

TOPIC BRIEF

AI in Southeast Asia: Girls' Education and Empowerment

Insights on how AI is shaping girls' education

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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](https://docs.edtechhub.org/lib/) 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 how AI is being used for girls' education and focuses on the question:

How does AI, as an emerging technology, impact girls' education and empowerment in Southeast Asia?

The other briefs in this series are:

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

AI in Southeast Asia: Marginalised Learners by Iona Wotton (2026). <https://doi.org/10.53832/edtechhub.1173>. Available at <https://docs.edtechhub.org/lib/ZAI22IV>.

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: 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
IBCWE	Indonesia Business Coalition for Women for Women Empowerment
ICT	Information and communications technology
INEE	Inter-agency Network for Education in Emergencies
IRCA	International Research Centre on Artificial Intelligence
KIIs	Key informant interviews
LLMs	Large Language Models
MDES	Ministry of Digital Economy and Society (Thailand)
NGO	Non-governmental organisations
OECD	Organisation for Economic Co-operation and Development
SEAMEO	Southeast Asian Ministers of Education Organization
STEM	Science, technology, engineering, and mathematics
UNICEF EAPRO	UNICEF East Asia and Pacific Regional Office

1. Introduction

Southeast Asia has achieved significant gender balance in school enrolment, particularly in countries such as Vietnam, Thailand, and the Philippines. Although enrolment rates for boys and girls in primary and secondary education are nearly equal in these countries, this progress is not equally evident in digital learning. Gaps remain in digital access and participation, especially among girls from disadvantaged groups, including those from rural areas, ethnic minorities, or low-income families. These girls often face overlapping disadvantages where poverty, geography, and social norms intersect to limit equitable access to quality and technology-enabled learning opportunities ([↑Dabrowski et al., 2024](#); [↑UNESCO & SEAMEO, 2023](#); [↑World Bank, 2025](#)).

Girls across Southeast Asia face several unique and widely spread challenges that limit their access to education, many of which stem from deeply entrenched social and community norms, despite policy focus on bridging gender gaps ([↑Li, 2025](#)). Nearly half of adolescent girls in the region are currently not engaged in education, employment, or training ([↑UNICEF, 2024](#)). UNICEF data for 2022 shows that secondary school completion remains low, with only about one-third of girls finishing their studies and a similar proportion excluded from upper-secondary education altogether. Early marriage continues to limit girls' opportunities, as one in four girls marries before the age of 18. Moreover, social norms remain a concern, with more than one-third of adolescent girls believing that violence by an intimate partner can be justified under certain circumstances. Such beliefs and perceptions can reinforce gender inequality and limit girls' participation in education ([↑UNICEF, 2024](#)).

The introduction of Artificial Intelligence (AI) has the potential to expand girls' access to digital education and new employment opportunities. It can also enable more personalised support that addresses girls' specific needs, such as protection from online harassment, flexible learning pathways to accommodate household responsibilities, and educational commitments. However, without gender-responsive approaches, AI risks exacerbating existing challenges, including gender-based violence and the gender digital divide, with disproportionate impacts on marginalised girls. This brief explores that tension and aims to answer the following question: **How does AI, as an emerging technology, impact girls' education and empowerment in Southeast Asia?**

Based on a desk review and key informant interviews, this brief examines the impact of AI initiatives on girls' education in Southeast Asia, identifies existing efforts and gaps, and offers practical recommendations to support evidence-based, equitable, and sustainable decision-making by practitioners and policymakers to bridge the gaps. Following the introduction, [Section 2](#) outlines the review methodology; [Section 3](#) provides an overview of girls and AI; [Section 4](#) presents two case studies from the region; [Section 5](#) highlights key insights; [Section 6](#) offers recommendations; and [Section 7](#) concludes the report with a brief note on looking ahead.

2. Methodology

This brief was developed in two phases to include both primary and secondary research. The first phase consisted of desk research to identify initiatives and programmes that integrate AI to foster girls' education. The initiatives selected for analysis were based on the following three criteria: 1) initiatives that specifically target girls and adolescent women; 2) initiatives that incorporate an AI component; and 3) initiatives with available documents on implementation modalities and evidence of impact.

In the second phase, key informant interviews (KIIs) were conducted with organisations engaged in AI in education. As the desk research shows, most initiatives and programmes that integrate AI in education focus on broader social groups of disadvantaged learners. This topic brief uses the [UNICEF Regional Office for South Asia's \(2017, p. 1\)](#) definition of empowerment:

"[...] increasing the personal, political, social or economic strength of individuals and communities. Empowerment of women and girls concerns women and girls gaining power and control over their own lives. It involves awareness-raising, building self-confidence, expansion of choices, increased access to and control over resources, and actions to transform the structures and institutions that reinforce and perpetuate gender discrimination and inequality."

2.1. Desk research

Desk research identified initiatives using AI to support girls' education across the region. A broad regional search across academic and grey literature was conducted using terms including "AI", "education", "Southeast Asia", "ASEAN", "girl education", "gender and education in Southeast Asia", as well as searches targeting individual countries, including Thailand, Vietnam, Cambodia, Singapore, Lao PDR, Malaysia, Philippines, Timor-Leste, Brunei, and Indonesia. Secondary data included government frameworks and national policies across Southeast Asia, reports from international organisations (e.g., ASEAN, OECD) and UN agencies (UN Women, UNESCO, UNICEF), as well as policy briefs and fact sheets produced by civil society organisations regionally and globally, with the analysed sources primarily consisting of programme evaluations, impact and results reports, press materials, and online news articles.

