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The New Realities of Learning:

NAVIGATING EDUCATIONAL TECHNOLOGY IN SOUTHEAST ASIA 2023-2025

Insights from the knowledge sharing and learning session of SEAMEO INNOTECH with the Governing Board Members from 2023 to 2025

Innovation
Inclusion
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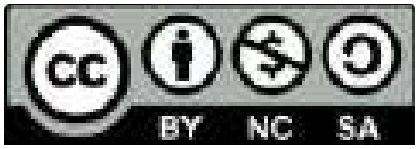
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Southeast Asian Ministers of Education Organization
Regional Centre for Educational Innovation and Technology
(SEAMEO INNOTECH)

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SEAMEO INNOTECH
Commonwealth Ave., Diliman, Quezon City 1101, Philippines Contact:
info@seameo-innotech.org
www.seameo-innotech.org

https://www.seameo-innotech.org

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About the Contributors

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The core insights of this book are derived from the **Learning Session of the 69th Governing Board Meeting of SEAMEO INNOTECH**, held last 05 November 2026, capturing the reflections and shared experiences from the session and integrating key insights from interviews with Governing Board Members conducted prior to the meeting. In cases where designated Governing Board Members did not attend the 69th Governing Board Meeting, country insights are derived from prior learning sessions, interviews, or related engagements. Their contributions ensure that this narrative remains deeply rooted in the diverse realities of the Southeast Asian Region.



Ms. Jennifer Wong Yok Ting
Ministry of Education,
Brunei Darussalam



Dr. Set Seng
Ministry of Education, Youth, and Sports,
Cambodia



Prof. Dr. Ir Sri Suning Kusumawardani
Ministry of Education, Culture, Research and Technology,
Indonesia



Ms. Sitthattha Taikeophithoon
Ministry of Education and Sports,
Lao PDR



Ms. Aniza binti Kamarulzaman
Ministry of Education,
Malaysia



Dr. Nay Win Oo
University of Malanday,
Myanmar



Mr. Roger Masapol
Department of Education,
Philippines



Mrs. Angeline Huang
Ministry of Education,
Singapore



Ms. Kusuma Nawaphanpimol
Representative,
Ministry of Education
Thailand



Mr. Simão do Rosário
Ministry of Education, Youth and Sport,
Timor-Leste



Dr. Phan Minh Duc
Da Nang University,
Vietnam

The learning sessions were moderated by **Mrs. Kochakorn Khattapan Acidre**, Centre Deputy Director, who served as the content development lead and primary chapter author. She synthesized the facilitated learning exchanges and curated discussions, weaving together diverse regional contributions into a coherent knowledge narrative. The publication was developed under the advisory of **Dr. Majah-Leah V. Ravago**, Centre Director and Chief Executive.

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The content development team included a dedicated project team from SEAMEO INNOTECH:

- **Ms. Racel Ivy Francisco** (Senior Project Associate) served as a contributing author;
- **Ms. Princess Balagbis** (Associate) served as a contributing author and copy editor; and
- **Ms. Lizelle Infante** (Associate) and **Mr. Raphael Cada** (Senior Project Associate) acted as the field editors.

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Foreword



Education and technological innovation are intrinsically interlinked. Over the past decade, and particularly during the COVID-19 pandemic, distance-learning tools and digital classrooms showed just how useful and necessary they could be. However, this period of rapid digital reliance also revealed profound limits and highlighted a deep-rooted tendency to view technological solutions as a universal cure for all educational challenges.

This confusion between the tool and the solution—between the means and the end—is what this book invites us to address. As we look across the diverse and dynamic educational landscape of Southeast Asia, we are confronted by three (3) popular misconceptions and paradoxes.

Firstly, there is the promise of personalized learning. Very often, this powerful hope leads us to forget the fundamental social and human dimension that lies at the very heart of education. It is worth reiterating the obvious: no screen, algorithm, or chatbot can ever replace the humanity, empathy, and moral compass of a teacher. The relationship between teachers and technology must be one of complementarity, never of substitutability.

Secondly, while technology promises easier access to education, the reality is that digital divides still exist to the point of actually increasing educational inequalities. During the pandemic, almost a third of young learners globally did not have effective access to distance learning, and even today, millions of learners lack basic electricity or internet connectivity. Relying exclusively on high-tech solutions inevitably leaves the most marginalized populations further behind.

The last paradox is that despite the desire to make education a global common good, the role of commercial and private interests in education continues to grow. As Artificial Intelligence (AI) permeates our classrooms, learners face new risks regarding data privacy, algorithmic bias, and emotional dependency. Currently, the goals of the education technology industry do not systematically align with the humanistic goals of our education systems.

These pitfalls can be avoided, which is why this book serves as a vital compass for policymakers, educators, and stakeholders across Southeast Asia and beyond. To navigate these new realities, we must ensure that the best interests of the learner systematically take precedence over any commercial consideration. We must establish appropriate normative frameworks, safeguard student privacy, and invest heavily in the pedagogical capacity of our teaching workforce.

From the well-supported smart classrooms of Brunei Darussalam to the offline learning innovations in Myanmar and data-driven inclusion in Lao PDR, the eleven nations of Southeast Asia are actively proving that meaningful educational transformation is possible. But translating these national successes into a cohesive regional future requires robust cross-border collaboration.

If we are to be tech-savvy, we must be savvy about the education systems we want to create. We must learn to live both with and without digital technology; to take what is needed from an abundance of information but ignore what is not; and to ensure that we focus on learning outcomes, not merely digital inputs. The findings and profiles within these pages are a starting point to build on. They are a call to join the #TechOnOurTerms movement, ensuring that our decisions are appropriate, equitable, evidence-based, and sustainable. Always with the same goal in mind: ensuring that technology serves education, not the other way around.

Majah-Leah V. Ravago, PhD
Centre Director and Chief Executive
SEAMEO INNOTECH

Executive Summary

Education systems across Southeast Asia are undergoing a profound and rapid transformation, driven by shared aspirations of equity, innovation, and sustainability. However, as the global educational landscape becomes increasingly digitalized, stakeholders must navigate a crucial question: **is technology truly transforming education to benefit all learners, or is it exacerbating existing inequalities?** As the 2024 Global Education Monitoring Report emphasizes, technology must be viewed as a tool on our terms, serving to support and complement the human connection at the core of teaching rather than replacing it.

The emergence of new digital technologies and the aftermath of the COVID-19 pandemic have highlighted the immense potential of educational technology (EdTech), while simultaneously exposing severe vulnerabilities such as widening digital divides and unchecked commercial influence.

This book critically examines the "new realities of learning" across the Southeast Asian region. It challenges the illusion of technological solutionism and advocates for a human-centric, context-specific approach to EdTech that prioritizes learning outcomes over digital inputs. The book is divided into three main sections:

Part I: Regional EdTech Trends and Thematic Areas. This section explores the overarching narratives shaping Southeast Asia's educational trajectory. It highlights an expanded definition of inclusivity that utilizes flexible pathways, such as the Alternative Learning System (ALS) in the Philippines and multigrade teaching in Lao PDR. It details the deliberate push toward digital transformation, encompassing emerging trends like Augmented Reality (AR) and Virtual Reality (VR) for immersive learning, gamification and micro-learning, and the widespread adoption of Open Educational Resources (OER) to democratize access to high-quality materials.

Part II: Country Profiles. This section provides a detailed examination of the unique initiatives and challenges within the eleven Southeast Asian nations. It draws upon recent regional consultations to highlight specific national strategies, such as Brunei Darussalam's *Wawasan* 2035; the Philippines' MATATAG curriculum decongestion; and Singapore's integration of Artificial Intelligence (AI) and 21st Century Competencies.

Part III: The Future – Policy Recommendations. It outlines actionable pathways for policymakers to ensure that technology serves education on humanistic terms. Key recommendations include establishing robust governance to protect students' privacy and mitigate algorithmic bias, creating ethical frameworks, investing in equitable infrastructure to close the digital divide through equitable infrastructure, prioritizing the capacity and well-being of teachers through continuous professional development, mandating rigorous evidence-based evaluations before scaling technologies, and deepening regional cooperation by building open public digital platforms and sharing OERs.

Ultimately, the book serves as a regional blueprint for utilizing technology to build inclusive, resilient, and future-ready education systems, always with the same goal in mind: **ensuring that technology serves education, not the other way around.**



INTRODUCTION

The New Realities of Learning

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Education and technological innovation are intrinsically interlinked. Over the past few decades, the adoption of digital technology has resulted in many changes in education and learning. Tools have been widely adopted by learners, educators, and institutions, with internet usage, mobile phone penetration, and online learning platforms reaching unprecedented levels. Yet, amid this rapid digitalization, it remains highly debatable whether technology has truly transformed education in the ways that many of its loudest advocates claim.

As we navigate the new realities of learning, we must critically examine the role of technology in our learning communities. Is it democratizing knowledge, or is it exacerbating inequality? Are we building systems that empower learners, or are we simply digitizing existing flaws?

The Illusion of Technological Solutionism

The COVID-19 pandemic served as a massive, unplanned natural experiment in digital education. During the global lockdowns, distance-learning tools - via the internet, but also via radio and television - showed just how useful and necessary they could be to maintain learning continuity. However, this period also exposed the severe limits of these tools.

The initial transition from physical schools to education technology was marked by a deep-rooted tendency toward "technological solutionism". This is the mistaken belief that every problem, or even things not previously identified as problems, has a solution based on technology. Visions of technology-reliant education often rest on the assumption that mainstream schooling models are outdated and no longer fit for a digital age. During the pandemic, this powerful hope led to the dissemination of the idea that internet-connected technology could, and even should, replace schools as the primary means of formal education.

This solutionist mindset often leads us to confuse the tool with the solution, and the means with the end. We forget the fundamental social and human dimensions that lie at the very heart of education. While there is a profound promise in personalized, AI-driven learning, the appeal of learning alone with a chatbot or a screen may wear off quickly. Personalization in education must go beyond simply adjusting the speed of content delivery; it should vary learner paths to fulfill their unique individual potential.



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The Enduring Digital Divide

The second new reality of learning is the persistent, and often widening, digital divide. While technology promises easier access to education, the reality is that digital divides still exist to the point of actually increasing educational inequalities.

Technology offers an education lifeline for millions, but it excludes many more. The application of digital technology varies drastically by community and socioeconomic level, by teacher willingness and preparedness, and by country income. Except in the most technologically advanced nations, computers and devices are not used in classrooms on a large scale.

During the pandemic, the starkness of this divide became undeniable: almost a third of young learners worldwide did not have effective access to distance learning. This is unsurprising given that only 40% of primary schools globally currently have internet access. The short-term and long-term costs of using digital technology appear to be significantly underestimated, and the most disadvantaged learners are typically denied the opportunity to benefit. Access to electricity, devices, and the internet remains highly unequal between and within countries, meaning that interventions relying solely on high-tech solutions will inevitably leave the most marginalized behind.

Complementarity, Not Substitutability

As education systems rebuild and evolve, we must establish a clear pedagogical philosophy regarding the role of educators. It is worth reiterating the metaphor stating that no screen can ever replace the humanity of a teacher.

