feedback and training. Teachers in rural or hard-to-reach areas are less likely to receive this support.

Rather than selecting teachers primarily on the basis of formal teaching credentials, CoLearn recruits educators based on demonstrated reasoning, communication, and reflective skills (CoLearn, KII). Some recruits have limited prior classroom experience. Representatives from CoLearn

suggested that they find these teachers may be more open to experimenting with instructional strategies that scaffold conceptual understanding and critical thinking (CoLearn, KII). Teachers join CoLearn's in-house academy, where instructional approaches are iteratively tested and refined. Large-scale A/B testing is used to identify what works and, with the support of learning analytics, surface patterns associated with higher student engagement and evidence of higher-order thinking. The outcome of this is an optimised teacher rubric and learning material with the aim to improve understanding for the masses.

4.2. Yayasan Guru Belajar

4.2.1. Background

Yayasan Guru Belajar (YGB) is an Indonesian philanthropic organisation that works nationally to strengthen teacher agency and leadership through practice-oriented professional learning. Through its flagship programmes, Kampus Guru Cikal[8] and Kampus Pemimpin Merdeka, YGB supports teachers and leaders in designing and implementing contextually relevant solutions, including the use of technology and AI in classrooms. Its approach prioritises professional judgement over automation and supports teachers and leaders in developing 'digital human skills', including critical thinking, digital empathy, ethical literacy, and reflective, data-driven decision-making. To date, YGB's programmes have reached more than 2,200 education units across the Nusantara archipelago.

YGB operates through a community-based model. The Komunitas Guru Belajar[9] is a teacher network that spans over 50 regions and supports peer-to-peer communication via WhatsApp groups and collaboration through webinars. This ecosystem is reinforced by the annual Temu Pendidik Nusantara[10] conference, which brings together a broader group of education stakeholders, including teachers, researchers, and technology providers, to share challenges, co-create solutions, and translate ideas into learning prototypes, including simple AI experiments.

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[8] See https://www.cikal.co.id/about. Accessed on 10 December 2025.

[9] See https://kgbn.or.id/. Accessed on 10 December 2025.

[10] See https://tpn.gurubelajar.org/?lang=en. Accessed on 10 December 2025.

4.2.2. Challenges and strategic responses

Challenge: Safeguarding teacher agency and contextual judgement when using AI

The rapid uptake of Generative AI in education has led teachers to experiment with commercially available platforms not designed for educational use, often without the skills or confidence to evaluate outputs or adjust system parameters for their classroom contexts (↑TTF, 2025). Teachers with higher self-confidence in their pedagogical expertise are more likely to critically adapt AI-generated content, while those with greater confidence in AI demonstrate lower levels of critical engagement (↑Lee et al., 2025). The risk is that AI substitutes for professional judgement.

YGB believes that "AI must be guided by human values, not the other way around" (YGB, KII). Its approach to training follows the same sequence. YGB aims to support teachers in developing foundational teaching and digital human skills before engaging with AI. In practice, this means equipping teachers with the skills and confidence needed to judge when to use AI to supplement their classroom pedagogy, and when not to. For example, in one session, teachers compared lesson plans developed with and without generative AI and assessed which ones better aligned with their students' learning needs, local contexts, and curricular goals (YGB, KII).

This emphasis on judgement is further reinforced through Cerdas Cermat Guru,[11] a gamified situational judgement initiative in which teachers collaboratively analyse locally grounded classroom dilemmas. By combining peer deliberation, data-informed discussion, and reflective questioning, the programme intends to cultivate habits of critical interrogation and collective sense-making.

Challenge: Unequal connectivity and access to information constrain teachers' AI readiness

In many rural and remote parts of Indonesia, uneven digital infrastructure limits some teachers' ability to experiment with technologies, participate in online professional learning, or access peer networks where practical knowledge about AI use is often exchanged. Limited exposure to digital tools can also contribute to scepticism, with some teachers associating AI with surveillance or external evaluation rather than instructional support.

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[11] See https://tpn.gurubelajar.org/cerdas-cermat-guru/. Accessed on 17 December 2025.

Together, these factors risk reinforcing existing inequalities by privileging teachers in well-connected areas.

YGB addresses this challenge through community-first professional learning models that do not depend on high levels of connectivity. Its Komunitas Guru Belajar is a teacher network spanning more than 50 regions. It connects teachers, including those in hard-to-reach areas, through peer-to-peer support and knowledge exchange using low-bandwidth platforms such as WhatsApp. Representatives from YGB highlighted that when teachers share common challenges and solutions, they build confidence and see themselves as "active innovators shaping how AI is used in their school" (YGB, KII). Representatives from YGB suggested that because the network is sustained through a "rhythm of collaborative learning and accountable reflection" rather than large programme funding, it is both accessible and scalable in low-resource contexts (YGB, KII).

YGB's annual Temu Pendidik Nusantara conference extends this community-centred approach to a national scale. The practitioner-led forum aims to create opportunities for teachers to share what's working and what isn't in their schools, and technology providers help turn ideas into simple, context-appropriate prototypes, including basic AI applications.