The desk research also included peer-reviewed journal articles and analytical reports published between February 2024 and December 2025. In total, 23 peer-reviewed journal articles and 14 analytical and evaluation reports were reviewed.

Blog posts and articles produced by the private sector were reviewed and included if they contained information on the use of AI in educational programmes, girls among the target groups, and programme objectives and implementation approaches.

2.2. Key informant interviews

KIIs were designed to gain more in-depth insights into initiatives that use AI to promote girls' education, the roles of each actor in the collaboration, and the challenges and lessons learned during implementation. Key informants were purposefully selected to showcase diverse AI initiatives and actors across the region. The main selection criteria included relevance to girls' education, geographic relevance, institutional diversity, and implementation experience.

Six KIIs for this topic brief included representatives from organisations and initiatives, as detailed in [Table 1](#) below.

Table 1. *List of key informant interviews*

Organisation	Focus countries	Focus area
Generation Girl¹	Indonesia	Education and empowerment of female leaders
Sisters of Code²	Cambodia	Education and empowerment of women and girls
Solve Education!³	Malaysia, Thailand, Philippines, Singapore, Indonesia, Cambodia	AI chatbot, gamified learning, education and empowerment
UNESCO Regional Office in Jakarta⁴	Brunei Darussalam, Indonesia, Malaysia, the Philippines, and Timor-Leste	Science, quality education, mutual understanding and cultural dialogue, communication and information
UNICEF East Asia and Pacific Regional Office (UNICEF EAPRO)⁵	28 countries and territories, including Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Thailand, Timor-Leste, Vietnam, Malaysia	Health and nutrition, child protection, education, water and sanitation, early childhood development, social policy and emergency preparedness

From the list of KIIs above, two initiatives were selected as case studies for in-depth analysis. These case studies were selected based on criteria which include the maturity of the initiative, the scale of programme implementation, and the availability of programme documentation. See [Section 4](#) for a detailed discussion of the case studies.

¹ See <https://generationgirl.org/>. Accessed 15 December 2025.

² See <https://www.sistersofcode.org/>. Accessed 15 December 2025.

³ See <https://solveeducation.org/>. Accessed 15 December 2025.

⁴ See <https://www.unesco.org/en/fieldoffice/jakarta>. Accessed 15 December 2025.

⁵ See <https://www.unicef.org/eap/about-us/contact>. Accessed 15 December 2025.

2.3. Limitations

Several limitations were taken into consideration while interpreting the findings. Notably, government stakeholders were unable to participate in the KIIs. This limited insights into national perspectives and government-led implementation of AI. In addition, although a range of programmes were reviewed, some of the programmes did not provide sufficient detail to fully assess design, implementation, or outcomes. This conundrum reflects a broader constraint in the evidence base, as literature on the impact of AI in girls' education in Southeast Asia remains limited. Available literature is mainly descriptive, with few examples providing quantitative data or evidence of long-term outcomes. Finally, this topic brief does not present any comparative findings across gender groups, including boys, due to the absence of consistent, gender-disaggregated data on the use and impact of AI in education. Further comparative research on the long-term impact of leveraging AI for girls' education could enhance the evidence base.

3. Girls and AI

AI is often seen as a tool to address gender inequalities, as these tools can adapt to girls' individual needs and help them overcome confidence gaps and structural barriers that limit their participation in STEM education (↑UNICEF, 2021b; KII, Generation Girl; KII, UNESCO). Despite this, AI can also exacerbate existing gender inequalities if not designed and implemented equitably (↑UNESCO, 2020). Regional guidance and national policies about AI do not explicitly address gender-specific risks that may arise from this technology, including gender-based violence online, limited access to STEM education for girls, and unequal labour market outcomes (↑Chen & Au, 2025).

This section examines both the opportunities and risks associated with AI for girls' education in Southeast Asia. It provides an overview of the main risks associated with algorithmic bias and gender-based violence, and presents employment pathways and access to digital technologies for girls. This approach highlights the conditions under which AI may either help narrow gender gaps or risk entrenching existing inequalities.

3.1. Risks and barriers

Key informants from UNESCO and UNICEF regional offices highlighted serious concerns over gender bias in AI training data, new forms of online gender-based violence, existing challenges of social norms, and limited access to technology.

3.1.1. Algorithmic bias

Global research on Large Language Models (LLMs) has found that generative AI can lead to algorithmic bias, mirror existing data and social bias, and reinforce gender stereotypes, such as caregiving and household roles for girls and science, technology, engineering, and mathematics (STEM) careers for boys (↑Jonker & Rogers, 2024; ↑UNESCO & IRCA, 2024).⁶ The replication of bias in generative AI⁷ outputs is particularly concerning for girls in Southeast Asia; according to a KII with UNICEF EAPRO, girls in

⁶ This research studied open-source models of Open AI's GPT-3.5 and GPT-2, and META's Llama 2.

⁷ According to UNICEF, Generative AI is defined as "a subset of AI that uses machine learning to discover patterns and structure from training data and then generate new data that have similar characteristics" (↑UNICEF, no date).

Southeast Asia are more likely to believe in gender biases due to more conservative perceptions of gender roles in the communities. Although some success has been achieved in addressing gender bias (for example, Singapore's AI Verify's Testing Framework includes gender considerations in the recommended fairness assessment, Thailand's National Science and Technology Development Agency Ethical Guidelines for AI refers to gender bias, and AI-related policies in Malaysia include explicit provisions, objectives or measures addressing gender equality), cultural stereotypes across Southeast Asia, with the presentation of women in domestic roles as the most common stereotype, are often reflected as examples of bias in AI datasets ([↑ASEAN Secretariat, 2024](#); [↑Fournier-Tombs et al., 2023](#); [↑Hunt, 2025](#); [↑Ministry of Digital Economy and Society \[MDES\], 2023](#)).