The relationship between teachers and technology must be one of complementarity—never of substitutability. Any potential that technology holds will not be realized unless teachers are adequately prepared and supported to use it. Teachers do not merely impart knowledge and instruction; they socialize students, act as motivational role models, and encourage critical thinking and autonomy—functions that technology alone simply cannot perform. Therefore, the integration of technology should complement face-to-face interaction and empower educators to be creators, designers, and facilitators of learning.

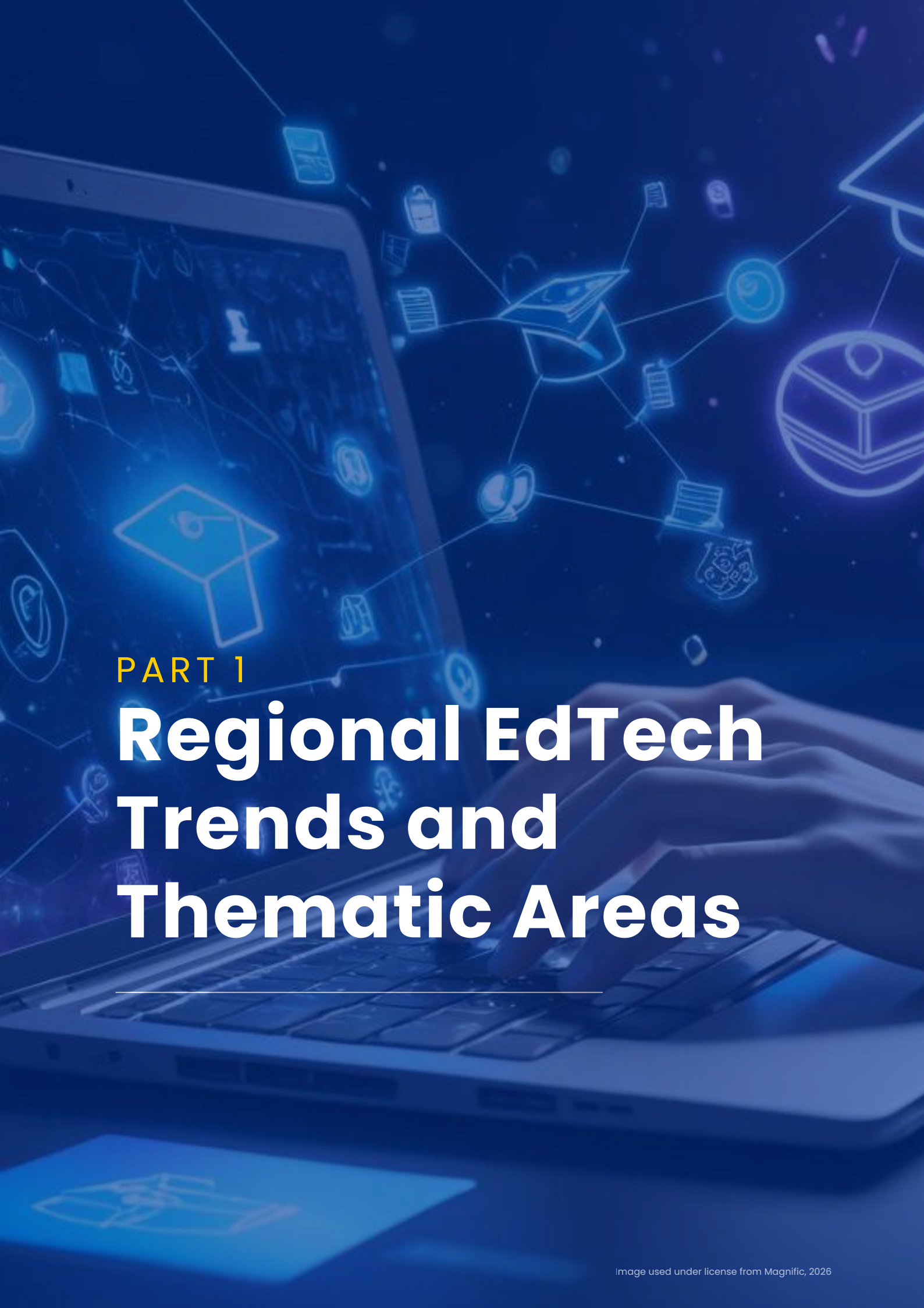
A Call to Action

The final reality we must confront is the governance and commercialization of educational technology. The desire to make education a global common good is increasingly clashing with the growing role of commercial and private interests in the EdTech sector. There is a risk that the processes and outcomes of educational research and technology deployment may be distorted to favor those who pay for it. In addition, to date, very few countries legally guarantee the privacy of educational data.

To avoid these pitfalls, we must establish a firm compass for the future. The best interests of learners should systematically take precedence over any other consideration, particularly commercial ones. If we are to be tech-savvy, we must be practical about the education systems we want to create. Our terms for achieving quality and inclusive education are non-negotiable.

Technology should be seen as a means, never an end. It must be introduced into education on the basis of robust evidence showing that it is appropriate, equitable, scalable, and sustainable. We must establish appropriate normative frameworks, set strict standards for data privacy and screen time, and prioritize the well-being of our students.

The following chapters will explore how these new realities are playing out across Southeast Asia. We will examine the regional EdTech trends and thematic areas currently shaping the landscape (Part I), dive deep into the specific initiatives and challenges of the Southeast Asian countries (Part II), and finally, outline actionable policy recommendations to ensure that our shared educational future is inclusive, innovative, and sustainable (Part III).



PART 1

Regional EdTech Trends and Thematic Areas

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Across Southeast Asia, education systems are undergoing a profound transformation. Driven by the shared aspirations of equity, innovation, and sustainability, Ministries of Education are introducing major reforms to ensure learning remains relevant in the rapidly evolving 21st century. Guided by regional frameworks such as the SEAMEO Strategic Plan 2021–2030 and the ASEAN Declaration on the Digital Transformation of Education Systems, nations are collectively navigating the opportunities and risks presented by globalization and digitalization.

A synthesis of current initiatives reveals four major thematic areas defining the region's educational trajectory: an expanded definition of inclusivity, a deliberate push toward digitalization and AI-driven innovation, digital divide and low-tech realities, and a growing emphasis on sustainability and futures thinking.



Across the region, the concept of educational inclusion is being interpreted far beyond mere physical access to school buildings. Governments recognize that true equity requires adapting the education system to learners, rather than forcing learners to adapt to a rigid system.

This expanded view of inclusion is evident in the deployment of flexible, non-formal pathways designed to bridge learning gaps. For example, the Alternative Learning System (ALS) in the Philippines serves as a lifeline for out-of-school youth and adults who cannot participate in traditional schooling. In areas with high ethnic diversity, such as Myanmar, access is expanded through mother-tongue-based multilingual education, allowing children to learn in their native languages before transitioning to the national curriculum. Meanwhile, Lao PDR utilizes multigrade teaching to reach learners in remote areas that suffer from limited staffing.

Crucially, digital inclusion has emerged as a fundamental element of educational equity. To reach learners in distant or marginalized communities, countries are building robust digital ecosystems. Brunei Darussalam has developed the MOE-TV platform alongside remote learning initiatives, and Thailand champions an "Anywhere Anytime" learning policy. The shared objective across these diverse nations is clear not to leave the learners behind due to physical, linguistic, economic, or digital barriers.

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Digital transformation is a central theme dominating Southeast Asian education, though countries are advancing at different paces based on their infrastructural readiness. The Declaration on the Digital Transformation of Education Systems in ASEAN explicitly calls for the development of digital pedagogies, the provision of devices, and the adoption of policies for open education data.

As Artificial Intelligence (AI) begins to permeate the global economy, regional leaders are taking proactive steps. Singapore stands out with its comprehensive AI-in-Education strategy, which emphasizes the safe, ethical, and age-appropriate use of artificial intelligence. Singapore's national AI Ethics Framework for Education is specifically designed to help teachers make informed decisions while mitigating emerging risks, such as cognitive offloading and emotional dependency on machines.

Other nations are also taking decisive action to prepare for technological disruption. The Philippines has established an Education Futures Office and partnered with SEAMEO INNOTECH to launch the Education Center for Artificial Intelligence Research (E-CAIR). Cambodia is rapidly integrating digital literacy and AI modules into its teacher training programs, while Thailand is building a digital learning ecosystem to support Open Educational Resources (OER).

Despite these bold innovations, the region recognizes shared, persistent challenges that consist of bridging the digital divide, equipping teachers with digital pedagogical skills, and ensuring that digital tools actually enhance meaningful learning. The digital divide remains particularly stark between urban and rural communities.

Because internet affordability and infrastructure are still major hurdles, many Southeast Asian countries continue to rely on lower-level technologies to ensure equity. Scaling low-technology tools is often more critical for addressing immediate educational needs than deploying high-end technologies. Consequently, innovations for inclusive education in the region heavily feature offline digital learning solutions, broadcast radio to deliver quality-assured content, and Distance Learning Television (DLTV) to reach marginalized learners.

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The fourth trend shaping Southeast Asian education is the integration of environmental sustainability and futures thinking into national agendas. Recognizing the existential threat posed by climate change, Ministries of Education are working to ensure that environmental literacy becomes a lifelong foundation for all learners.

The shift toward experiential, action-based environmental education is being accelerated by AI and advanced technology, transforming passive learning into immersive, data-driven experiences that foster environmental stewardship. This paradigm focuses on using technological tools to solve authentic environmental problems, moving beyond traditional knowledge transfer to build practical, action-oriented competencies. Thailand has cultivated strong eco-school movements where students actively learn to reduce waste, conserve resources, and design community-based sustainability solutions. The Philippines has implemented a long-term National Environmental Education Action Plan, while Lao PDR is increasingly steering its policies toward comprehensive environmental education. Similarly, Myanmar has prioritized sustainability by implementing eco-school programs and local climate awareness projects across its communities.

The educational landscape of Southeast Asia is characterized by a delicate balancing act. On one hand, there is a unified drive to prepare learners for the Fourth Industrial Revolution by embracing digital literacy, AI, and modern learning management systems. On the other hand, there is a sobering recognition of the region's realities: fragmented data systems, severe teacher shortages, and the persistent challenge of reaching rural and disadvantaged populations. In the subsequent chapter, we will further examine the specific context of each SEAMEO Member Country and how each nation manages the rapidly evolving digital learning era.

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PART 2

Country Profiles

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The educational transformation across Southeast Asia is not a monolith; it is a tapestry of distinct national strategies tailored to unique socioeconomic contexts, infrastructural realities, and cultural values. While driven by shared regional aspirations of equity, innovation, and sustainability, each Ministry of Education has charted its own course.

This chapter provides a deeper look into the specific initiatives, progress, and persistent challenges defining the EdTech landscape across eleven Southeast Asian nations.