4.3. Equitable Education Fund

4.3.1. Background

The Equitable Education Fund (EEF) was set up in 2018 under the Equitable Education Act to close learning gaps and improve teacher quality in Thailand. It is an independent government agency that operates under the Prime Minister's supervision and works across sectors to improve disadvantaged children's access to quality education. EEF adopts a cross-sectoral model that combines financing, research, partnerships, and innovation to expand access to quality education for marginalised children.

EEF sees data and technology as enablers of equity (EEF, KII). According to a key representative, its approach emphasises that AI should support, rather than replace, teachers, and that digital tools must be grounded in real classroom contexts. Since 2022, EEF has scaled up investment in AI to deliver more targeted interventions. This includes the use of machine learning to strengthen poverty screening and early-warning systems that

identify students at risk of dropping out, a core component of Thailand's 'Zero Dropout' strategy.

EEF has collaborated with international organisations to bring global expertise into frontier areas, while adapting implementation to suit local needs. In 2024, it launched a partnership to develop AI assistants supporting learning, mental health, and teacher workload reduction, with a strong focus on reducing inequality. In addition, EEF is piloting small-scale capacity-building initiatives for teachers to ensure inclusive and meaningful use (↑UNESCO, 2025a).

4.3.2. Challenges and strategic responses

Challenge: Knowledge and technology are not equally accessible to all

In Thailand, uneven access to digital infrastructure, devices, and digital skills limits the extent to which AI can advance equity in education. While most schools are now connected, significant disparities persist between urban and rural areas in computer access and digital readiness (↑UNESCO, 2025a). AI further intensifies these gaps by introducing additional costs associated with data, computers, and subscription-based tools, as well as greater demands on digital literacy. The result is that AI empowers those already connected and digitally literate, while disconnecting those without access or skills (↑Artopolous, 2024).

EEF describes its approach as beginning with identifying which learners are excluded from digital and AI-enabled learning and why. As EEF notes, "to support marginalised populations, we need to know where they are and how to reach them" (EEF, KII). Its iSEE 2.0 platform links education and civil registration data to locate excluded learners, analyse the drivers of exclusion, and predict students at risk of academic decline or dropout. According to EEF, this helps local authorities and schools to intervene early and direct support where it is most needed, thereby supporting efficient resource allocation.

EEF has partnered with the National Broadcasting and Telecommunications Commission to provide free internet access to approximately 300,000 low-income learners and reports working with mobile network operators and device manufacturers to address device, cloud infrastructure, and AI-related costs (EEF, KII). In parallel, EEF reports investing in capacity building for teachers. Their approach focuses on adapting international good practice, such as the ↑European Commission & OECD (2025) *AI Literacy Framework*, while remaining grounded in local realities.

Challenge: Rapid innovation means AI solutions are developed without an understanding of the local context

EEF is currently working with Kasikorn Business Technology Group (KBTG) and the Massachusetts Institute of Technology (MIT) Media Lab to develop personalised learning and teacher assistant modules. With the intention of grounding modules in local classroom contexts, EEF works horizontally with a range of stakeholders, including teachers, experts from education service providers, faculties of education in universities, and global partners, to incorporate international best practice (EEF, KII). EEF noted that it has prioritised career guidance and mental well-being before developing training for teaching and learning because "the former depend more heavily on general human behaviours, while relying on local contexts to a lesser extent" (EEF, KII).

EEF reports prioritising localisation throughout the design and implementation process. EEF begins with well-defined problem statements based on the needs of marginalised communities, then conducts multiple field trials with learners in disadvantaged schools to gain insights, measure impacts and gather feedback. According to EEF, this cycle "continues until we [EEF] are confident that the solution is what our schools, teachers and learners need" (EEF, KII).

5. Key insights

Based on the desk review and experiences shared in the KIIs, this section presents key insights about how AI can be leveraged more meaningfully to promote equitable teaching and learning. Across the initiatives reviewed, a consistent position emerges regarding AI's role and its limits in education systems in Southeast Asia:

- **The role of AI in education settings is clearly understood.** AI is an enabler of human-centred teaching and learning, and an expander of empathy and agency. It is human controlled and human accountable. AI is not a replacement for teaching and learning, or a shortcut to efficiency and standardisation.

- **Boundaries need to be established to ensure effectiveness.** AI design and delivery should be shaped by local priorities and guided by social and ethical values. It should be governed through safeguards against bias, misinformation, and passive cognitive offloading. These safeguards should be transparent and easy for all to understand.

The following insights illustrate how these principles are realised in practice: through pedagogical design, strategic partnership, human-centred capacity building, and meaningful localisation. Although they are informed by a small pool of initiatives, the regional scope of the desk review offers broader perspectives that can be applied across contexts.

5.1. Overcoming access and cost barriers requires strategic partnerships across sectors

Persistent gaps in infrastructure, affordability, and digital skills continue to limit equitable access to AI-enabled education across Southeast Asia. Evidence from the desk review and KIIs suggests that strategic, cross-sector partnerships, particularly between the public and private sectors, are necessary to close these gaps:

> *"The private sector usually has the knowledge and human resources but may lack access to the target population, while the public sector has access to such a group but might not have sufficient technical expertise to carry out the program on its own"* (EEF, KII)

The desk review revealed promising examples where partnerships have helped to improve uptake and buy-in for teachers and learners through joint research and development between universities and tech developers (GameAid), industry-led capacity building (PLDT and Smart Communications, All Included), and prize competitions to crowdsource innovation (AI Ready ASEAN's hackathon).