3.1.2. Gender-based violence

Millions of children face online sexual exploitation: in Vietnam, 8% of children received unwanted sexual comments about themselves online ([↑Ecpat International, 2026a](#)). In the Philippines, 20% of children faced online sexual abuse and exploitation ([↑Ecpat International, 2026b](#)). Additionally, global evidence suggests that girls are more likely to become victims of online sexual solicitation, forced sexting, and cyber-enabled violence ([↑Stoilova et al., 2021](#)).

The UNICEF stakeholders interviewed consistently highlighted the risks of cyber-enabled bullying and the possible dangers of AI-generated content that may be used for gender-based violence and human trafficking, issues that are often overlooked in the region. According to the key informant from UNICEF EAPRO, “exploitation, including online sexual abuse, based on gender can [...] worsen as a result of the rapid and unregulated way in which [...] AI is being used.”

3.1.3. Gendered economic pull factors

In Southeast Asia, patriarchal family norms lead parents, especially in times of economic recession, to prioritise their sons' education over their daughters' ([↑UNICEF, 2023](#)). These norms extend beyond access to education and influence girls' self-belief and career aspirations. Across the region, girls have lower confidence in pursuing STEM careers, and their career ambitions are often shaped by narrow gender expectations ([↑UNICEF, 2023](#)).

Additionally, norms and stereotypes play a significant role in influencing girls' perceptions of and engagement with technology. In Southeast Asia,

sociocultural norms often present ICT fields as a ‘male domain’. This influences girls’ own views of technology (↑Mandry, 2023). Many girls internalise the belief that boys are naturally more advanced with technology, and research shows they tend to have lower confidence in their own digital abilities (↑Mandry, 2023). Together, these factors contribute to gendered pathways, with girls disproportionately represented in socially acceptable roles for women, such as caregiving, domestic tasks, or lower-skilled work (↑Sutassanamarlee, 2024).

World Bank and OECD studies illustrate that employment growth is linked to technology-enabled industries, where advanced digital skills are becoming essential (↑OECD, 2023; ↑World Bank, 2019). Demand for AI-related and advanced digital skills is rising (↑OECD, 2023). Without access to opportunities to develop the skills needed for a digital and AI-powered economy, women in Southeast Asia risk displacement and limited entry into the workforce. In a recent study focusing on Thailand, Vietnam and Cambodia, ↑Sutassanamarlee (2024, p. 6) concludes that,

“Despite the potential for both positive and negative outcomes stemming from AI exposure, employment statistics suggest that women may disproportionately face adverse effects, while men may enjoy greater benefits.”

The report notes that AI adoption can drive productivity and create new work opportunities; however, women are more concentrated in low-skilled white-collar roles that are more likely to be replaced or disrupted as AI adoption increases (↑Sutassanamarlee, 2024).

3.1.4. Limited access and use of digital technologies

Girls in Southeast Asia typically have less access to digital devices and the internet compared to boys. Even when devices are available, their use of technology tends to be more limited and controlled. A ↑UNICEF EAPRO (2023) report highlights that only 27% of teenage girls in the region access the internet via mobile phones, compared with 46% of boys. In Laos, women and girls experience slightly reduced access to mobile phones and connectivity than men, reflecting a broader trend across low- and middle-income countries where women are 12% less likely to own a mobile device and 19% less likely to use mobile internet (↑Afzal et al., 2024; ↑Jeffrie et al., 2023).

Rural schools often lack ICT facilities, making it harder for girls in remote areas to access digital content. Mobile learning (m-learning) adoption across Southeast Asia is uneven (↑Farley & Song, 2015; ↑Li, 2025). While

countries like Singapore, with strong infrastructure and higher urban wealth, can fully leverage the benefits of mobile learning, others, such as Timor-Leste, struggle due to poor connectivity and internet restrictions ([↑Li, 2025](#)). This digital gap particularly impacts women in rural and low-income areas, limiting their access to STEM education and online learning opportunities ([↑Li, 2025](#)).

Moreover, patterns in use also reflect gender differences. According to a KII representative from UNICEF,

“The way they [girls] engage with the digital space is also gendered. They tend to use it more for communication. They tend to use it more for shopping. Boys tend to use it actually for developing what we call actual skills.”

3.2. AI in education initiatives

The desk research identified 11 initiatives with AI components targeting girls and young women in Southeast Asia, of which seven were reviewed for this report. The reviewed initiatives focused on building AI literacy and skills, with a vision towards improving employment outcomes. For example, in Thailand, the International Girls in ICT Day was celebrated by providing digital and AI skills training to girls and young women, with the goal of enhancing employment opportunities ([↑Girls in ICT, 2025](#)).

Such skill development programmes also aim to empower girls and boost their confidence in STEM subjects, often through hands-on learning to provide real-world experience, connecting girls with female role models to combat stereotypes that technology is a male domain, and providing girl-only spaces to allow girls to experiment with technology in a supportive environment ([↑21st Century Girls, no date](#); [↑Generation Girl, 2025](#); [↑Solve Education!, 2024](#)). The target audience for these programmes ranges from primary-school-aged girls to young women in university.

In total, seven initiatives were reviewed. [Table 2](#) below presents an overview of five of the selected initiatives, details about the remaining two initiatives, Generation Girl and Sisters of Code are provided in [Section 4](#) as they comprise the two case studies undertaken for this brief.