Brunei Darussalam – Leveraging Educational Technology for Quality Education, People Excellence and a Future-Ready Nation

Ms. Jennifer Wong Yok Ting

Brunei Darussalam's approach to educational technology is guided by its Digital Transformation Plan 2023–2027 and the national aspirations of Wawasan Brunei 2035. Anchored by the Ministry of Education's strategic goals of Quality Education, People Excellence, and a Future-Ready Nation, the country views digital transformation not merely as the adoption of technology, but as a means to enhance teaching, empower learners, and strengthen educational outcomes for all.

In response to the evolving realities of learning, Brunei Darussalam has adopted a people-centered approach to educational innovation. The focus is on equipping educators with the skills, confidence, and resources needed to create engaging learning experiences while ensuring that every learner, regardless of background or location, has access to quality education. This reflects the nation's commitment to inclusive and equitable learning opportunities in an increasingly digital world.

A key pillar of Brunei Darussalam's digital transformation journey is the provision of accessible, high-quality learning resources that support both teaching and learning beyond the classroom. Through initiatives such as MOE-TV and the Digital Resource Management System, educators and students are provided with curriculum-aligned lessons, e-books, assessments, and interactive learning materials that can be accessed anytime and anywhere. These platforms strengthen learning continuity, promote self-directed learning, encourage parental involvement, and enable teachers to focus more on instructional planning and student outcomes. The Digital Resource Management System was awarded the Smart Nation Award at the Brunei ICT Awards 2024, reflecting its contribution to advancing digital innovation in education.

Brunei Darussalam is also transforming learning environments through its Smart Classroom Initiative. Equipped with digital panels, recording technologies, and learning devices, these spaces support interactive, collaborative, and student-centered learning experiences. More than simply introducing technology into classrooms, the initiative aims to build the confidence and capacity of both teachers and students to use technology meaningfully, fostering greater engagement, creativity, communication, and problem-solving skills that are essential for a future-ready generation.

The lessons learned during the COVID-19 pandemic continue to shape educational practices today. Remote and blended learning approaches remain valuable in ensuring continuity when students or teachers are unable to attend school physically. Mobile-friendly learning resources, virtual classrooms, and recorded lessons help minimize disruption to learning. Similarly, online professional development opportunities have expanded access to training for educators across all districts, reducing geographical barriers and enabling continuous capacity building at scale.

Looking ahead, Brunei Darussalam recognizes that successful educational transformation depends not only on technology, but also on people, partnerships, and purpose. The country continues to strengthen digital competencies among educators and learners, explore emerging technologies, and foster a culture of innovation that supports lifelong learning. As educational systems across Southeast Asia navigate the new realities of learning, Brunei remains committed to collaborating with regional and international partners to share experiences, learn from best practices, and collectively build education systems that are more inclusive, resilient, and future-ready.



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Cambodia – Rapid Systemic Transformation

Dr. Set Seng

Since 2014, Cambodia's education system has been undergoing a comprehensive and ambitious reform designed to build a quality, equitable, and lifelong learning system that is highly responsive to 21st century needs. Through its deliberate and multifaceted approach, Cambodia is actively positioning itself as a regional model for rapid educational transformation.

At the heart of this transformation is a series of robust policy frameworks, notably the Teacher Education Reform Plan, the Digital Ecosystem and Innovative Learning, the School-Based Management and Decentralisation, and a dedicated Digital Education Roadmap. These frameworks guide the Ministry of Education, Youth and Sport (MoEYS) in navigating systemic challenges such as teacher shortages and limited infrastructure, while aggressively pursuing modernization.

Revolutionizing Teacher Education: A standout achievement in Cambodia's recent history is its major overhaul of teacher education. Recognizing that technology can only be as effective as the educators who wield it, the country has prioritized capacity building. Traditional teacher training centers are being transformed into forward-looking, degree-granting colleges, leading to a significant increase in the number of fully competent teachers holding bachelor's degrees. Crucially, to prepare educators for the modern classroom, Cambodia is rapidly integrating digital literacy and Artificial Intelligence (AI) modules directly into its teacher training programs.

Digital Ecosystems and Innovative Learning: Cambodia's push toward digitalization is both strategic and practical. The MoEYS is heavily investing in digital education by creating localized applications, e-learning platforms, and online learning content. A "cyber university" domain, MOEYS EdTech and Primary Learning Program (PLP), are established to effectively share e-learning resources across various educational institutions.

To support foundational learning, the country has embraced EdTech solutions like the *Total Reading Approach for Children Plus.* This interactive, game-based application was developed to promote early grade reading among struggling learners, allowing them to practice the Khmer alphabet, vocabulary, and phonetics in a user-friendly digital environment. Furthermore, Cambodia's COVID-19 Education Response Plan helped cement a mid-to-long-term approach to distance learning, emphasizing sustainability and systemic resilience.

Model Schools and Decentralized Management: To pilot and refine these systemic innovations before scaling them nationwide, Cambodia has implemented a "model schools" initiative. Through rigorous school-based management policies, the MoEYS has successfully accredited 259 public schools—ranging from pre-school to secondary levels—setting a standard of excellence for the remaining thousands of schools across the country. This localized approach also emphasizes school governance and community participation. The Ministry actively encourages parents and local communities to participate in the educational process, building a strong network of support that goes beyond the physical walls of the classroom.

Measurable Progress and Future Priorities: The impact of these systemic and technological reforms is already measurable. Between 2018 and 2024, Cambodia witnessed an increase in primary school enrollment, higher completion rates at the lower secondary level, and a reduction in gender disparity among educators. Student performance has also seen satisfactory improvements in reading, writing, and mathematics, reflected in both national metrics and international PISA assessments.

Looking to the next five years, Cambodia's strategic focus spans eight core areas, including the enhancement of school governance, higher education and school health, and the establishment of Centers of Excellence. The roadmap for Digital Skills Development 2024 – 2035 has been formed aiming to develop digital technology curricula in line with industry and labor market needs, facilitate technology companies and the private sector in defining digital recruitment plans. It provides a guide for students and employees to choose study skills, continuing education, and career orientation in response to the rapid evolution of digital technology. The current curriculum is being actively reviewed not only to embed STEM and project-based learning but also to instill strong moral and societal values, ensuring that Cambodian learners develop into well-rounded, future-ready global citizens.



Indonesia – Digital Savvy Learning Systems and Learner Safety

Prof. Dr. Ir Sri Suning Kusumawardani

Note: No Governing Board Member from Indonesia attended the 69th SEAMEO INNOTECH Governing Board Meeting. The insights presented in this section are drawn from prior learning sessions and engagements. Prof. Dr. Kusumawardani served as a previous Governing Board Member.

Governing an education system across a massive archipelago of thousands of islands presents profound geographical and logistical challenges. For Indonesia, educational technology has become an essential bridge to overcome these distances, with the country increasingly turning to mobile learning, open platforms, expanded digital ecosystems, and learning safety.

Mobile Learning and Overcoming Geographic Barriers: Faced with significant geographical challenges that historically contributed to low participation in tertiary education, Indonesia has a long history of utilizing alternative learning models. The government founded the *Universitas Terbuka* (an open university) as early as 1984 to provide open and online learning. Today, this includes Massive Open Online Courses (MOOCs), and unlike global trends where MOOCs are mostly used by the wealthy, the majority of MOOC users in Indonesia live in rural areas and are not previously tertiary-educated, proving that technology can effectively expand access to marginalized populations.

During the COVID-19 pandemic, Indonesia heavily leveraged social media and communication channels, which became some of the most widely used platforms for teaching and support. More than five million teachers reportedly used WhatsApp groups to disseminate official information across all education levels, creating vital virtual study and support groups among teachers, students, and parents.

Fostering a Digitally Savvy Population: To systematically tackle the challenge of digital literacy and content creation, the Indonesian government and the Siberkreasi platform launched the *Indonesia Makin Cakap Digital* (Raising Indonesia's Digital Capability) initiative. This national movement aims to improve digital media ethics, safety, capability, and culture, and even involves public figures to inspire students to produce and disseminate ethical digital content.

This push for digital literacy is also reflected in the country's curriculum. Indonesia updated its national primary and secondary education curricula in 2013, moving away from teaching ICT as a stand-alone compulsory subject. Instead, the curriculum focuses on higher-order thinking skills—such as analysis, evaluation, and creation—by actively integrating ICT into other core subjects.

Data, Assessment, and Learner Safety: Indonesia is also a regional leader in the targeted use of data and advanced assessment methods. Geospatial data and school mapping have been used to identify schools in disaster-prone areas, enabling the government to prioritize risk-reduction interventions and plan safe travel routes for students.

In the classroom, the country utilizes computer-based assessments to easily generate multiple test versions, significantly reducing opportunities for cheating. Furthermore, Indonesia has implemented computer adaptive testing (CAT) to assess critical thinking in subjects like physics, allowing for much more precise measurement of higher-order learning skills than traditional pen-and-paper tests.

Finally, as digital ecosystems expand, Indonesia is recognizing the need for robust learner protection. The country passed the 2022 Personal Data Protection Act, its first comprehensive data protection law, which mandates that public and private entities ensure data privacy and applies sanctions for mishandling information. Additionally, under the amended 2008 Electronic Information and Transactions Law, cyberbullying is explicitly recognized and penalized as a form of harassment.

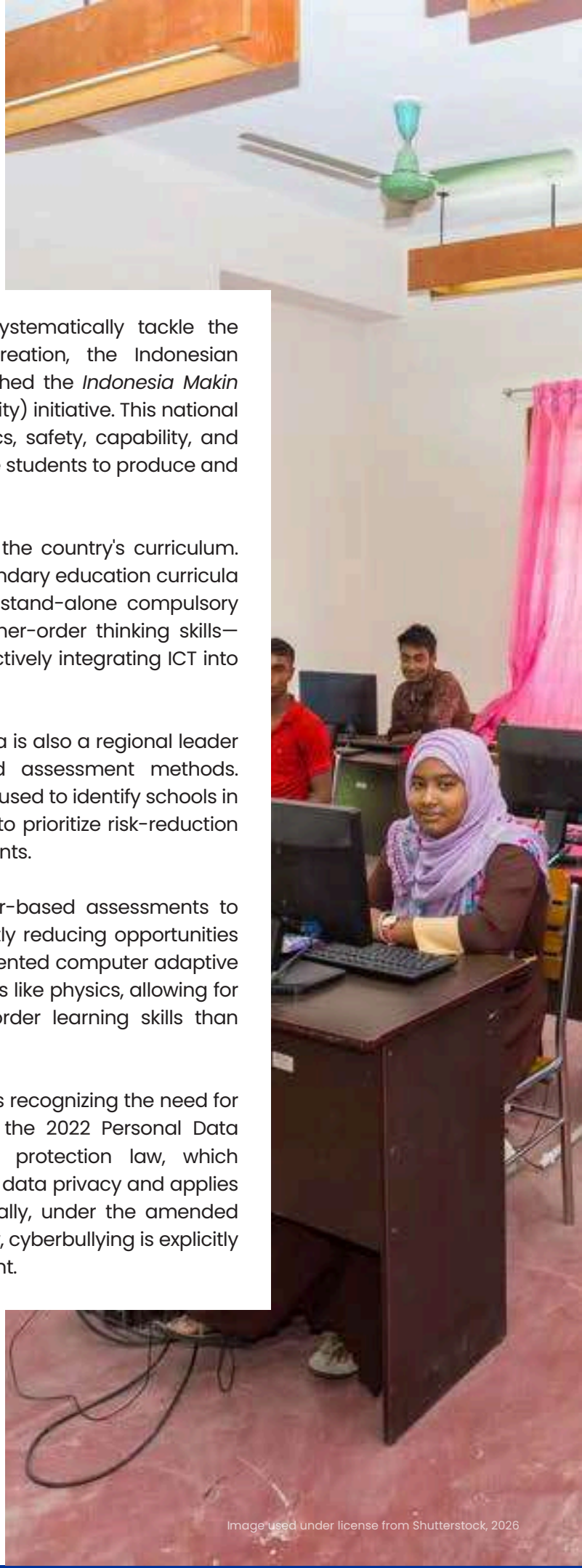


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Lao PDR – Data-Driven Inclusion and Strategic Development