However, partnerships do not automatically deliver inclusion. Weak governance arrangements, unclear accountability, data protection concerns, and short-term, project-based funding can undermine impact and sustainability (↑Asian Development Bank, 2017; ↑UNESCO & SEAMEO, 2023b). KIIs emphasised that inclusive outcomes depend on how partnerships are designed and implemented. YGB sees effective initiatives as those that prioritise offline-first functionality, local language integration, affordable devices, and open-source or locally deployable models to reach underserved communities (YGB, KII). They invest in local capacity-building efforts rather than one-off service delivery to reduce reliance on external providers over time.

Partnerships that engage local organisations, educators, and communities as co-designers are more likely to produce relevant, accessible, and scalable solutions. As one representative from YGB noted, partnerships should be "built on trust, not transaction" (YGB, KII).

5.2. To be truly inclusive, AI design should be rooted in human and social values

International guidance emphasises that empathy, relationships, cultural meaning, and social interaction are irreplaceable components of education, and that AI must serve the human purposes of schooling (↑UNESCO, 2023; 2019). This recommendation is reinforced by key informants, who shared two common perspectives: that the teacher's role is irreplaceable and that AI should enable teacher agency. Key informants advocate for human values as a core design principle rather than a secondary consideration:

> *"What needs to be strengthened are ethical clarity and public accountability. Most policies focus on infrastructure and efficiency, but few address social impact and human values. AI regulation in education should be grounded in the principle of AI as a learning assistant, rather than replacing or undermining human values."*
> (YGB, KII)

However, translating human-centred principles into classroom practice is hard, particularly in low-resource contexts. Many education systems still

struggle to deliver basic teacher professional development at scale, making it difficult to support more complex pedagogical shifts associated with AI use (↑Farabi et al., 2025; ↑UNESCO & SEAMEO, 2023a). KIIs indicate that, where AI-related professional development exists, it frequently focuses on basic AI literacy or on how to use commercially available tools, such as ChatGPT or Google Gemini, rather than on how AI can meaningfully support inclusive pedagogy (EEF, KII). For YGB, 'digital human skills' are a necessary foundation for human-centred AI use in education (YGB, KII).

↑UNESCO (2024) also points to the importance of training teachers to understand AI explainability, safety, and the human choices embedded in system design. Without this, there is a risk of embedding exclusionary assumptions into classrooms, marginalising local knowledge, and reducing teachers to passive users of technology (↑Eslit, 2025).

5.3. AI should raise the cognitive bar, not lower it

The rapid uptake of generative AI and AI-enhanced digital learning platforms has raised concerns about hyper-personalisation. Platforms prioritise efficiency and predictability over productive struggle, creativity, and critical thinking (↑Sarwar, 2022). Evidence suggests that learning processes such as grappling with concepts, retrieving information, and explaining reasoning are essential to deep understanding (↑Kulesa et al., 2025). When AI replaces these processes, learners may engage in passive cognitive offloading, weakening metacognition and shifting agency away from students towards machine-driven decision-making. Over time, this can result in accumulated 'cognitive debt', particularly when AI tools substitute for reasoning rather than supporting it (↑Gerlich, 2025; ↑Kosmyna et al., 2025).

The risks are heightened in Southeast Asia's context, where high-stakes examinations, uneven foundational skills, large class sizes, and limited teacher capacity make AI shortcuts both appealing and rational (↑Afkar et al., 2023; ↑Kumar, 2025). In such environments, AI can mask underlying learning gaps and reduce opportunities for students to practice critical thinking, reflective dialogue, and problem-solving. These effects are not evenly distributed. Marginalised learners with lower digital literacy or limited home support are more likely to depend on automated answers and, as a result, fall further behind.

Promising practices shared by key informants suggest that these risks can be mitigated through intentional design choices and targeted capacity building. For example, CoLearn aims to guide learners to find solutions for

themselves, whereas YGB focuses on building teachers' capacity to integrate AI in ways that strengthen curiosity, metacognition, and professional agency.

5.4. Safeguard against misinformation, bias, and homogenisation through meaningful localisation and co-creation

Many AI tools used in education are adaptations of English-dominant, Western-trained systems, creating risks of cultural misrecognition and bias, particularly for marginalised groups. Evidence from the desk review and KIIs indicates that localisation and co-creation are critical safeguards against these risks. A consistent and easy first step across the initiatives reviewed was to ground AI initiatives in a locally defined problem statement. Beyond this, more inclusive initiatives actively involve teachers, school leaders, learners, and other education stakeholders in the design and testing of tools.

EEF uses a phased approach to support localisation efforts. It begins with identifying a problem, then co-designing a solution with teachers and education service providers. This solution is tested and iterated through field trials until EEF knows it is appropriate for the context. Co-creation can be challenging to incorporate into the project cycle, often due to budget constraints, tight timelines, or the adoption of new tools (Biji-Biji, KII). But it is worthwhile because it improves technical feasibility, ensures local ownership and buy-in and enables teachers to retain pedagogical voice (↑Eslit, 2023; ↑Nguyen et al., 2025).