Table 2. Selective list of AI-based initiatives to empower and enhance girls' education in Southeast Asia

Initiative	Application of AI	Country	Description
21st Century Girls	Building AI and digital literacy skills	Singapore	The 21st Century Girls initiative delivers free modules in coding, AI, the Metaverse, and robotics for girls. Its <i>Empower: AI for Girls</i> programme has been run six times, reaching more than 200 girls in Singapore. It partners with the Ngee Ann Polytechnic to teach young women AI fundamentals (↑21st Century Girls, no date).
IBM SkillsBuild programme implemented in partnership with Markoding and Ciputra University	Building AI and digital literacy skills	Indonesia	In partnership with Ciputra University, the IBM SkillsBuild programme offers all its students in Surabaya and Makassar the 'Distant Learning Programme' on AI fundamentals, Generative AI, AI ethics, prompt writing, and machine learning. This programme targets women and girls to close the digital skills gender gap. Many participants are high school girls or recent graduates from under-resourced communities. The training also helps girls gain confidence in STEM, qualify for internships and jobs, and become role models for peers (↑IBM, 2024).
Technovation Cambodia	Building AI and digital literacy skills	Cambodia	Technovation Cambodia is a programme that empowers young girls to become technology entrepreneurs and leaders by teaching them the basics of AI and mobile application development to solve real-world problems. The initiative is part of the global Technovation Girls movement (↑The Better Cambodia, 2025).

Initiative	Application of AI	Country	Description
EdBot.ai	Diversifying career choices	Indonesia	EdBot.ai is an AI coach for students that matches individual learning styles, paces, and career goals. The EdBot.ai datasets are trained to address gender-related bias and expand STEM career choices for girls in Indonesia, Thailand, and Malaysia. EdBot.ai was created by the social enterprise Solve Education!, which has designed a system that flags Edbot.ai's answers when they reinforce gender stereotypes (↑Solve Education!, 2024).
International Girls in ICT Day Thailand initiative	Diversifying career choices and upskilling	Thailand	The initiative, co-led by the Ministry of Digital Economy and Society (MDES-Thailand), Office of the National Broadcasting and Telecommunications Commission (NBTC-Thailand), the International Telecommunication Union (ITU), UNESCO, and Microsoft, is designed to equip girls with digital and AI skills and enhance their employability in Thailand. Over 1,300 girls and young women participated in the International Girls in ICT Day initiative in 2024 in Thailand (↑Girls in ICT, 2025).

4. Case studies

Two initiatives from the desk review were selected to serve as case studies for this brief, outlining the programme design, impact on girls' education, implementation challenges, and key takeaways. The two case studies are followed by a discussion, which brings together key insights from both initiatives. The KII's were the main source of information for this section. Unless otherwise stated, the information for the case studies is based on details provided by key informants in interviews and insights from the desk review.

Generation Girl was selected for its long-standing programme working with girls since 2018, its geographical reach across 34 provinces in Indonesia, and the availability of impact reports from 2023 and 2024 for analysis.

Sisters of Code was selected due to its direct focus on girls' digital skills development, practical application of AI in training and programme delivery, availability of data for analysis and implementation insights, and the willingness of programme representatives to participate in in-depth interviews.

4.1. Generation Girl, Indonesia

According to a National Labor Force Survey, only 29% of Indonesian women hold diplomas in STEM-related fields, and an even smaller proportion continue into technology or engineering careers ([↑Generation Girl, 2025](#); [↑IBCWE, 2023](#)). To address this gap, Generation Girl, an Indonesian non-profit organisation, focuses on empowering young women aged 13 to 30 with essential technical skills for the STEM industry, including AI. This case study highlights how AI content and delivery can be introduced in a way that is accessible to girls and builds their confidence to engage with STEM subjects.

4.1.1. Background

Generation Girl's objectives seek to develop a combination of skills, build confidence, and create pathways into STEM for girls in Indonesia. Since its inception in 2018, Generation Girl has reached over 100,000 young women across all 34 provinces in Indonesia, offering more than 2,000 hours of training programmes. Sixty to seventy per cent of girls who have

participated in the programmes have come from outside Jakarta ([↑Generation Girl, 2023](#); [↑Generation Girl, 2024](#); [↑Generation Girl, 2025](#)).

The organisation began delivering short online AI workshops in 2023. Since 2025, Generation Girl has been implementing a programme to teach AI to approximately 3,000 female university students (ages 17–18), 2,000–2,500 female teachers, and 4,000 female workers. Each programme session is delivered to batches of 100–300 students. A programme includes 15 hours of learning, of which 11 are self-study. Upon successful completion of a mini-project, students receive a certificate. This structure is not universal across all Generation Girl programmes, which vary by age group and context. Many participants already have some exposure to AI tools, often informal or unintentional. For this reason, the focus is on supporting effective, critical, and responsible use of AI rather than on first-time exposure.

Generation Girl programmes aim to empower women with technical skills to create a ripple effect in their families and communities, where they often act as decision-makers and role models. According to the key informant, girls often lack the confidence to pursue technical careers. Often, this is due to a lack of visible female role models in the field. To combat this, Generation Girl engages female industry experts to share their professional and personal experiences. Such contributions from female experts are voluntary and relationship-based.

4.1.2. Design and implementation approaches

This subsection highlights the strategic design and implementation approaches that Generation Girl uses to develop its initiatives and support girls' education.