Ms. Sitthattha Taikeophithoon

As Lao PDR works toward its goal of "graduating" from the list of Least Developed Countries by 2026, the modernization and expansion of its education system have become paramount. Guided by its comprehensive Education and Sports Sector Development Plan (ESSDP) 2021-2025, the Ministry of Education and Sports (MoES) focuses on human resource development, improving access to and quality of education, and aligning the national curriculum with the demands of modern industry. The priorities of the country can be outlined as follows:

Targeting Disparities Through BEQUAL: A defining characteristic of Lao PDR's educational landscape is its vast geographical and ethnic diversity, which often translates into significant educational disparities between urban centers and remote rural areas. To combat this, the country heavily relies on the Basic Education Quality and Access in Lao PDR (BEQUAL) program. This initiative focuses on reducing disparities by promoting inclusive education that accounts for gender, ethnicity, and rural-urban divides.

Through BEQUAL, Lao PDR is pushing for the equitable allocation of resources, the roll-out of a learner-centered curriculum, and the provision of quality teaching materials. To address the severe staffing limitations in remote, mountainous areas, the MoES effectively utilizes multigrade teaching strategies, ensuring that children in sparsely populated regions still receive formal instruction.

Navigating Complex Language Policies: One of the most profound challenges facing the Lao education system is language. The country has established a target of universal literacy in the national language (Lao), designating it as the primary language of instruction. However, this conflicts with the multi-ethnic and multilingual reality of the population. Many students exhibit low proficiency levels in the official language, and there is often inadequate pedagogical training for educators to teach Lao as a second language to ethnically non-Lao children.

To bridge this gap, a program of supplementary Lao language lessons which focus on developing students oral Lao language skills, and which are aligned to the national Lao language curriculum, has been introduced for grade one students nationwide. Called 'Spoken Lao', the program is available to all students who speak a language other than Lao at home. Evaluations show that the program improves students' confidence, engagement, and Lao language skills.

More informally, first languages of ethnic minorities are often utilized as the medium of instruction alongside Lao language in early classrooms to facilitate understanding, even as the MoES officially encourages the transition to the national language. Additionally, English as a foreign language has been made compulsory starting in primary grade 3, reflecting a push toward global competitiveness.

Digital Transformation Amidst Infrastructure Challenges: Lao PDR exhibits a strong commitment to technological modernization, guided by a 10-year National Digital Development Strategy prioritizing infrastructure expansion, 5G trials, digital literacy, and e-government platforms, and the promotion of digital technology to facilitate 21st-century lifelong skills. The development of hybrid learning platforms is a core component of this strategy, aimed at extending educational access to remote communities.

However, the country faces stark infrastructural realities. The digital divide is pronounced, characterized by a lack of digital infrastructure, a shortage of devices, unreliable networks, and high internet costs. During the COVID-19 pandemic, distance learning was primarily implemented through television; yet, data revealed that only 29% of households had access to a television at home, highlighting the severe limitations of broadcast-reliant interventions in impoverished areas. Furthermore, there is a recognized lack of teacher readiness to meaningfully integrate digital tools into their pedagogy.

Future Priorities: Teachers and Sustainability: Recognizing these hurdles, Lao PDR's future educational priorities revolve heavily around human capacity rather than just hardware. The MoES is prioritizing the continuous pre-service and in-service professional development of teachers, aiming to improve pedagogical quality and address the rising student drop-out rates. While some universities have adopted online learning management systems, such platforms are not yet centralized within basic education, presenting a clear area for future development.

Looking ahead, the country is preparing for the Learning and Equity Acceleration Project (backed by the World Bank), set to begin in 2027, which will further target declining transition rates. Furthermore, in line with regional trends, the Lao PDR is actively veering toward the integration of environmental education and sustainable development principles into its continuous professional development frameworks. By utilizing data to track disparities and direct interventions, the Lao PDR is methodically building a more resilient and inclusive education system tailored to its unique context.



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Malaysia – Ecosystems for Future-Ready Learners

Ms. Aniza binti Kamarulzaman

Malaysia is advancing a comprehensive vision to build a holistic, future-ready education system that adapts to rapid technological shifts and evolving global demands. Anchored in the principles of inclusivity, digital fluency and sustainability, the country's strategy seamlessly connects policy with practice. From expanding inclusive school models and deploying the nationwide Digital Education Policy to fostering eco-minded digital creators and preparing for the new Curriculum 2027, Malaysia is equipping every learner to thrive in a connected world.

Inclusivity and Comprehensive School Models: In Malaysia, inclusivity is viewed as the heart of progress, operating on the principle that every learner must be valued and every potential embraced. The country's inclusive education policy ensures that students with special educational needs are provided with equal learning opportunities by integrating them into mainstream classrooms, either fully or partially, based on their abilities and support needs.

To strengthen educational continuity and address school leaving, Malaysia utilizes the K9 and K11 comprehensive school models. These models provide a seamless educational pathway from primary through upper secondary school, effectively reducing dropout rates and empowering learners to complete their basic education journey.

Digital Education Policy: Bridging technology and equity across the educational ecosystem is Malaysia's Digital Education Policy. Serving as the strategic blueprint for the country's digital transformation, the policy focuses on six key pillars: fostering digitally fluent learners, upskilling educators, cultivating digital leadership, improving infrastructure, delivering quality digital content, and driving strategic partnerships. By embedding digital competencies directly into national standards and equipping teachers to integrate modern technology into their everyday pedagogy, the policy sets the framework to ensure every student, regardless of geography or socioeconomic background, can thrive as a responsible, future-ready digital citizen.

The DELIMA Digital Ecosystem: Digital inclusion is a major priority, serving as a bridge between modern cities and remote rural heartlands to ensure no learner is left behind. Through its National Digital Education Policy, Malaysia is actively turning technology into tangible opportunities.

At the center of this digital transformation is the DELIMA 2.0 platform, a nationwide digital learning ecosystem that connects over five million learners and transforms traditional classrooms into connected worlds. To deepen student engagement, the Ministry of Education introduced DELIMAFlix, an innovative approach that merges education with entertainment.

Global Tech Partnerships and Hybrid Learning: A key strength of Malaysia's digital ecosystem is its strong collaboration with global EdTech leaders, including Google, Apple, and Microsoft. Integrated directly into the DELIMa framework, initiatives such as Google Workspace for Education, Apple Learning Coach, and Microsoft's Reading Progress empower teachers with scalable tools to personalize instruction and boost literacy. At the school level, these technology partnerships actively drive hybrid learning models—exemplified by pioneer initiatives like the DmiX (Digital Mix) Classroom at SK Taman Seri Rampai, Kuala Lumpur. By seamlessly merging physical classroom environments with interactive digital tools and online learning spaces, this approach offers a flexible, dynamic learning experience designed to prepare students for a connected world.

Systemic Data Governance: To manage its massive educational infrastructure and streamline operations nationwide, Malaysia introduced the Education Data Repository. Designed to integrate hundreds of previously scattered data systems into a single, unified platform, this initiative improves systemic efficiency, enhances data security, and enables data-driven decision-making across all levels of the education sector.

Fostering Creators – STEM, TVET, and Content Creation: Moving beyond basic digital literacy, Malaysia is pushing students to become active digital creators. A cornerstone of this effort is the #mydigitalmaker movement—led by the Malaysia Digital Economy Corporation (MDEC) in partnership with the Ministry of Education (MOE) along with private and academic sectors. This joint initiative encourages students to acquire skills in programming, robotics, and digital design, reaching more than two million students nationwide. Under its umbrella, MDEC's Digital Ninja programme offers specialized bootcamps for secondary students to gain industry experience alongside digital tech professionals.

This aligns with a comprehensive national STEM framework that spans pre-primary through tertiary and adult education, emphasizing project- and inquiry-based learning. In the realm of Technical and Vocational Education and Training (TVET), universities such as Tun Hussein Onn University have developed the Digital TVET Learning Platform, which integrates augmented and virtual reality components to simulate real-world problems in laboratory activities. For higher education, the Malaysian Qualifications Agency has also formally implemented accreditation strategies for micro-credentials, allowing for flexible, skills-based learning pathways.

Sustainability and Eco-Schools: Environmental sustainability lies at the very heart of the Malaysian education system. Through nationwide initiatives like the Green School program and the eco-schools' movement, students are actively learning to care for the planet through direct action and innovation. Education in Malaysia is viewed as a movement shaping the planet, where students learn to live responsibly by conserving energy and reducing waste. This hands-on approach to sustainability has yielded impressive studentled innovations, such as an award-winning project at Keningau Vocational College, Sabah, where a student team successfully turned banana tree trunks into eco-friendly vinegar.

Future Directions – AI Integration and Curriculum 2027: As Malaysia prepares to roll out Curriculum 2027, the nation is positioning Artificial Intelligence (AI) not as a standalone discipline, but as a transformative pedagogical catalyst embedded across all learning areas. To support this paradigm shift, the Ministry of Education is prioritizing extensive teacher reskilling and developing robust national guidelines for the ethical, safe, and human-centric use of AI. By pairing forward-looking curriculum reform with clear governance and teacher empowerment, Malaysia is building a resilient, future-ready education ecosystem where technology amplifies human potential and equips learners to thrive in a digital global economy.



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Myanmar – Resilience and Transformation Amidst Challenges

Dr. Nay Win Oo

Myanmar's educational landscape is defined by a blend of deep diversity, community resilience, and creativity. Operating under highly challenging circumstances—including severe political instability and a full closure of schools for two years during the COVID-19 pandemic—the nation has had to confront a significant decrease in enrolment rates and very low learning outcomes in reading and mathematics. Furthermore, wide disparities in student performance exist between urban and rural areas, high- and low-conflict zones, and different linguistic groups.

Despite these profound hurdles, the country is actively working to modernize its system, guided by its National Education Strategic Plan (NESP) 2016–2021 and the subsequent NESP 2021–2030. The updated plan spans eight core areas, including digital education, economic growth, basic education, and Technical and Vocational Education and Training (TVET). A cornerstone of this reform is the transformation of the country's education structure to a KG+9 and KG+12 framework, a critical step to align Myanmar with the educational standards of its ASEAN neighbors.