However, the evidence also cautions that co-creation is not inherently inclusive. Without clear safeguards, teacher participation in co-creative activities can become extractive, with a lack of recognition, compensation, or clarity regarding intellectual property (↑Holmes et al., 2022). In low-resource settings, there is evidence that teachers may absorb significant invisible labour by manually adapting AI-generated materials, reflecting an "ethic of care" rather than institutional support (↑Alcosero et al., 2023). To avoid extractive or superficial co-creation, AI initiatives should embed co-design within policy and organisational frameworks.

6. Recommendations

This section presents recommendations to promote inclusion and equity in the design and deployment of AI in education across Southeast Asia. While the recommendations target actions for specific stakeholders, they may also apply more broadly to all stakeholders who design or deliver AI for inclusive education initiatives.

6.1. Design AI to raise cognitive demand and support meaningful learning

Students learn best when they engage with tasks in their Zone of Proximal Development: challenging enough to require sustained effort, but not so difficult that they become overwhelmed. This 'productive struggle' strengthens memory, supports reasoning, and builds metacognitive habits essential for lifelong learning (⇡Wang & Srivastava, 2025). **In AI-enabled learning environments, this cognitive work can either be strengthened or short-circuited. Ensuring it is strengthened requires coordinated action by all actors.**

Embed cognitive science principles into AI-enabled learning tools

Design for AI in education is hindered by a lack of comprehensive, actionable guidance for developers (⇡Holmes, 2020) and by a disconnect among designers, educators, and learners (⇡Luckin & Cukurova, 2019). As a result, many tools prioritise efficiency and reduced friction over how students actually learn.

EdTech developers and AI providers should treat learning science, developmental psychology, and the science of motivation as core design considerations (⇡Kulesa et al., 2025). This means integrating features that reflect how learners actually learn, for example, using retrieval practice, spaced repetition, interleaving, and prompts that ask students to explain or compare ideas before revealing answers. At a minimum, as UNESCO guidelines state, innovations should be designed in alignment with proven practices and contextualised for local needs and realities (⇡Miao et al., 2021).

Policymakers and philanthropic funders can reinforce this approach by establishing procurement standards that adopt cognitive science principles and by offering incentives for developers to test and refine tools

with marginalised learners, including students with disabilities and those from linguistic or ethnic minority backgrounds.

Align AI use with curriculum goals, teacher capacity, and assessment systems

Policymakers should ensure that AI integration is embedded within coherent education systems where curriculum, assessment, pedagogy, infrastructure, and professional development are aligned. Across Southeast Asia, curriculum reforms increasingly emphasise applied knowledge and problem-solving (Indonesia), and countries are moving toward developing teacher competency frameworks (Cambodia). This signals growing alignment between technology use and instructional goals (↑European Commission & OECD, 2025; ↑UNESCO, 2023; ↑UNESCO, 2025b)

Building on this momentum, policymakers can reform curriculum and national assessment frameworks to prioritise reasoning, problem-solving, and applied learning, including through performance-based and inquiry-driven tasks. At the same time, investment is needed in nationwide coaching and professional development models that reach all teachers, including those in hard-to-reach areas, and in supporting them in adapting pedagogical and assessment practices accordingly (↑Paksi, 2025). **Support from development partners and private sector actors will be critical to achieving equitable reach at scale.**

Development partners and education providers should align AI initiatives with national curricula and assessment priorities and ensure AI literacy programmes extend beyond basic digital skills. Programmes should adopt a human-centred approach, such as that demonstrated by YGB, prioritising judgement and supporting users to decide when and how AI should be used, and when it should not. Initiatives must be designed for low-connectivity, multilingual, and mixed-ability classrooms to avoid reinforcing existing inequities.

Support teachers to redesign learning and assessment for higher-order thinking

In an AI-rich learning environment, the core task for teachers is to ensure students continue to engage in meaningful cognitive work, even when instant answers are available. However, most teachers in the region still lack structured, practice-oriented training in using AI in teaching and assessment (↑Holmes & Miao, 2023). The desk review revealed that teacher training initiatives are short-term and prioritise foundational AI literacy with limited attention to classroom application or assessment practice.

Policymakers and education providers should embed AI-aware pedagogy into both pre-service and in-service teacher education, with a focus on strengthening pedagogical confidence alongside technical understanding. Practical classroom guidance could be created to provide immediate support to help teachers decide when and how to integrate AI into daily routines and assessment practices (↑Isono & Prilliadi, 2023; ↑Gerlich, 2025). Investment should prioritise ongoing professional development and coaching, as well as communities of practice, to close knowledge gaps among the hardest-to-reach teachers.

The Beijing Consensus on AI in Education calls for the continuous review of teachers' roles and competencies and for strengthened teacher-training institutions able to prepare educators for emerging technologies (↑UNESCO, 2019). **Policymakers must conduct regular reviews of teacher professional standards** and update them to reflect the evolving competencies teachers need in order to use AI for teaching, learning, and their own professional growth (↑Holmes & Miao, 2023).