Prioritising mobile-first delivery to facilitate girls' access to programme content

Given disparities in access to technology, it is imperative to adapt the delivery of AI tools and resources to the environmental factors that influence female learners across the region. Low-tech, high-reach solutions such as mobile phones, SMS, radio, and WhatsApp groups are especially effective to support girls in rural areas. For example, in Indonesia, 87% of women and 91% of men own a mobile phone or smartphone, making them highly accessible tools ([↑Jeffrie et al., 2023](#)). Generation Girl has adopted a mobile-first approach to support young Indonesian girls in developing AI

skills. This approach helps ensure that girls can learn or practice their skills with the support of parents and caregivers through accessible modalities.

Utilising project-based instructional models to introduce AI in education

Generation Girl programmes enlist a project-based approach that guides learners to develop simple, creative projects relevant to their communities. Applying AI to context-specific use cases helps build girls' confidence by helping them better understand how AI fits into their day-to-day lives and makes it more accessible as a tool and resource. The Generation Girl programme staff confirmed that this practical approach, combined with mentorship in Bahasa Indonesia, has helped bridge accessibility gaps and build confidence among beginners.

Additionally, the key informant noted that the success of the project-based approach stems from girls creating real products as part of their learning process. They can co-create projects with friends or address problems in their communities through these projects that further foster their sense of belonging and curiosity. Generation Girl staff observed that girls choose to use prompt engineering in AI projects. Generation Girl staff noted that thematic areas for these projects often also relate to the UN Sustainable Development Goals (SDGs) as well.

Centring female role models to build girls' confidence and representation in technology

Because of the perception that AI is a male-dominated sector, Generation Girl uses female role models and tech professionals to deliver its programmes. Informants reported that many participants showed strong enthusiasm for learning about AI through creative projects and from role models. A study across Cambodia, Vietnam, and Indonesia finds that girls perceive female role models and mentors as among the most effective approaches to supporting their participation in STEM ([↑UNICEF, 2023](#)). According to informants, this illustrates the need to move beyond technical knowledge and to introduce AI literacy interactively through relatable role models and real-life examples of women to capitalise on interest from young female learners in the region.

The desk research, drawing on global evidence from India, Brazil, Japan, and a few European countries, also shows that girls lack confidence in learning AI because they perceive it as a domain for technology professionals ([↑Capgemini Research Institute, 2025](#)). Although the literature

on girls' perceptions of AI in Southeast Asia is still emerging, similar patterns of low confidence and gendered perceptions of digital technology and STEM fields have been observed ([↑UNICEF, 2023](#)). A key informant from Generation Girl indicated that introducing AI to girls and young women through the AI-focused 15-hour asynchronous learning programmes have been an effective approach to narrow the gender gap in digital participation. Studies also show that self-efficacy and self-perception predict girls' participation in STEM, with lower self-efficacy associated with reduced participation among girls and women ([↑UNESCO, 2017](#)). Global data across 32 countries confirms that students' attitudes toward technology can account for gender differences in acquiring digital skills ([↑Campos & Scherer, 2024](#)).

Generation Girl monitoring data indicates that before a programme, girls often lacked confidence to pursue technical careers. Early trials of a short introductory holiday course on web design featuring female role models for 40 high-school girls showed that the course improved students' confidence and digital self-efficacy. According to the KII, it validates the demand for an accessible and skills-focused entry point into technology and confirms the importance of female role models.

4.2. Sisters of Code, Cambodia

Sisters of Code was established in 2019 to empower female students to learn coding skills and become active members of Cambodia's digital economy. Sisters of Code provides lessons to its students free of charge. Lessons follow an international rather than a local curriculum and are led by female Cambodian programmers, who serve as mentors and teachers for the students ([↑Sisters of Code, 2024](#)). This case study shows that although girls in Cambodia already engage with AI tools, this use is largely unsupervised and disconnected from their digital literacy skills. This demonstrates the importance of targeted educational interventions that pair AI literacy with basic digital skills.

4.2.1. Background

Sisters of Code operates as free weekend coding clubs to provide digital skills training in a girls-only environment ([↑Sisters of Code, 2024](#)). Although referred to as a 'coding club', the programme has offered a broad digital literacy curriculum for more than 1,000 girls. Students start with basic topics such as online safety and how the internet works, and gradually progress to introductory programming skills through platforms like Scratch

and Code.org, game development, and website creation using Wix, combined with basic HTML and CSS knowledge.

In 2024, Sisters of Code included an AI Fundamentals module in their curriculum. In this module, girls are introduced to machine learning, the role of data, and how LLMs function. The module also provides practical guidance on using generative AI effectively and responsibly. It includes prompt writing, recognising hallucinations, and critically evaluating AI outputs. A Sisters of Code staff member noted that the AI module is not the most interesting for female students in the programme, although this may not be the overall trend for all girls in Cambodia.

The full programme lasts for 18 weeks. In a final project, students present their websites, games, or other digital solutions that they have developed. To scale the initiative across Cambodia, Sisters of Code employs a train-the-trainer model. This enables them to prepare ambassadors who deliver the curriculum as club leaders. These ambassadors receive ongoing support, including regular check-ins, to help them recruit students and run high-quality coding clubs in their communities.

4.2.2. Design and implementation approaches

This section describes the strategies Sisters of Code has employed to address constraints such as limited infrastructure and family prioritisation of girls' domestic chores.

Building partnerships to expand learning spaces for low-connectivity areas

A main challenge for scaling up the Sisters of Code clubs across Cambodia is the limited availability of computer infrastructure. The clubs are designed to operate both online and offline, yet offline clubs initially required partnerships with institutions that have functional computer labs or access to laptops. Access to such facilities remains scarce in Cambodia, with only 22% of schools having functional computers ([Ministry of Industry, Science, Technology & Innovation, 2022](#)). The OECD also reports that there is less than one computer for every five students in Cambodia ([OECD, no date](#)). According to a Sisters of Code programme staff member, teachers report that in a typical class of 30 Grade 11 students, often only one student owns a personal computer. Although many students rely on mobile phones, this limits their ability to engage in more advanced digital learning fully.