Inclusion and Multilingual Education: In Myanmar, educational inclusion begins with ensuring access across its highly diverse ethnic and rural communities. To bridge the performance gap between Myanmar-speaking and non-Myanmar-speaking learners, the country places a strong emphasis on mother-tongue-based multilingual education. This pedagogical approach allows children to learn foundational concepts in their native languages before formally transitioning to the national curriculum, effectively making classrooms more equitable and culturally relevant.

Digital Resilience and Overcoming Infrastructure Barriers: Myanmar faces stark infrastructural realities; a 2018 survey indicated that 60% of the country's public schools had no access to electricity. Because of these limitations and network unreliability, educators must find new ways to reach students who lack stable internet connections.

To ensure learning continuity, Myanmar utilizes flexible learning options and localized innovations. A notable example is the *EduLamp*, a small, portable computer that creates an offline local area network (LAN), enabling students to continue their digital learning without relying on the internet. The sector is also expanding its reach through mobile classrooms and e-training programs for teachers. Recently, universities and the Ministry of Education have begun collaborating with local companies to develop domestic Learning Management Systems (LMS) for both teachers and school managers, though traditional face-to-face setups remain the most prevalent mode of instruction.

Curriculum, TVET, and Youth Empowerment: Myanmar is steadily rolling out its updated, learner-centered basic education curriculum, with a stated goal of reviewing it every five years to maintain relevance. The 2023 Myanmar National Education Conference highlighted a strategic pivot toward practical skills, mandating the teaching of agricultural, livestock, and technical courses to ensure that students acquire basic vocational skills applicable to the workplace. To improve overall learning outcomes, project-based learning is being implemented across basic and higher education levels.

Youth empowerment is also a major national priority, formalized through the National Youth Policy Strategic Plan (2020–2024), which targets citizens aged 15 to 35. The policy is designed to nurture young people holistically—focusing on health, ethics, values, and leadership capacities—so they can play vital roles in building a developed, democratic union.

Sustainability and Future Priorities: Environmental sustainability is increasingly at the heart of Myanmar's educational initiatives. Across the country, students participate in eco-school programs and local climate awareness projects, learning how to actively care for their communities and the planet.

Looking ahead, Myanmar's Ministry of Education is heavily focused on implementing post-crisis learning recovery programs and mitigating high school dropout rates. As the country pushes for greater integration of Science, Technology, and Innovation (STI) in the classroom, educational leaders also recognize the urgent need to establish clear, national guidelines for the safe and responsible use of Artificial Intelligence (AI).



Philippines – Anticipatory Governance and Alternative Pathways

Mr. Roger Masapol

The Philippine education system is at a critical juncture, navigating systemic challenges exacerbated by one of the world's longest pandemic-related school closures. Guided by the Basic Education Development Plan 2030 and insights from the Second Congressional Commission on Education (EDCOM 2), the country is actively working to harmonize its historically fragmented trifocal education system, which divides governance into Basic Education, Higher Education, and Technical and Vocational Education and Training (TVET).

Curricular Reforms and the 5-Point Reform Agenda: Confronted with a profound learning crisis—where assessments and research consistently show that only a small proportion of learners attain the expected competencies for their grade levels—the Department of Education (DepEd) has embarked on bold curricular reforms. Central to these efforts is the strengthening of the K to 12 Curriculum through a comprehensive review and rationalization and decongestion of learning competencies. This reform seeks to address learning gaps by streamlining and decongesting the curriculum, reducing content overload and enabling teachers to devote more time and attention to the development of foundational skills, particularly in literacy, numeracy, science, and technology. By focusing on essential and developmentally appropriate competencies, the strengthened K to 12 Curriculum promotes deeper learning, improves mastery of core concepts, and equips learners with the knowledge, skills, and values necessary to thrive in higher education, the workforce, and an increasingly complex and technology-driven society.

Anticipatory Governance and AI Integration: The Philippines stands out as a regional pioneer in "anticipatory governance," actively preparing its educational landscape for the disruptions brought about by the Fourth Industrial Revolution and artificial intelligence. Through the establishment of the Education Futures Office, the country is positioning itself to navigate future technological shifts proactively.



In partnership with SEAMEO INNOTECH, the Philippines has launched the Education Center for Artificial Intelligence Research (E-CAIR), aiming to leverage AI for educational development. Recognizing the modern threats of the digital age, the country has also placed a strong emphasis on disinformation studies. Following advocacy from the Association for Media and Information Literacy, media and information literacy was successfully incorporated as a core subject in grades 11 and 12, aimed at building the digital literacy and critical thinking competencies of both students and administrators.

The Digital Paradox - Social Media vs. Infrastructure: In terms of educational technology, the Philippines presents a unique paradox. The nation boasts a young, highly tech-savvy population with some of the highest social media engagement rates in the world. However, this digital fluency is hindered by high internet costs and inadequate infrastructure, creating a significant gap between general digital use and actual educational access.

A recognized systemic gap is the lack of a centralized, adaptive Learning Management System (LMS) for public schools. To mitigate these infrastructural barriers and improve resource distribution, DepEd is pushing for the expansion of Open Educational Resources (OER). By integrating OERs into the DepEd Computerization Program, the government aims to make vital learning materials and research freely available to public school teachers.

Inclusion Through Flexible Pathways: Educational inclusion in the Philippines is interpreted far beyond traditional classroom access. To address high dropout rates and reach marginalized populations, the country heavily relies on flexible learning options and multimodal assessments. The Alternative Learning System (ALS) is the cornerstone of this inclusive approach. This highly robust program provides flexible, non-formal learning pathways for out-of-school youth and adults, allowing them to bridge learning gaps and acquire basic education equivalents, drawing international interest as a model for alternative education.

Teacher Capacity and Professional Development: The success of these curricular and technological reforms hinges on the educators. The system recognizes that digital transformation must be coupled with robust teacher training. Initiatives like the Guro21 program, which utilizes platforms like Moodle, are designed to build 21st century educator competencies. However, the government acknowledges that a major ongoing challenge is making such professional development programs financially accessible and scalable to cater to its massive teaching workforce.

Photo by SEAMEO INNOTECH



Singapore – The Human-Centric AI Model

Mrs. Angeline Huang

Singapore's digital journey in education is not a recent phenomenon; since 1997, the Ministry of Education (MOE) has launched a series of master plans that successfully laid the foundations for robust ICT infrastructure, technology integration into teaching and learning, and development of student digital literacy. In 2023, MOE announced the "Transforming Education through Technology" Masterplan 2030 (EdTech Masterplan 2030), seizing the opportunities that emerged in the wake of the COVID-19 pandemic. The Masterplan charts a course for harnessing technology's potential to transform education, with an emphasis on meaningful use of technology, including Artificial Intelligence, to enrich student learning and augment teacher practices, while equipping students with 21st Century Competencies (21CC).

The Singapore Student Learning Space (SLS): At the operational core of Singapore's digital education strategy is the Singapore Student Learning Space (SLS), the national online learning platform introduced in 2018. The SLS provides curriculum-aligned teaching and learning resources and pedagogically-sound EdTech including AI tools.

Through the SLS, students benefit from an AI-enabled environment with in-built guardrails and designed to foster personalized and self-directed learning. For example, AI-enabled features such as the Adaptive Learning System (ALS) and Learning Feedback Assistants provide personalized learning pathways and immediate, customized feedback to address student learning needs respectively. Educators too, can tap on SLS' AI-enabled features to enhance their teaching practices. This includes using the Data Assistant to analyze students' responses to inform in-class interventions and the Authoring Copilot to generate interactives to help students grasp more complex concepts. Additionally, educators can use the Learning Progress Dashboard to monitor student learning in-situ and adjust their lesson design accordingly. SLS hosts a Community Gallery where teachers can share lesson designs and good practices of technology integration with their peers, who can adapt these lesson materials for their students.

Accelerating Access - The National Digital Literacy Programme: Under the National Digital Literacy Programme, MOE introduced the Personalised Digital Learning Programme (PDLP) for all students in secondary schools. As part of PDLP, every secondary school student is equipped with a school-prescribed personal learning device. Students can access SLS and other educational technology tools and benefit from active, technology-enabled learning experiences, enhance their learning through the application of productivity tools and provide opportunities for students to pick up digital literacies that will help them successfully navigate digital environments.

A Human-Centric Philosophy for Artificial Intelligence: As Artificial Intelligence (AI) permeates the global economy, Singapore is also looking into how to further strengthen the safe, ethical, and pedagogically sound integration of AI in our classrooms. The guiding principle of "student at the centre, pedagogy at the fore" emphasizes that AI must benefit, not replace learning, and decisions whether and how to use AI must always be anchored in pedagogy while driven by our learners' and curricular needs.

To safeguard the development and deployment of AI in education, MOE introduced an AI-in-Education (AIEd) Framework to guide schools and educators in using AI safely and responsibly, including how to mitigate potential risks, such as cognitive offloading (relying too much on machines to think) and emotional dependency on AI chatbots while protecting learner agency. AI use should be age- and developmentally- appropriate - younger students experience light, supervised AI interaction, while older students are explicitly taught how to use AI ethically to augment their skills. Schools also teach students when they should not use AI, so that they do not take short cuts to get answers without actual learning. Teachers continue to mediate the learning by being in or over the loop; never leaving only AI to make the teaching and learning decisions.

MOE emphasizes that in an age of pervasive AI, the ultimate focus of education must remain on the development of human qualities that machines cannot replicate, such as character, values, empathy, and a sense of purpose.

Cyber Wellness and Digital Competencies: Beyond basic access, Singapore intentionally integrates nine core digital competencies through the total curriculum, with AI literacy woven into each of them. Through programmes such as "Code for Fun" and "AI for Fun", upper primary students are introduced to computational thinking, basic coding and AI concepts such as AI's benefits, risks and limitations, while secondary students build on these foundations through hands-on projects and real-world applications, developing skills such as digital responsibility, digital information management, and digital communication, collaboration and participation. MOE's approach to student AI literacy development is simple but deliberate – for every student to learn about AI, learn to use AI, learn with AI and most importantly, learn beyond AI.

MOE acknowledges the risks of the digital age. Since 2021, schools spend 50 per cent more time discussing cyber issues as part of Cyber Wellness education embedded within the Character and Citizenship Education curriculum. Across primary to pre-university, students are taught to identify and discern negative influences and inappropriate content, navigate the online space safely and responsibly, and be a positive peer influence online, while maintaining a healthy balance of online and offline activities and building a balanced relationship with technology.

Recognizing that screen use among students has been shown to displace important activities such as sleep, physical activity and social interactions, Singapore introduced enhanced guidelines from January 2026, broadening smartphone and smartwatch restrictions to cover all school hours, with devices stored away for the duration of the school day. The default cut-off timing for the Device Management Application on PLDs was also brought forward to reduce device use before bedtime. Together with Cyber Wellness lessons conducted through the Character and Citizenship Education curriculum, these enhanced measures seek to reduce digital distractions, foster meaningful face-to-face interactions, and promote healthier lifestyles for students.