Teachers can support higher-order thinking by designing tasks that require learners to demonstrate reasoning through explanations, thinking logs, oral presentations, or collaborative problem-solving, and by sequencing activities, so students attempt problems independently before using AI to check understanding or extend ideas (YGB, KII). Preserving AI-free zones within classrooms, spaces for discussion, reflection, and problem-solving without algorithmic mediation, can further protect opportunities for deep cognitive engagement.

6.2. Advance inclusive AI through participatory, community-centred approaches

AI is moving from pilot projects to widespread use across Southeast Asia. The e-Conomy SEA 2024 Report shows that in the first half of 2024, more than USD 30 billion was invested in AI-related infrastructure (↑Hoppe et al., 2024). This momentum creates important opportunities for more adaptive learning, targeted support, and increased efficiency, but it also risks deepening existing inequities. If AI is to support more equitable learning, there is a need for coordinated partnerships, community-driven approaches, and stronger participatory design cultures that place teachers, learners, and local communities at the centre of decision-making (YGB, KII).

Leverage multi-sector partnerships to reduce access and resource gaps in real classroom contexts

Policymakers should coordinate cross-sectoral partnerships to address gaps in connectivity, device access, and digital readiness. Public–private partnerships with telecommunications companies and technology providers have enabled large-scale investment in AI infrastructure across countries such as Singapore, Malaysia, Thailand, and Indonesia (↑Chadha, 2025). Policymakers should incentivise bottom-up collaboration and the building of partnerships that explicitly target underserved regions and require needs assessments grounded in classroom conditions.

Private-sector partners and philanthropic actors can play a critical enabling role by reducing the cost barriers associated with AI use in education. Philanthropic funders can further support inclusion by subsidising cloud services or compute credits for education-focused AI applications. This will help to reduce cost burdens for ministries and local partners and promote innovation and experimentation in low-resource settings.

However, infrastructure expansion alone is insufficient. **EdTech developers and AI providers should design tools that work within the constraints faced by marginalised schools.** Key informants stress the importance of 'offline-first' or 'low-resource' solutions that operate on affordable devices, require minimal bandwidth, and allow teachers to store, adapt, and reuse content when connectivity is unreliable. Models should be lightweight and adaptable to national and cultural contexts, with licensing arrangements that allow local modification and reuse (↑Miao et al., 2021). Open access to model components and training data, where possible and ethical, helps incubate local innovation and reduces reliance on proprietary systems.

To ensure these investments translate into equitable classroom use, **schools and teacher training institutions should partner with local universities, EdTech organisations, and civil society groups to create safe spaces for teachers to experiment with open-source tools** (↑Holmes, 2023). This not only builds confidence and digital readiness but also strengthens teachers' ability to evaluate AI outputs critically and adapt tools to their learners' needs.

Promote culturally and linguistically responsive AI aligned with ASEAN values

Most AI systems used in Southeast Asian education systems are trained predominantly on English-language, high-income country datasets, which,

when applied in educational settings, can mirror and reinforce existing social biases and stereotypes (↑Noor & Kanitroj, 2025). Moreover, the uniform standards and practices upheld by AI technologies can marginalise local and indigenous knowledge systems and reinforce power asymmetries between high- and low-resource education contexts (↑TTF, 2025).

Policymakers can establish governance frameworks that require AI systems used in education to be transparent, explainable, and auditable, and to demonstrate cultural and linguistic relevance before they are procured or deployed (↑Isono & Prilliadi, 2023). **It is the responsibility of all actors to prioritise diversity, adaptability, and cultural responsiveness in AI-driven education.**

Yet localisation must be ethical and meaningful. It must avoid the "double curse" of exploitation, in which communities are involved in data collection or annotation without recognition, compensation, or clarity regarding intellectual property (↑TTF 2025). Even when superficial attempts are made at inclusion through 'human-in-the-loop' principles, humans are often overseers or safety checkers rather than leaders of design (↑Hau, 2025). **Policymakers and funders should establish safeguards**, including fair compensation, data governance protocols, and clear accountability mechanisms, to ensure that localisation processes respect the rights and contributions of teachers and communities.

Public investment agencies and development partners should prioritise the development of multilingual datasets, particularly those that reflect local dialects, indigenous knowledge, and region-specific content. Partnerships with local content creators, educators, and cultural institutions can support ethical data generation and the fine-tuning of processes. Providers like CoLearn demonstrate feasible approaches by licensing locally produced videos to train and fine-tune AI models (CoLearn, KII).

Teachers should have "real agency" to shape important decisions about which tools are used, when and how, rather than merely overseeing or checking algorithms (↑Hau, 2025). Teachers need training, guidance, and structured spaces to interrogate outputs, correct biases, and integrate AI tools responsibly into curricula. Localised guidance should support teachers in adapting AI tools to student needs, reinforcing human authority over learning. **Schools and teacher training institutions can strengthen peer-learning spaces where educators collectively examine AI outputs, exchange strategies, and build shared norms of use.**

Enable teachers and communities to lead co-creation and participatory design

Meaningful AI integration for marginalised learners requires active participation by teachers, learners, and communities in the design, adaptation, and evaluation of AI tools. **Policymakers can institutionalise participatory design as a core requirement**, including embedding expectations for iterative field trials, teacher- and student-feedback cycles, and context-specific adaptation pathways within national AI strategies and funding mechanisms (↑UNESCO, 2019). National repositories of local datasets and teacher-generated materials, accompanied by clear intellectual property guidance and incentives for contribution, can further support co-creation and adaptation (↑Paksi, 2025).