To address this, Sisters of Code has developed partnerships with the Ministry of Post and Telecommunication. The Ministry is piloting the use of newly established computer tech centres in selected provinces where Sisters of Code can conduct their clubs. Sisters of Code also partners with the private sector and non-governmental organisations (NGOs) that maintain computer labs. However, reliance on external facilities means progress depends heavily on the willingness and leadership of these institutions. Significant effort is required to build trust, secure access to equipment, and reassure partners that their resources are being used appropriately. Although this challenge is not unique to girls across the region, without these partnerships, Sisters of Code's outreach would be very limited, and the clubs would not be accessible to girls in remote communities, where in-person clubs are only possible through such collaboration.

To make the clubs' network more sustainable, the Sisters of Code also leverages their digital community of more than 10,000 followers and establishes online clubs that help expand reach. Nevertheless, online participation still depends on access to devices and a stable internet connection.

Encouraging parental engagement to facilitate girls' participation

Sisters of Code requires parents to sign consent forms acknowledging that students will participate in lessons over the weekends. However, in many Southeast Asian households, particularly those from less privileged backgrounds, girls are expected to prioritise domestic responsibilities during weekends. For example, single-parent families may rely on daughters' support at home. This makes it difficult for girls to commit to regularly attending Sisters of Code clubs on weekends.

Sisters of Code has managed to overcome this challenge by explaining to the parents the value of free education, emphasising that their daughters are receiving more opportunities for their future through the Sisters of Code clubs. Today, internal programme survey findings indicate that this is no longer a challenge: 98% of girls report that their parents encourage them to join coding clubs. To further strengthen parental engagement, Sisters of Code actively includes families in celebrating girls' achievements. After each programme cycle, graduation events are held, where girls present their projects and receive certificates. Parents are invited to attend, and these events often serve as a powerful moment of recognition,

especially for families who may not have previously imagined their daughters developing digital skills such as website creation or AI.

Responding to rapid AI adoption

According to surveys conducted by the Sisters of Code, before enrolling in their programmes, girls have little to no experience with computers. Girls lack basic digital literacy skills, such as saving files, using email, or typing on a keyboard. Yet most girls have already been using ChatGPT before enrolling in the Sisters of Code programmes. For example, in Phnom Penh, 97% of respondents already use ChatGPT, and a Sisters of Code survey shows that AI adoption is rapid and largely unsupervised. A key informant noted that girls primarily learn about AI, including Chat GPT, from peers and social media.

Moving beyond mobile-only access to advance digital competences

Sisters of Code in Cambodia observed that reliance on mobile devices limited opportunities to develop more advanced digital skills. The desk research also suggests that reliance on mobile devices leads to less diverse use and constrains learners' ability to perform more complex tasks that advance skill development ([↑Napoli & Obar, 2014](#); [↑Reisdorf & Fernandez, 2021](#)). These findings indicate that mobile access alone is not sufficient to advance complex AI-related knowledge or develop a broad range of skills.

5. Key insights

Based on the experiences shared in the KIs and the organisations and initiatives studied through the desk review in [Table 2](#), this section presents key insights about how AI initiatives can be designed to be inclusive and empowering for girls, as well as gaps in existing programmes. Although these insights are based on a small pool of organisations and initiatives, the organisations selected for the case studies operate across Southeast Asia and are designed to adapt to different regional contexts. The implementation modalities and challenges they describe are common across education systems in Southeast Asia.

5.1. Gaps in infrastructure are a key barrier to girls' participation in AI initiatives

Both case studies showed a need to address digital inequalities in connectivity and accessing devices. Mobile technology has been widely used for learning throughout the region ([UNESCO & SEAMEO, 2023](#)), and Generation Girl found that mobile delivery was a successful strategy to ensure girls in Indonesia could access content. However, Sisters of Code in Cambodia noted that relying on mobile devices limited the development of more advanced digital skills. This suggests that mobile-first design can be effective for access but may be insufficient for developing the advanced skills needed for an AI-enabled economy, and there remains a need to provide access to laptops and desktop computers.

The example of Sisters of Code demonstrates how partnerships with government, the private sector, and NGOs can provide resources to address these infrastructure gaps. Support can take different forms, including providing hardware and offering community spaces with internet access and computers for learning. Nevertheless, national and international stakeholders can invest in infrastructure to ensure reliable, long-term access to AI and opportunities to build digital skills.

5.2. Project-based instructional models can increase girls' engagement with and confidence in using AI

Both case studies demonstrate that hands-on, project-based learning ignites curiosity and a sense of belonging in the field of technology.

Generation Girl's project-based approach guides learners to develop simple, creative projects connected to their environment. This approach builds girls' confidence by helping them better understand how AI fits into their day-to-day lives and makes it a more accessible tool and resource. When girls learn not just how to use these tools, but also how to question and improve them, they start to see themselves as capable contributors to the future of technology, not just as users (KII, Generation Girl). This shift in mindset naturally builds confidence, leadership, and curiosity to keep learning.

Similarly, the experience of Sisters of Code shows that girls' motivation and confidence grow significantly when they can acquire digital skills and AI basics in an interactive, collaborative environment through hands-on projects and exploration without pressure.