Empowering the Educator: Singapore recognizes the capability of its teaching workforce is vital in this endeavor. Hence, MOE continues to support educators with knowledge and skills in EdTech, through professional development to ensure high-quality classroom instruction. MOE facilitates the sharing of good EdTech practices among our teachers, for example through workshops and networked learning communities led by Master Teachers as well as online sharing platforms. The goal is for our educators to be technologically-adept, collaborative learning designers who confidently and purposefully integrate technology into their practice.



Thailand – Ecosystems, Innovation, and "Anywhere Anytime" Learning

Ms. Kusuma Nawaphanpimol

Note: Mrs. Kusuma Nawaphanpimol attended the 69th SEAMEO INNOTECH Governing Board Meeting on behalf of Dr. Suthep Kaengsanthia of Thailand's Ministry of Education, who serves as INNOTECH's Governing Board Member for Thailand.

Thailand is steering its educational transformation through a "happy learning framework," an overarching philosophy designed to enable students and teachers to learn and work "Anywhere Anytime." This commitment to accessible, flexible, and innovative learning is underscored by major national directives, including a highly prioritized "Zero Dropout" initiative and the establishment of a dedicated national EdTech Fund.

Digital Ecosystems and Distance Learning: To reach learners across urban and rural divides, Thailand is heavily investing in an ecosystem-based digital platform that centralizes Open Educational Resources (OER) and supports teacher development. A cornerstone of Thailand's strategy to reach distant communities is its Distance Learning Television (DLTV), a highly regarded royal project initiated by the King. Additionally, the Office of the Basic Education Commission (OBEC) Content Centres serve as vital hubs for educational material distribution.

At the higher education and lifelong learning levels, digital adoption has surged. Thailand's official massive open online course platform, Thai MOOC, doubled its user base in 2020 by welcoming nearly 286,000 new learners, demonstrating the vast public appetite for flexible digital education.

Mobile Literacy and Inclusion: Inclusion is a nationwide directive in Thailand, with every school enjoined to actively work toward creating an inclusive society. To reach out-of-school children and ethnic minorities, Thailand has implemented innovative Mobile Literacy projects. A standout initiative is the use of the 'LearnBig' application, which provides learners with tablets preloaded with more than 1,000 books and educational materials translated into Thai, Burmese, and Karen. This targeted, low-tech intervention successfully bridges linguistic and digital divides for marginalized youth.

Teacher Capacity and Digital Standards: The Ministry of Education recognizes that leveraging technology for teaching and learning requires robust professional development for teachers. As a foundational step, Thailand has officially recognized and endorsed the International Computer Driving License (ICDL) as the primary digital literacy standard for its schools, universities, and training institutes. Furthermore, the Thai Digital Economy and Society Ministry commissioned Mahidol University to develop a dedicated digital literacy curriculum and lesson plans for classrooms to improve students' understanding of digital media.

Despite these frameworks, integrating specialized EdTech pedagogy remains a challenge. For instance, during the 2018 Teacher Development Coupon scheme—which provided in-service training opportunities for 270,000 educators—only 0.5% of the coupons were used for STEM-related courses. To counteract this, current mobile literacy and digital initiatives incorporate mandatory teacher training sessions focused specifically on the use of ICT devices, satellite TV, and modern pedagogical techniques.

Sustainability and Early STEM Education: In alignment with regional trends, Thailand strongly champions environmental sustainability. The country boasts a robust eco-school movement where students learn through direct action, such as reducing waste, conserving resources, and designing community-based environmental solutions.

Thailand has also made significant strides in early childhood education through the "Little Scientists" project. Implemented in collaboration with the Princess Maha Chakri Sirindhorn Foundation since 2010, the program engages young children in hands-on STEM activities using cheap, easy-to-find materials, successfully reaching over 29,000 schools and 232 networks nationwide.

Future Directions - AI and Private Partnerships: Looking ahead, Thailand's Ministry of Education is highly interested in the exploration and ethical use of Artificial Intelligence (AI) in education. Acknowledging that this is a "transformation era," educational leaders are calling for new curricula focused on AI, cybersecurity, and system learning transformation.

To achieve this, Thailand intends to foster strong partnerships across sectors, actively encouraging private sector organizations to support Ministry initiatives and provide better digital resources for schools. By pairing domestic innovation with active regional collaboration, Thailand seeks to share its best practices with its Southeast Asian neighbors while continuously adapting to 21st century educational demands.



Timor-Leste – Contextualizing the Curriculum and Capacity Building

Mr. Simão do Rosário

As one of the youngest nations in Southeast Asia, Timor-Leste is engaged in a profound effort to rebuild and redefine its educational landscape. Guided by its National Education Development Plans (NEDP) and Education Sector Plans (ESP), the Ministry of Education is currently focused on a comprehensive curriculum reform aimed at "Timorizing" the country's education system. This strategy seeks to make learning deeply context-specific and culturally resonant, while simultaneously aligning the curriculum with crucial 21st-century skills such as computer literacy, critical problem-solving, and an understanding of sustainable development.

Navigating a Multilingual Education Context: A defining feature of Timor-Leste's education system is its rich multilingual environment. Consistent with the Constitution, Tetum and Portuguese are recognized as the country's official languages, and education policies continue to balance their use while responding to the linguistic realities of learners across the country. As students enter school with diverse language backgrounds, the Ministry of Education continues to strengthen approaches that support multilingual learning and effective transitions between home languages and the official languages of instruction.

To support learners in this multilingual context and improve foundational comprehension, Timor-Leste has introduced Mother Tongue-Based Multilingual Education (MTB-MLE) initiatives. Programs such as *Edukasaun Multilingue Bazia Lian-Inan* (EMBLI) represent a strategic effort to utilize students' native languages as a bridge to learning while supporting proficiency in Tetum and Portuguese.



Prioritizing Teacher Capacity and School Leadership: Timor-Leste recognizes that the success of its curriculum and technological reforms rests heavily on the capacity of its educators. As the education system continues to evolve, strengthening teacher knowledge, pedagogical practice, and language competencies remains a key national priority. Challenges related to classroom practice, learning resources, school infrastructure, and linguistic diversity continue to influence learning outcomes; however, the Ministry of Education has undertaken sustained efforts to support teachers through professional development, mentoring, and school-based capacity-building initiatives.

To address these critical human resource gaps, the Ministry of Education has implemented the Professional Learning and Mentoring Program (PLMP). This system-wide primary education support program focuses on facilitating improved teaching methodologies and strengthening leadership and management directly at the school level. By placing a strong emphasis on pre-service and in-service training, Timor-Leste aims to build a more resilient and capable educator workforce.

The Need for Evidence-Based Scaling and Research: As Timor-Leste looks to integrate more innovation and technology into its classrooms, educational leaders recognize a pressing need for data-driven governance. Currently, there is a recognized lack of impact studies conducted to validate the Ministry's initiatives in teacher training, curriculum reforms, and educational management.

Moving forward, the country is seeking to rely more heavily on research and regular monitoring to assess the true impact of its educational programs. By prioritizing evidence-based scaling, Timor-Leste hopes to use research-backed, realistic ideas to mitigate its infrastructural challenges, improve retention rates in secondary and higher education, and standardize the quality of learning to match that of the broader Southeast Asian region.

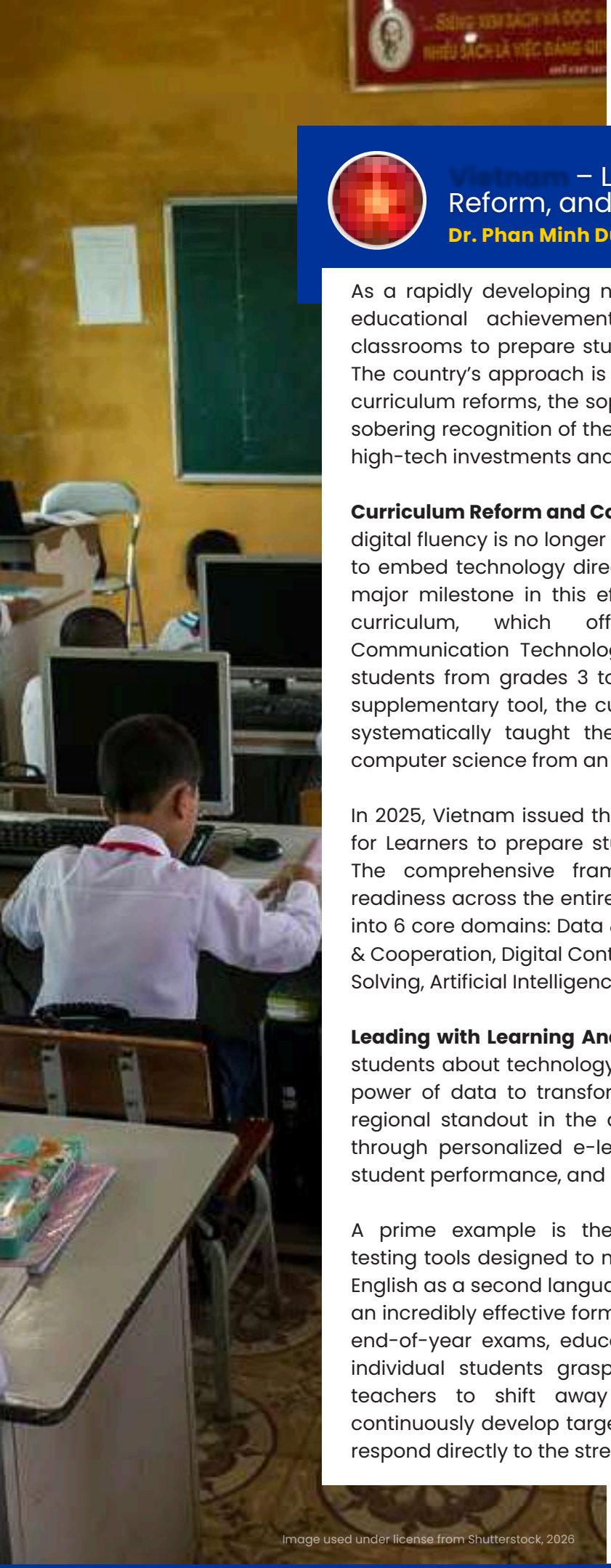


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Vietnam – Leveraging Data, Curriculum Reform, and Resilient Learning

Dr. Phan Minh Duc

As a rapidly developing nation with a strong cultural emphasis on educational achievement, Vietnam is actively modernizing its classrooms to prepare students for a highly digital global economy. The country's approach is characterized by a mix of forward-looking curriculum reforms, the sophisticated use of educational data, and a sobering recognition of the persistent digital divides that require both high-tech investments and low-tech resilience.

Curriculum Reform and Compulsory ICT Education: Recognizing that digital fluency is no longer optional, Vietnam has taken decisive steps to embed technology directly into the core of its basic education. A major milestone in this effort was the 2018 reform of the national curriculum, which officially introduced Information and Communication Technology (ICT) as a compulsory subject for all students from grades 3 to 9. Rather than treating technology as a supplementary tool, the curriculum ensures that young learners are systematically taught the foundations of digital technology and computer science from an early age.