Evidence from across Southeast Asia demonstrates the value of this approach. Participatory initiatives that involve immersive engagement with real classrooms (Bijak Lestari), iterative feedback loops (EEF) and teacher-led prototyping (GameAid) can improve relevance, uptake, and sustainability. These initiatives also surface practical constraints, such as time, training, and unfamiliarity with technology, that can be addressed through supportive policy design.

Local teacher networks and communities of practice are critical entry points for participatory design. YGB demonstrates how community-first models can close geographic inequities, build professional confidence, and position teachers as co-designers and active shapers of policy. Regional initiatives, such as the Asia-Europe Foundation's ClassNet Programme are amplifying these efforts by supporting cross-border collaboration, shared learning, and the exchange of locally grounded design practices.

6.3. Adopt inclusive practices and build accessibility into the design of AI technologies and research frameworks

Learners with disabilities are among the most disadvantaged groups in accessing quality education in Southeast Asia, yet they remain largely invisible in AI in education initiatives. The desk review identified only two initiatives that were designed for accessibility. This reflects regional evidence of significant gaps in specialised teacher training, limited access to technologies, and a weak evidence base (↑UNESCO & SEAMEO, 2023a). Although all countries in the region have ratified the Convention on the Rights of Persons with Disabilities, which endorses universal design principles, and have policies promoting inclusive and assistive technology,

there is a continued lack of clear, practical guidance on how to operationalise inclusive technology in education systems (↑United Nations, 2006; ↑UNESCO & SEAMEO, 2023a). Regional mapping of programmes across the region showed that most countries had limited or no assistive devices and accessible learning resources in both general and special education systems (↑UNESCO & SEAMEO, 2023c).

Policymakers should scan and embed clearer guidance on how to operationalise inclusive technology within national AI and education strategies, including requirements to apply universal design principles at the school level. Financing mechanisms can be strengthened to expand access to assistive technologies, drawing on models such as Singapore's Special Educational Needs Fund, which subsidises devices and support services (↑Singapore Institute of Technical Education, 2021). Meaningful involvement of persons with disabilities in policy design and leadership is essential to ensure strategies reflect lived experience and avoid tokenistic inclusion (↑Han, 2023).

Education providers and teacher training institutions should prioritise practical training in assistive technologies, inclusive pedagogy, and the equity risks AI tools may pose to marginalised learners. Evidence from the region shows that insufficient teacher preparation often leads to ineffective or inappropriate use of technology for learners with disabilities (↑Banes et al., 2020).

Edtech providers and AI developers should adopt accessibility-by-design and universal design principles from the outset. Tools should comply with global accessibility standards, be compatible with assistive technologies, and be available in local and national languages to avoid reinforcing exclusion(↑Bennett, 2025; ↑UNESCO & SEAMEO, 2023c). Providers should pilot assistive AI tools through school-based trials and regulatory sandboxes to build a stronger evidence base.

6.4. Build a stronger, long-term evidence base on inclusive AI in Southeast Asian classrooms

Southeast Asia lacks long-term, locally grounded evidence on the impact of AI on inclusive teaching and learning for the most marginalised (↑Eslit, 2025; ↑Jayasinghe et al., 2025). There is a growing body of regional research on which this Topic Brief draws, but the field is uneven, and the voices of educators and their experience of AI instructional materials remain underrepresented

A more robust evidence base must therefore prioritise long-term research that attends explicitly to equity, accessibility, and inclusion (↑UNESCO, 2023). Learners with disabilities, linguistic minorities, rural and displaced communities, and neurodiverse students are rarely included in current studies. Results are rarely disaggregated by gender, location, socio-economic status, or disability, making it difficult to determine whether AI narrows or widens inequities (↑Akram, 2025; ↑Jayasinghe et al., 2025; ↑Widaningsih, 2023). Research should move beyond metrics to examine students' cognitive, social and emotional, and ethical development, as well as teachers' capacity to use AI to support values- and rights-based education (↑Malakul, 2025).

Advancing this agenda requires research-practice partnerships that link teachers, districts, developers and academic institutions in reciprocal ways. These partnerships should enable co-design of studies, ensure that research questions reflect classroom realities, and strengthen feedback loops between implementation and evidence generation. Strengthening the evidence base also requires better use of existing data. For example, CoLearn gathers daily activity data from thousands of students but lacks channels to analyse it for teacher insight or public benefit (CoLearn, KII).

Policymakers can promote privacy and safety in data sharing to support independent research and reduce reliance on Western-centric data sets. Investment in Southeast Asian researchers and institutions will help ensure findings reflect the region's linguistic diversity, cultural values, and pedagogical traditions (↑Eslit, 2025)

Given the rapid evolution of AI technologies, randomised controlled trials and meta-analyses should be complemented with rapid, iterative methodologies drawn from implementation science (↑TTF, 2025). Sandboxes[12] can be used to illustrate the value of adaptive evaluation models that evolve alongside technology. Traditional timelines and funding models are often too slow and siloed to keep up with technological change (↑Kulesa et al., 2025). In this context, AI itself can strengthen the research process by streamlining data collection, analysis, and hypothesis testing to ensure evidence systems are both rigorous and responsive.