5.3. Using female role-models in AI education shows promise to support girls' confidence

Women in Southeast Asia are less likely to graduate with STEM degrees than men. For example, in Cambodia, around 17% of STEM graduates are women, in Vietnam, the figure drops to around 15% ([↑UN Women, 2022](#); [↑World Economic Forum, 2025](#)). The data and insights shared by the key informants show that girls in Southeast Asia often lack exposure to relatable role models. Girls in the region also lack practical examples of AI use in their everyday lives, which affects their beliefs about technology and their ability to engage with STEM fields (KII, Generation Girl).

Sisters of Code reported that girls in their programme initially assumed that boys were naturally better at technology. These assumptions come from society, which can be “extremely patriarchal [...] and norms are extremely biased in many different ways” (KII, UNICEF EAPRO). Thus, there is a clear need for programme designs that build girls' confidence, challenge gender stereotypes, and develop AI and digital skills.

Female role models, particularly those from girls' communities, challenge preconceived beliefs about girls' ability to engage with technology or succeed in tech industries. Solve Education! features female youth ambassadors on its platform, who share their experiences about how AI has helped them and promote the use of EdBot.ai. Sharing these experiences has helped others be more open to using AI technology (KII, Solve Education!). The organisation also finds that girls are more likely to trust, explore, and consistently use AI learning tools when they see women

who look like them and share their backgrounds actively championing the technology (KII, Solve Education!). Similarly, Generation Girl uses female role models and tech professionals to deliver its programmes. As a result, many participants showed strong enthusiasm for learning about AI (KII, Generation Girl).

5.4. Parental engagement and teachers are central to girls' skills development in AI

Engaging parents and community leaders is critical to supporting girls' participation in AI skills development initiatives (KII, Sisters of Code; KII, Solve Education!; KII, UNICEF EAPRO). In many contexts, girls' time for learning is constrained by domestic chores, and parents may not see the benefits of allowing girls to participate in skill-building initiatives, particularly if they occur outside of regular school hours (KII, UNICEF EAPRO). The key informant from Solve Education! observed, "the learner wants to be involved, but maybe their family is opposed because it [takes] time away from the other chores that they are doing". Sisters of Code encountered a similar situation and found that emphasising the impact of digital skills on girls' future opportunities was an effective message to gain parental consent. Both Generation Girl and Sisters of Code also engage parents through demonstrating what girls have created and learnt after participating in the programmes. These approaches can help shift perceptions of girls' abilities and highlight the importance of girls' participation in STEM.

Parents may also have an incomplete understanding of how AI is used for learning, which can result in either overly restrictive controls on internet access, or insufficient guidance and supervision. Although parents intend to protect girls from online harm, gatekeeping internet access can have unintended consequences, decreasing girls' skills and competencies in the digital sphere (KII, UNICEF EAPRO). On the other hand, global studies also show that parents need more support to understand how children use AI and to address legitimate parental concerns that generative AI may undermine adolescents' cognitive abilities, limit critical thinking, and lead to over-reliance on AI ([↑Eira et al., 2025](#); [↑OECD, 2026](#)). All of which underscores the need to work closely with parents and teachers so that parents can understand the benefits of AI while continuing to ask valid questions about its limits and risks.

Teachers are also critical stakeholders in supporting girls' education and participation in STEM and are well positioned to bridge the gap between

school and home. For instance, teachers can observe issues such as lower confidence among girls in STEM subjects and provide mentorship and a sense of security, which can encourage parents in conservative communities to keep their daughters in school ([↑INEE, 2023](#)).

Interviewed stakeholders from Solve Education! also noted a successful and established practice they follow whereby teachers, many of whom are women, can receive support, such as mentorships or stipends, to help reach students in rural areas. Furthermore, according to the informant, female teachers in Southeast Asia are enthusiastically engaging in AI-enabled education initiatives (KII, Solve Education!). Desk research confirms that when teachers build AI literacy themselves, they are in a good position to scaffold girls' purposeful AI learning ([↑Zhou & Peng, 2025](#)).

5.5. Initiatives have limited focus on online safety

Despite concerns from UNESCO and UNICEF about AI perpetuating online gender-based violence and exploitation (KII, UNICEF EAPRO, KII, UNESCO), there appears to be limited focus on these issues in the initiatives reviewed for this report. For instance, it is unclear whether AI literacy training includes modules on online safety. This gap is particularly serious, as girls' use of AI may largely occur without structured guidance (KII, Sisters of Code). There is an urgent need to ensure that girls have the knowledge and skills to recognise harmful AI-driven content, such as misinformation and deepfake imagery so that they can navigate online spaces safely.

One of the latest successful examples of responsible online behaviour that can serve as a model for future AI initiatives is the implementation of SaferKidsPH. A U-Report poll by UNICEF revealed that 85.6% out of 1,200 youth respondents had encountered unsafe content or behaviour online, often multiple times. Notably, only ~3% reported incidents, and just ~14% were aware of the national child-help hotline. The target population was school-aged boys and girls with a special effort to amplify girls' voices ([↑Inao, 2025](#)). To address this problem, the SaferKidsPH campaign, an Australian Government initiative delivered through Save the Children Philippines, the Asia Foundation, and UNICEF, is being used to promote positive behaviours online, strengthen systematic efforts to end online sexual abuse and exploitation of children ([↑UNICEF, 2025](#)).

6. Recommendations

Although there are cases and practices of integrating AI into education in Southeast Asia, this study did not identify any solid gender considerations in the existing frameworks on AI integration into education. This section outlines recommendations for introducing gender-relevant AI-enabled solutions in education. These recommendations can be applied to a broad range of stakeholders, and most relevant stakeholders are specified in the recommendations below.