In 2025, Vietnam issued the National Digital Competency Framework for Learners to prepare students for a technology-saturated future. The comprehensive framework is structured to ensure digital readiness across the entire national education system and is divided into 6 core domains: Data & Information Exploitation, Communication & Cooperation, Digital Content Creation, Digital Safety, Digital Problem Solving, Artificial Intelligence Application.

Leading with Learning Analytics and Data: Beyond simply teaching students about technology, Vietnam has aggressively embraced the power of data to transform 'how' students learn. The country is a regional standout in the application of data analysis in education through personalized e-learning platforms, predictive analytics for student performance, and centralized administrative databases.

A prime example is the implementation of computer-adaptive testing tools designed to monitor students' growth in reading skills in English as a second language. These data-intensive approaches play an incredibly effective formative role; rather than relying on standard, end-of-year exams, educators use these analytics to unpack how individual students grasp concepts in real-time. This empowers teachers to shift away from one-size-fits-all instruction and continuously develop targeted, personalized teaching strategies that respond directly to the strengths and weaknesses of their learners.

The Ministry of Education and Training (MOET) uses interconnected databases to track learner metrics across provinces, digitize test banks, and optimize school management.

Navigating the Digital Divide and Low-Tech Realities: Despite these technological leaps, Vietnam continues to battle a stark socioeconomic digital divide. During the COVID-19 pandemic, the disparities in access became undeniably clear: data revealed that students from the poorest 20% of households and those from less educated families were 34% and 21% less likely to experience distance learning, respectively, compared to their peers from the richest and higher-educated households.

However, this systemic challenge has also highlighted the remarkable resilience of Vietnamese students and the vital role of lower-level technologies. For example, in remote areas like Lao Cai province, students who lacked access to smartphones or laptops found creative workarounds to maintain their education, such as copying audio recordings from online classes and playing them back on old, battery-powered radios. This reality underscores a critical lesson for the region: scaling low-technology tools remains essential to ensuring equity and continuity of learning for the most marginalized.

The program "Sóng và máy tính cho em" (Internet and computers for children) launched by the Prime Minister in 2021, aimed to support online learning equipment and internet connectivity for students from poor, near poor, or particularly disadvantaged households in remote areas. Especially, the project "Internet trường học" (Internet for schools) since its introduction in 2008 has helped 25 million of teachers, students gain access to the Internet. It can be said that these programs reflected great efforts of the Vietnamese government in narrowing the digital gap in the country.

Equitable Infrastructure Investments: To permanently bridge this divide, the Vietnamese government is actively investing in equitable access and infrastructure. Vietnam is notably utilizing its universal service and access funds to systematically provide internet access directly to education institutions. Furthermore, these funds are being channeled to establish internet access centers specifically targeted at underserved populations and remote geographical areas, ensuring that the necessary hardware and connectivity reach those who need it most.



PART 3

The Future – Policy Recommendations

Photo by SEAMEO INNOTECH

As education systems navigate the aftermath of the COVID-19 pandemic and the rapid acceleration of the digital age, policymakers face critical decisions. The widespread deployment of educational technology has shown immense potential, but it has also exposed severe vulnerabilities, including stark inequalities, unchecked commercial influence, and threats to student privacy. To build an inclusive, innovative, and sustainable future for all learners, governments may adopt a **#TechOnOurTerms** approach, ensuring that technology serves education according to humanistic principles, not the other way around.

The following policy recommendations outline the path forward for Southeast Asia and the broader global community, transitioning away from technological solutionism toward evidence-based, equitable, and human-centric education models.



Appropriate Governance and Regulation: Safeguarding Privacy and Mitigating Bias

The pervasive belief that technology is a universal cure for educational challenges - often referred to as "technological solutionism" - must be abandoned. While digital tools can offer unprecedented opportunities, they are not inherently neutral, and the goals of governments are not necessarily aligned with the profit-driven motives of the education technology industry.

Governments must establish strict, ethical frameworks to protect learners. Currently, digital privacy is poorly regulated; **to date, only one in seven countries legally guarantees the privacy of educational data.** Furthermore, as Artificial Intelligence (AI) and generative algorithms become integrated into classrooms, legislation must urgently adapt. **Algorithms can reproduce prejudices and deepen inequalities**, such as demographic biases found in predictive analytics or facial recognition software. Therefore, to safeguard learners, countries must:

- **Establish National and Regional AI Guidelines:** There is an urgent need to create comprehensive AI integration strategies. As policymakers in the Philippines have suggested, AI and cybersecurity policies should capture the unique cultural essence of Southeast Asia.
- **Regulate Screen Time and Well-being:** Experts are increasingly calling for public interventions to limit screen time, as excessive use can negatively impact physical health and social-emotional development. Interventions that promote outdoor activities and nature-based education should be heavily encouraged to counterbalance the digital immersion.
- **Prioritize the Pupil Over Profit:** The best interests of the pupil must systematically take precedence over commercial considerations.

Equitable Access and Infrastructure: Financing the Digital Transformation

Access to digital technology is highly unequal, raising a further barrier to equal educational opportunities. Globally, one in four primary schools does not have electricity, a prerequisite for benefiting from technology. Access to the internet is similarly fragmented; only 40% of primary, 50% of lower secondary, and 65% of upper secondary schools are connected.

Relying exclusively on high-tech solutions inevitably leaves the most marginalized populations further behind. To close this divide, governments must focus on sustainable infrastructure, but they must also confront the staggering costs:

- **Acknowledge the True Cost of Digital Transformation:** It would cost low- and lower-middle-income countries approximately USD 183 billion of capital expenditure to connect all their schools to the internet under a "fully connected schools" scenario. Even a modest digital transformation would increase the poorest countries' financing gap to achieve their SDG 4 national targets by more than 50%.
- **Invest in Sustainable Energy:** Expanding infrastructure must be done with an eye toward environmental sustainability. Utilizing decentralized electric power generation, such as solar panels (PV electricity generation), can help accelerate school electrification and close the gap in remote areas without relying on expensive grid expansions.
- **Scale Low-Tech Solutions:** Because internet affordability remains a massive hurdle, scaling low-technology tools—such as radio, television, and offline local area networks—is vital to addressing immediate, equitable educational needs.

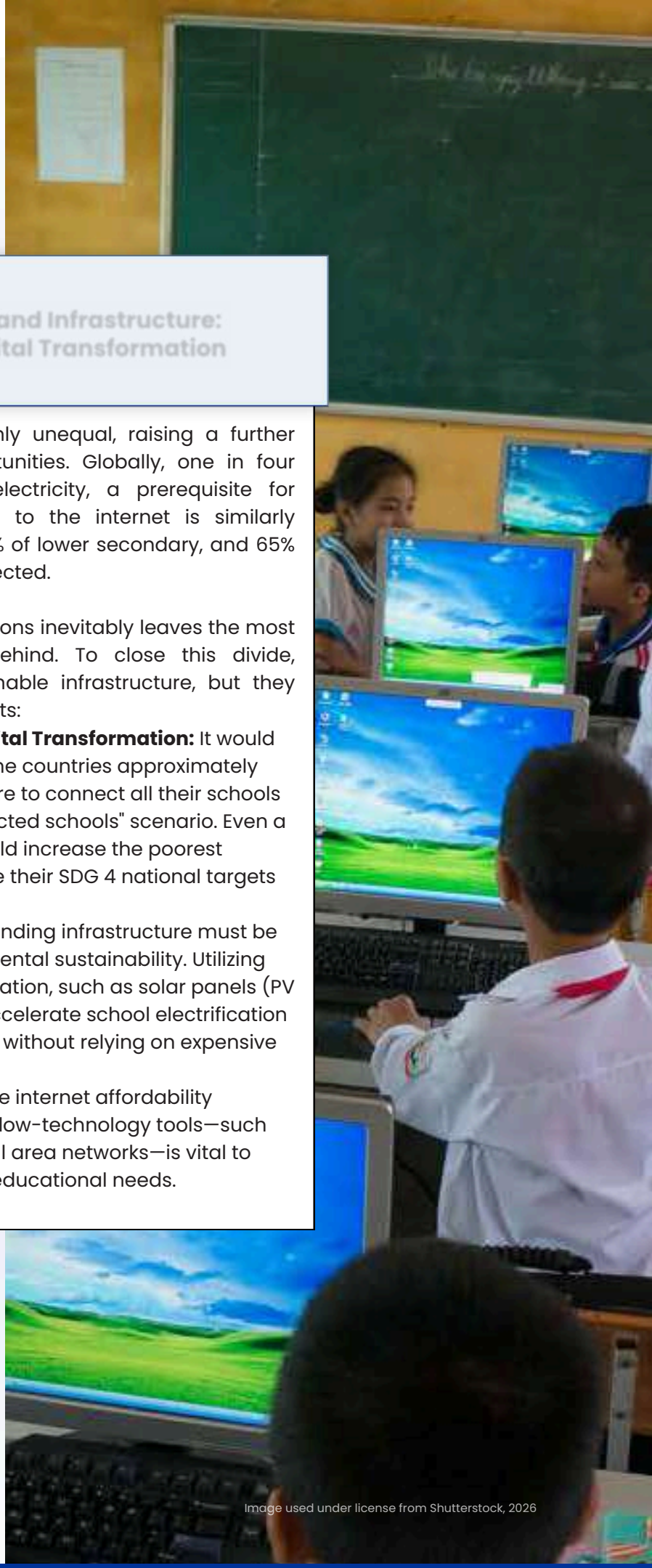


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Investing in Teacher Capacity: Pedagogical Up-skilling

The integration of technology into the classroom must be viewed through a lens of complementarity, never substitutability. **No screen, algorithm, or chatbot can ever replace the humanity of a teacher.**

Any potential that technology has will not be realized unless teachers are prepared and empowered to use it. Historical evidence shows that merely distributing devices without pedagogical integration fails. For example, the One Laptop Per Child program distributed over 1 million laptops in Peru without generating any positive impact on learning because it lacked tailored teacher support. Conversely, when technology is used to assist teachers—such as providing high-quality pre-recorded lessons that local teachers help contextualize—student outcomes improve significantly.

To transition away from tech-centric models, education systems must prioritize the human-centric empowerment of educators by:

- **Focusing on Digital Competencies:** Ministries of Education explicitly highlight the need to develop the digital competencies of teachers and visionary digital leadership cultures.
- **Promoting Professional Learning Communities:** Teachers must be entrusted as collaborative "learning designers." Providing professional learning communities and peer-support networks enables teachers to share best practices and contextualize digital resources for their specific classrooms.

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Evidence-Based Scaling: Ensuring Value and Impact

Before procuring and scaling new educational technologies, governments must mandate rigorous, localized impact evaluations. Good, impartial evidence on the impact of educational technology is in short supply, and technology often evolves faster than it is possible to evaluate.

When sustainability and efficacy conditions are not met, public funds are squandered. In the United States, for example, analysis showed that up to 67% of educational software licenses purchased by school districts were never used. Furthermore, much of the existing evidence is generated by the very companies trying to sell the products, creating a severe conflict of interest.