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[12] A sandbox is a real-life location used for experimentation. It allows us to safely learn and adapt in a small space before rolling out promising ideas more widely (↑Simpson, 2020).

7. Looking ahead

Looking ahead, the challenge for education systems in Southeast Asia is not whether AI will be used, but how deliberately and equitably it is integrated into teaching and learning. The evidence in this brief points to a narrow window of opportunity to embed AI in ways that strengthen teacher agency, raise cognitive demand, and expand access for marginalised learners, before patterns of exclusion become embedded. Progress depends on sustained investment in teacher capacity, meaningful localisation, participatory design and governance frameworks that place human values at the centre of innovation. This requires moving beyond pilots and fragmented initiatives toward coordinated, system-level approaches grounded in classroom realities. If AI is treated as a public good that is shaped by teachers, communities, and evidence, it can support more inclusive learning futures. If not, it risks reinforcing the inequities it promises to address.

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Annex

Initiatives reviewed

Table 1. *List of AI for inclusive education initiatives reviewed during desk research*

Initiative	Partners	Country	Status	Description
Name: AI4Good **Initiative type:** Memorandum of Understanding **Equity focus:** Underserved communities; inclusive pedagogy	AI Singapore and United Nations Development Programme (UNDP)	Regional	Ongoing	A partnership to expand access to AI literacy and digital skills across six Southeast Asian countries. The MoU defines five strategic areas: AI literacy, teacher empowerment for AI instruction, inclusive learning opportunities, ethical AI awareness, and institutional capacity-building. The programme prioritises marginalised groups and equips teachers with resources to integrate AI literacy into classrooms (↑UNDP, 2025)
Name: AI Teach **Initiative type:** Teacher training **Equity focus:** Underserved communities	Biji-Biji Initiative and Mereka, Microsoft, Plan International Indonesia, ASEAN Foundation	Regional	Completed	AI TEACH was an AI literacy and skills development initiative using Microsoft's AI Trainer Toolkit that sought to upskill teachers across Southeast Asia. In addition to the training workshops, the programme included a hackathon for teachers in Indonesia and Malaysia (↑Biji-Biji Initiative, 2025)

Initiative	Partners	Country	Status	Description
Name: AI Ready ASEAN **Initiative Type:** Teacher training **Equity Focus:** Underserved communities	ASEAN Foundation, Google.org[13]	Regional	Ongoing	Multilingual digital learning platform that offers foundational AI in education training and support for Southeast Asians. It equips individuals, including teachers and students, with essential AI skills and supports master trainers in reaching more than 800,000 people. It aims to empower 5.5 million youths, educators and parents. Alongside training, it conducts regional research and policy and advocacy initiatives (↑ASEAN Foundation, 2025).
Name: All Included **Initiative type:** Teacher training **Equity focus:** Learners with disabilities	Philippine Long Distance Telephone Company (PLDT) and Smart Communications	Philippines	Completed	The workshop offered AI-for-accessibility training for teachers with special educational needs and disabilities (SEND), led by instructors with visual impairments. The training introduced tools such as Seeing AI and supports educators working with students who have visual, physical or learning disabilities (↑PLDT, 2025)

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[13] See http://Google.org. Accessed 14 January 2026.

Initiative	Partners	Country	Status	Description
Name: ASEF ClassNet18 School Collaboration **Initiative type:** Teacher training **Equity focus:** Meaningful co-creation	Asia Europe Foundation, UNESCO, International Research Centre on Artificial Intelligence, Institut Jozef Stefan Ljubljana, and Open Education For a Better World.	Regional	Completed	ASEF ClassNet18 was a seven-month programme (May–November 2025) that supported secondary teachers and school leaders across Asia and Europe to co-design and integrate AI tools and programmes into their classroom practice in ways that are inclusive, effective and ethical. The programme blended self-learning, group collaboration, and classroom–based application to encourage fair and equitable use of AI in education (⬆Holmes, 2023)
Name: Bijak Lestari **Initiative type:** Teacher training **Equity focus:** Underserved communities	University Teknologi Malaysia (UTM)	Malaysia	Ongoing	Bijak Lestari supports teachers in rural, underserved schools in building the skills and confidence to use AI for teaching and learning. The workshops were targeted to teachers' needs and prioritised practice over theory. Teachers practised effective prompts for AI tools to generate better and more contextualised lesson plans (⬆Radzi, 2025).

Initiative	Partners	Country	Status	Description
Name: Future Learning Pioneers Scholarship **Initiative type:** Teacher training **Equity focus:** Affordable; inclusive pedagogy	Vietnam AI for Education Programme; Faros Education and Consulting	Vietnam	Ongoing	This scholarship-based training programme builds teachers' skills to integrate AI into learner-centred innovation projects. It delivers an eight-month course through flexible online sessions outside school hours. Tuition and all course-related expenses are free. Training content focuses on applying the principles of Universal Design Learning to help ensure teaching methods meet the diverse needs of all learners (↑VAIEP, 2025).
Name: GameAid **Initiative type:** Research **Equity focus:** Underserved communities	Hanoi University of Science and Technology; Coventry University; Hoa Binh College of Education.	Vietnam	Ongoing	GameAid is a two-year (2024–2026) initiative developing a game that helps rural teachers strengthen their understanding of AI tools and critically evaluate how they can be integrated into teaching practice. The project aims to enhance teachers' digital confidence and critical engagement with AI by providing an interactive, practical learning experience tailored to their contexts (↑Coventry University, 2025).