6.1. Use gender-sensitive datasets and leverage AI to challenge gender inequalities

According to the key informants from UNICEF and UNESCO, gender and cultural biases in AI datasets reinforce gender stereotypes. To address this risk, policymakers and AI developers should use gender-sensitive datasets. Generative AI tools should also be tested for gender-biased outputs before being made publicly available (KII, UNESCO; KII, UNICEF EAPRO).

Providers with limited control over the training data for AI models should take proactive measures to minimise gender stereotypes. For example, to avoid gendered responses to career questions in their Edbot.ai, Solve Education! introduced safeguards within its AI system (KII, Solve Education!).

6.2. Human rights and child protection must guide the use of AI tools and resources in education

Human rights and child protection principles should be integrated into AI-enabled educational tools ([↑UNESCO, 2022](#)). The UNICEF Child Protection Strategy defines child protection as “prevention of, and response to, exploitation, abuse, neglect, harmful practices and violence against children” ([↑UNICEF, 2021a](#)). UNICEF also defines human rights as “standards that recognize and protect the dignity of all human beings” ([↑UNICEF, 2015](#)). UNICEF Policy Guidance on AI for Children also notes that interactions with AI are complex, especially when AI systems not specifically designed for minors are used by children and are not based on child protection standards ([↑UNICEF, 2021b](#)).

Despite AI’s potential benefits, integrating AI into education can also pose risks. These risks include increased exposure to online bullying and hate

speech. Thus, teachers and implementers of AI-based solutions need to use safe and age-appropriate tools that do not expose girls to violence or sexual content, with integrated safeguarding mechanisms. In addition, programmes focused on girls need to equip them with a better understanding of digital and AI-related risks.

Policymakers can support these efforts by introducing ethical safeguards into national AI policies. For example, stakeholders from UNICEF cited parental control policies that enable parents and guardians to oversee and regulate children’s interaction with AI-enabled platforms: “it is possible to put various kinds of controls, and so you’re not limiting their access to technology but trying to ensure that they do it safely” (KII, UNICEF EAPRO). The regional evidence also indicates that Singapore’s AI-in-Education Ethics Framework frames safeguards around inclusivity, fairness, and safety. It also highlights that the use of AI must take into account students’ ages ([†Ministry of Education Singapore, 2025](#)).

6.3. Nurture community-based role models and mentorship

The desk review and KIIs suggest that engaging parents, role models, and communities could foster AI adoption in girls’ education. **Implementers of AI solutions should plan to engage parents and communities in AI in education programmes**, for example, by inviting them to end-of-programme events, as exemplified by Sisters of Code. These activities provide opportunities to showcase girls’ accomplishments to the wider community and challenge gendered misconceptions.

Policymakers should ensure targeted funding and incentives to facilitate the creation of community-based mentorship projects and initiatives for AI learning. Governments across Southeast Asia could consider allocating public funding and/or securing new public–private partnerships to provide grants to community organisations, NGOs, and local institutions that deliver mentorship programmes, particularly for vulnerable girls in rural areas.

For example, the ASEAN Foundation launched AI Ready ASEAN, a digital literacy programme funded by Google to boost AI literacy across ASEAN member states. It offers youth and underserved communities a train-the-trainer model and has established a network of trainers who share knowledge about AI locally ([†ASEAN Foundation, 2025](#)).

6.4. Prioritise developing AI literacy for girls and their communities

Evidence suggests that girls in the region, although not yet proficient with the use of digital technologies, are already avid users of open-source AI tools such as ChatGPT. Thus, **educators and curriculum developers across the region should prioritise girls' AI literacy in the classroom and beyond**. Given high levels of human trafficking and gender-based violence in the region, girls need to be well supported in using AI and other EdTech tools (see [Section 3.1.2](#)) ([↑UNODC, no date](#)).

In addition to focusing on girls' education, **implementers of AI solutions and policymakers should invest in programmes that enhance parents' and caregivers' AI and digital literacy**. Such programmes would enhance parents' and caregivers' ability to support their children's learning at home and inform them about the risks and benefits of AI, other digital tools, and online content. A successful example of parental involvement in education is the Rumah Belajar Abhipraya programme in Indonesia. The programme actively engages parents through parenting workshops, Saturday volunteer teaching, and joint evaluations to facilitate learning beyond the school environment at home and in the community ([↑Fuadah, 2025](#)).

6.5. Leverage project-based learning approaches to move from knowledge to application

Both Sisters of Code and Generation Girl demonstrate the impact of project-based learning in building girls' AI skills and knowledge. These approaches allow girls to understand how AI tools can be integrated into their lives and make the resource more accessible to them. This is particularly important in contexts where cultural bias discourages girls from using technology and engaging with STEM topics.

7. Looking ahead

The findings and recommendations of this report indicate that advancing girls' education through AI requires a coordinated approach among policymakers, practitioners, and providers. This approach must be grounded in human rights principles and child protection standards and adapted to local contexts across Southeast Asia.

Looking ahead, implementers of AI solutions should use gender-sensitive datasets in developing AI tools for education. Preventing gender-related bias and implementing necessary safeguards are essential to leveraging AI to achieve inclusive learning outcomes for girls. Engaging local role models, mentors, and parental involvement can help challenge gendered stereotypes in STEM. Project-based learning approaches are effective for girls' practical application of AI. Given the rate of innovation, evidence gaps regarding the long-term impacts of AI-enabled girls' education remain. Further research is vital to advance the development of effective, equitable, and context-responsive AI-driven educational programmes for girls in Southeast Asia.

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