To ensure value and impact, policymakers should:

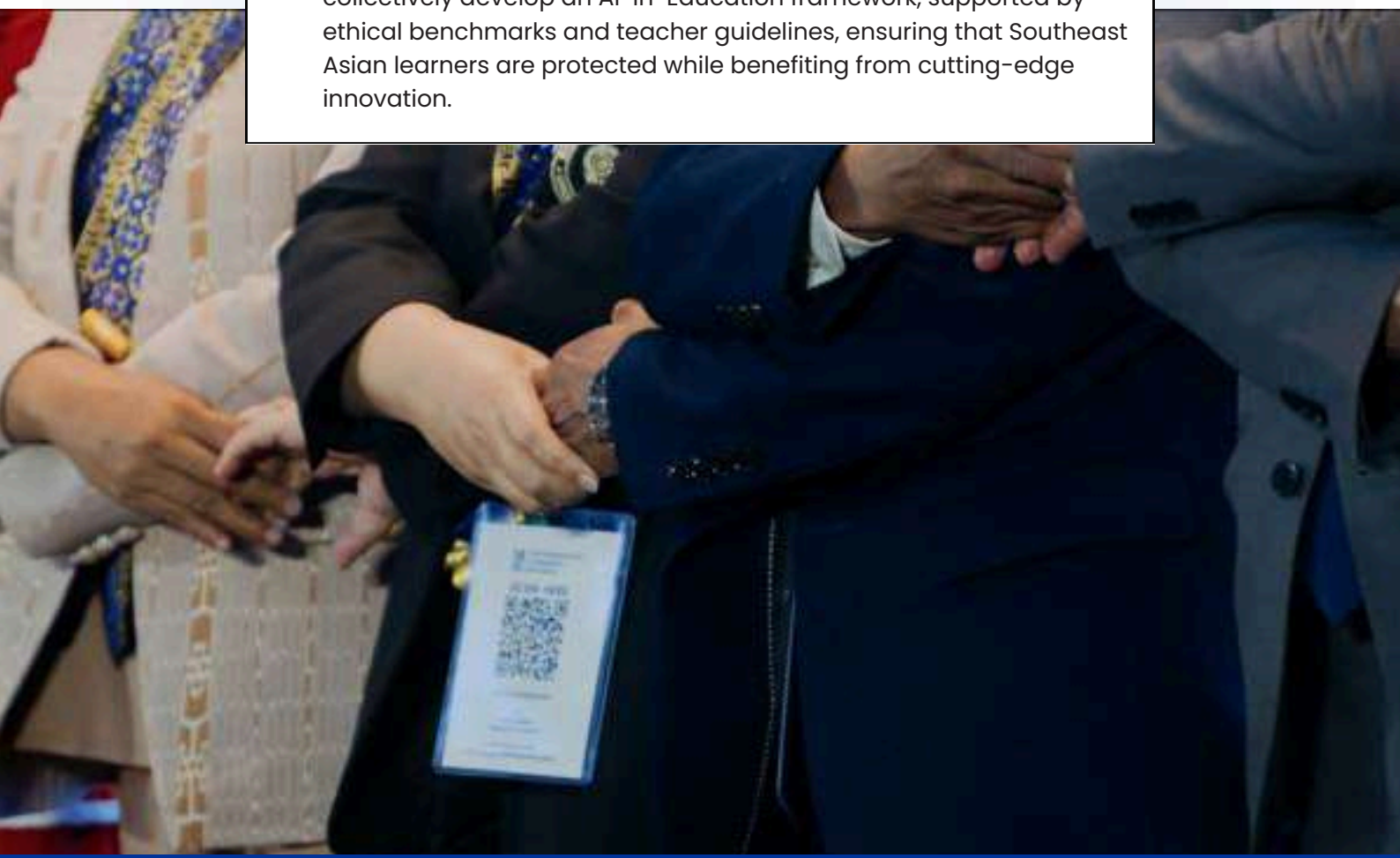
- **Rely on Independent Clearinghouses:** Governments should establish or consult independent bodies to evaluate education technology to ensure that procurement decisions are driven by proven pedagogical impact rather than aggressive industry marketing.
- **Mandate Impact Studies:** As recommended by the Philippine Department of Education and the Ministry of Education in Timor-Leste, impact studies and comparative research must be conducted regularly to assess the true relevance, progress, and effectiveness of EdTech programs before scaling them nationwide.

Regional Cooperation: Synergizing Cross-Border Initiatives

To meet the ambitious targets of SDG 4 by 2030, Southeast Asian nations must deepen cross-border collaboration. While the region is highly diverse, member countries share common challenges, including bridging the digital divide, mitigating teacher shortages, and navigating AI integration.

Through regional bodies the SEAMEO Secretariat and SEAMEO INNOTECH, the region has strategic opportunities to develop harmonized frameworks. Actionable steps for regional cooperation include:

- **Inter-Center Collaboration:** Organizing regional and sub-regional programs through inter-center collaboration allows countries to pool resources, tackle common educational issues holistically, and secure external funding more effectively.
- **Sharing Open Educational Resources (OERs):** Regional actors should champion the creation and translation of adaptable OERs. For instance, creating centralized digital platforms where research, learning materials, and policy recommendations can be freely accessed by educators across the region.
- **Developing a Harmonized AI Framework:** The region can collectively develop an AI-in-Education framework, supported by ethical benchmarks and teacher guidelines, ensuring that Southeast Asian learners are protected while benefiting from cutting-edge innovation.





CONCLUSION

A Shared Aspiration for the Future of Learning

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The educational landscape across Southeast Asia is undergoing a quiet but powerful transformation. As explored throughout this book, the journey toward digital integration is not a uniform path, but rather a complex tapestry woven from the unique socioeconomic, cultural, and infrastructural realities of each nation.

Despite the profound diversity of the region—from the highly networked smart classrooms of Singapore to the resilient, offline, and localized solutions deployed in Myanmar and rural Lao PDR—the education systems of Southeast Asia share a common, unifying aspiration: **to build inclusive, innovative, and sustainable futures for all learners.**

The Illusion of Technology as a Panacea

If the rapid shift to remote learning during the COVID-19 pandemic taught the global community anything, it is that technology alone cannot solve deeply rooted educational challenges. The widespread deployment of digital tools revealed their limits just as much as their potential. We must be wary of "technological solutionism" and recognize that technology offers real added value only when implemented to support effective learning.

As highlighted by UNESCO, the integration of technology must always remain a means to an end, never the end itself. It should act as a complement to the teacher, recognizing the fundamental truth that no screen or algorithm can ever replace the human connection, empathy, and moral guidance that educators provide. Ultimately, the overarching goal for policymakers and educators alike must be to ensure **that technology serves education, not the other way around.**

A Catalyst for Regional Collaboration

This book's chapters illustrate the bold steps that member countries are taking to navigate these new realities of learning, showcasing the unique strengths each contributes to the region.

However, translating individual national successes into a cohesive, future-ready landscape requires robust cross-border collaboration. Through regional frameworks and inter-center cooperation, educators and policymakers can collaborate across borders, sharing platforms, policies, and possibilities. Regional bodies and centers of excellence, such as SEAMEO INNOTECH, possess the mandate and technical expertise to serve as powerful catalysts for this collaborative advancement. By facilitating joint research, harmonizing ethical guidelines for Artificial Intelligence, and developing shared professional learning communities, the region can tackle its collective challenges holistically.



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Looking Forward

As Southeast Asia works together to achieve its vision of equitable and quality education by 2030, the region's strategies remind us that meaningful change begins with people - with teachers who care, communities who believe, and students who never stop learning.

This #TeachOnOurTerms book demonstrates that the future of education in Southeast Asia cannot rely on "technological solutionism" alone. True progress requires a shift from viewing tech as a substitute for human interaction to embracing it as a complement to the empathy and expertise of educators.

By reducing reliance on tech-centric models in favor of human-centric, evidence-based approaches, and by prioritizing the most marginalized learners, governments can successfully navigate the digital age. Through deliberate policy, shared regional intelligence, and an unwavering commitment to equity, we can ensure that Southeast Asian learners are equipped not only for today's challenges but for the uncertainties of tomorrow.

Contributors

1. SEAMEO INNOTECH GOVERNING BOARD MEMBERS (2024)



Ms. Jennifer Wong Yok Ting
Ministry of Education,
Brunei Darussalam



Dr. Set Seng
Ministry of Education, Youth, and Sports,
Cambodia



Prof. Dr. Ir Sri Suning Kusumawardani
Ministry of Education, Culture, Research and Technology,
Indonesia



Ms. Sitthattha Taikeophithoon
Ministry of Education and Sports,
Lao PDR



Ms. Aniza binti Kamarulzaman
Ministry of Education,
Malaysia



Dr. Nay Win Oo
University of Malanday,
Myanmar



Mr. Roger Masapol
Department of Education,
Philippines



Mrs. Angeline Huang
Ministry of Education,
Singapore



Ms. Kusuma Nawaphanpimol
Representative,
Ministry of Education
Thailand



Mr. Simão do Rosário
Ministry of Education, Youth and Sport,
Timor-Leste



Dr. Phan Minh Duc
Da Nang University,
Vietnam

2. EDTECH HUB PARTNERS

Ms. Sangay Thinley
Helpdesk Portfolio Manager

Ms. Haani Mazari
Asia Lead / Digital Personalised Learning Focal Point

Ms. Sarah Thang
Southeast Asia Regional Co-lead /
Helpdesk Portfolio and Delivery Manager

Contributors

3. CONTENT DEVELOPMENT TEAM - SEAMEO INNOTECH	
Dr. Majah-Leah V. Ravago Centre Director	*Advisor*
Mrs. Kochakorn Khattapan Acidre Centre Deputy Director	*Content Development Lead / Chapter Author*
Ms. Racel Ivy Francisco Senior Project Associate Educational Technology and Innovation Research Office	*Contributing Author*
Ms. Princess Balagbis Associate Office of the Centre Deputy Director	*Contributing Author / Copy Editor*
Ms. Lizelle Infante Associate Office of the Centre Deputy Director	*Field Editor*
Mr. Raphael Cada Senior Project Associate Office of the Centre Deputy Director	*Field Editor*

4. DESIGN AND LAYOUT - SEAMEO INNOTECH	
Atty. Christopher Lawrence Arnuco Editorial Coordinator	**Mr. Jelico Angelo Arriesgado** Editorial Coordinator
Ms. Mary Margarette Crisostomo Design and Layout	

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SEAMEO INNOTECH
Driving innovation for education

Commonwealth Avenue, Diliman,
Quezon City 1101, Philippines
Tel: (+632) 8-924-7681 to 84
Email: info@seameo-innotech.org
Website: www.seameo-innotech.org

Majah-Leah V. Ravago, PhD
Centre Director

Editorial Coordinators
Atty. Christopher Lawrence S. Arnuco
Jelico Angelo V. Arriesgado

Design and Layout
Mary Margarette M. Crisostomo