Initiative	Partners	Country	Status	Description
Name: Inclusive Use of AI in Education in Vietnam **Initiative type:** Research **Equity focus:** Inclusive pedagogy; underserved communities	Ho Chi Minh City University of Education, Hanoi National University of Education, Vinh University, Vietnam National University Hanoi, Birmingham City University, and Nottingham Trent University.	Vietnam	Ongoing	Research project running from 2025 to 2030 that aims to establish a framework for inclusive AI adoption in Vietnam. AI tools will be piloted across six urban and rural schools to understand how context affects implementation. Outputs include a seminar series for knowledge sharing, a workshop programme for teachers to co-develop pedagogical practices, recommendations for policies, practices and research and a roadmap on developing AI in education for rural and schools (↑HNUE, 2025).
Name: Jelajah Komuniti Digital programme **Initiative type:** Training and capacity building **Equity focus:** Underserved communities	Digital Ministry; Department of Personal Data Protection, MYNIC Berhad; Alibaba Cloud	Malaysia	Completed	Training programmes in the rural district of Belaga for students, teachers, and leaders provided early exposure to emerging technologies, including AI. It covered digital literacy, data privacy, digital identity, and foundational AI concepts, with one-to-one coaching on domain.my. Participants were introduced to the Rakyat Digital initiative, which offers free nationwide AI and cybersecurity courses. Over 300 students and 40 local leaders participated (↑Yussop, 2025).

Initiative	Partners	Country	Status	Description
Name: Octo AI **Initiative type:** AI tutor chatbot **Equity focus:** Teacher training; localised content	STEAM for Vietnam; Meta; HOCMAI; Vietnet-ICT	Vietnam	Ongoing	Octo AI is a digital platform that aims to mainstream AI literacy for up to 2 million educators through a localised model combining self-paced learning via an AI-powered content library and a 24/7 tutor assistant. Offering free, flexible access nationwide, it promotes equitable uptake of AI-enabled pedagogy. A pilot with 5,000 teachers began in December 2025, alongside research through 2026 (↑Cafef, 2025).
Name: SABAY (Screening using AI-based Assistance for Young children) **Initiative Type:** Disability screening **Equity focus:** Learners with disabilities	Department for Education (DepEd) and Education Centre for AI Research (ECAIR)	Philippines	Ongoing	SABAY addresses the hidden costs of screening for speech-language disorders and dyslexia. Using an AI-driven mobile app wrapped in a Filipino folklore narrative, SABAY analyses a child's speech while keeping the experience playful and non-clinical. This creates a digital triage system that screens every Grade 2 learner at no cost to families, unlocking national screening value that was previously impossible to fund. The project is in initial data-collection rollout, with full deployment targeted for late 2026 (↑Ojeda, 2025).

Initiative	Partners	Country	Status	Description
Name: Sekolah Enuma[14] **Initiative type:** Digital personalised learning **Equity focus:** Localised content; offline access	Enuma Inc	Indonesia	Ongoing	Mobile learning platform adapted for Bahasa Indonesia, Indonesian early-grade literacy, mathematics, and English. The platform uses AI-enabled adaptive sequencing, learning analytics, and automated scaffolding to support self-paced mastery through gamified activities and immediate feedback. The platform operates offline and applies Universal Design for Learning principles. An integrated learning management system allows teachers and facilitators to track progress and support diverse learners (⇡Anindita, 2021)
Name: Student Learning Space[15] **Initiative type:** National digital learning platform **Equity focus:** Equal access; inclusive pedagogy	Ministry of Education; Government Technology Agency of Singapore	Singapore	Ongoing	National digital learning platform that integrates AI to support inclusive, targeted teaching and learning. Teachers use AI tools, including Data Assistant and an AI-powered chatbot, to plan lessons, analyse student data, and adapt instruction effectively. Students also access personalised learning pathways, targeted feedback support, and speech evaluation tools that promote language fluency.

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[14] https://www.sekolahenuma.com/my/my Accessed on 15 December 2025.
[15] See https://www.learning.moe.edu.sg/ Accessed on 19 December 2025.

Initiative	Partners	Country	Status	Description
Name: Vuihoc[16] **Initiative Type:** Digital personalised learning **Equity focus:** Affordable; localised content; underserved communities	Vuihoc	Vietnam	Ongoing	Online learning platform providing affordable, high-quality education for Vietnamese students, especially in rural and remote areas. It offers a large, localised library of on-demand resources and live "Duo" classes with experienced teachers. AI-driven adaptive learning and analytics personalise content, adjust learning loads, and allocate students to suitable classes at scale. Partnerships with schools and communities expand access nationwide, with over 80% of users outside Hanoi and Ho Chi Minh City (↑EdTech Hub, 2025).

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[16] See https://vuihoc.vn/ Accessed on 19 December 2025.